





**A Record of the March of Events of 1945**

---

1946  
BRITANNICA  
BOOK OF  
THE YEAR

- Prepared Under the Editorial Direction of  
Walter Yust, Editor of  
Encyclopædia Britannica

---

PUBLISHED BY  
**ENCYCLOPÆDIA BRITANNICA, INC.**  
CHICAGO • LONDON • TORONTO



# TABLE OF CONTENTS

List of Illustrations and Acknowledgment of Copyright	v
Introduction	viii
Editors and Contributors	ix
Calendar, 1946	xxii
Calendar of Events, 1945	I
Britannica Book of the Year	17
Index	857

## LIST OF ILLUSTRATIONS

(Acknowledgment of Copyright is to be found in the Parentheses. Asterisks denote Illustrations from *Life*)

<b>A</b> ccidents			
Evacuator for emergency fire rescues ( <i>Chicago Tribune</i> )	18		
<b>A</b> dvertising			
"Have you any use for a hero?" (Courtesy, Carstairs Bros. Distilling Co., Inc., and Lennen & Mitchell, Inc., Advertising Agency)	21		
"Hello Mom, it's Me!" (Courtesy, N. W. Ayer & Son, Inc., and the Bell Telephone System)	20		
<b>A</b> griculture			
German farmer harvesting wheat (Signal Corps Photo from Acme)	27		
German war prisoners preparing cranberry beds (Acme)	28		
Tobacco being strung in Georgia (Acme)	26		
<b>A</b> irports and Flying Fields			
Northwest Field on Guam (Acme)	35		
The "Lily," portable seadrome (British Official Photo from International)	34		
Alexei (International)	2		
<b>A</b> liens			
Bridges, Harry, signing naturalization papers (International)	40		
<b>A</b> llied Military Government			
Auxiliary police at Bayreuth, Germany (OWI Photo from Acme)	43		
German primary school (International)	44		
Aluminum, worker buffing a utensil made of (International)	45		
<b>A</b> merican Legion, veterans of World War II being sworn in as members of ( <i>Chicago Daily News</i> Photo)	47		
<b>A</b> merican Literature			
Corporal on Iwo Jima reading <i>Mr. Tutt Finds a Way</i> (Courtesy, Charles Scribner's Sons)	51		
<b>A</b> nti-Semitism			
Jewish slave labourers in Germany (Acme)	57		
<b>A</b> rabia			
President Roosevelt and King Ibn Saud (U.S. Signal Corps)*	59		
<b>A</b> rchaeology			
Excavations at Tell Hassuna ( <i>Journal of Near Eastern Studies</i> , University of Chicago Press and the Iraq Government Directorate General of Antiquities)	61		
Lowest excavation layer at Tell Hassuna ( <i>Journal of Near Eastern Studies</i> , University of Chicago Press and the Iraq Government Directorate General of Antiquities)	63		
<b>A</b> rchitecture			
Model for Puerto Rican hospital (Courtesy, Richard J. Neutra, architect and consultant)	65		
Model of proposed Guggenheim museum (Ben Schnall)*	65		
Model of proposed stadium in Brazil (Courtesy, Oscar Niemeyer Soares, architect; photo by Foto Jerry, Rio de Janeiro)	65		
Outdoor school in Puerto Rico (Courtesy, Richard J. Neutra, architect and consultant)	65		
<b>A</b> rgentina			
Demonstration by citizens of (Acme)	69		
Second birthday of Diligenti quintuplets of (Acme)	71		
<b>A</b> rt Exhibitions			
"Carson McCullers" (Poor) (From the Encyclopædia Britannica Collection of Contemporary American Painting)	74		
"Christ Mocked by Soldiers" (Rouault) (Courtesy, The Museum of Modern Art, New York)	74		
"Cub and Insect" (Austin) (From the Encyclopædia Britannica Collection of Contemporary American Painting)	74		
Rubens' "Holy Family" (Signal Corps Photo from Wide World)	73		
"Sharp Drummer" (Rose) (From the Encyclopædia Britannica Collection of Contemporary American Painting)	74		
<b>A</b> rt Galleries			
Forged "Vermeers" by Hans van Meegeren (International)	75		
<b>A</b> stronomy			
Partial eclipse of the sun (Acme)	78		
<b>A</b> tomic Bomb			
Aerial view of devastated Hiroshima (George Silk)*	83		
Diagram of a fission chain reaction	79		
Hiroshima, scene of first atomic bombing (Courtesy, The National Broadcasting Co.)	81		
Oak Ridge, Tenn., site of the Clinton Engineer Works (British Combine)	85		
Smoke rising above Nagasaki (3rd Photo Squadron—20th U.S.A.A.F.)*	84		
Test explosion in New Mexico (Official U.S. Army Photo)	ii		
The cyclotron (International)	80		
Australia, funeral services of Prime Minister John Curtin (Courtesy, Australian News & Information Bureau, N.Y.)	88		
Austria, the State Opera House in Vienna (Press Association, Inc.)	89		
<b>A</b> utomobile Industry			
Austin 4-door sedan (International)	90		
Ford Super de Luxe cars (Press Association, Inc.)	90		
Nash "600" (Courtesy, Nash-Kelvinator Corp.)	90		
Studebaker Champion (Courtesy, The Studebaker Corp.; photo by International)	90		
<b>A</b> viation, Civil			
C-32 "Packet," cargo transport (Courtesy, Fairchild Engine & Airplane Corp.; photo by International)	93		
"Hughes Hercules," cargo seaplane (Press Association, Inc.)	92		
The "Champion," low-priced private plane (Courtesy, Aeronca Aircraft Corp.)	94		
The "Ensign," low-wing monoplane (Courtesy, All American Aircraft, Inc.)	94		
<b>A</b> viation, Military			
B-32 Dominator, 4-engine heavy bomber (Courtesy, Consolidated Vultee Aircraft Corp.)	100		
C-74 "Globemaster," 4-engine transport (Courtesy, Douglas Aircraft Co., Inc.)	96		
Flying Fortress bombing Germany (British Combine)	99		
Japanese POW guiding Marine bombing mission on Mindanao (Marine Corps Photo from Acme)	99		
Japanese suicide plane ablaze (U.S. Navy from British Combine)	99		
P-80 "Shooting Star," jet-propelled fighter (Official U.S.A.A.F. Photo from Acme)	98		
Superfortresses flying past Fujiyama (21st Bomber Command Photo from Acme)	97		
The M-1, U.S. navy blimp (Official U.S. Navy Photo)	99		
XB-42 "Mixmaster," twin-engined bomber (Official Photo U.S.A.A.F.)	101		
<b>B</b> ank of Guam housed in a Quonset hut (Official U. S. Navy Photo)	105		
<b>B</b> aseball			
Hughes, Roy, Chicago Cub shortstop during a play in the World Series (International)	111		
Tomlin, Francine, practicing for sandlot tournament (Press Association, Inc.)	110		
<b>B</b> asketball, "Keaney ring" used for practice in (Gjon Mili)*	115		
Belgian children departing for rest in Switzerland (British Official Photo from Acme)	118		
Beneš, Eduard (International)	6		
<b>B</b> erlin Conference			
A session of the conference (Planet News from Black Star)	121		
Joseph Stalin, Harry S. Truman and Winston Churchill at Potsdam (U.S. Navy from Press Association, Inc.)	120		
Bevin, Ernest (British Official Photo from Acme)	10		
Black market vendor in Brussels (Acme)	129		
<b>B</b> orneo			
Australian gunner firing on Balikpapan (Australian Official Photo)	132		
Bornean woman frightened by Australian landings on Tarakan (Wide World)	132		
Invasion scene on Labuan Island (Press Association, Inc.)	132		
Oil tanks burning on Tarakan Island (Acme)	132		
Boxing match between Robert Wilson and Sgt. Truman Swingle (Acme)	136		
Boy scouts in China erecting a pontoon bridge (Wide World)	137		
Bradley, Omar (International)	6		
<b>B</b> razil			
Confetti showered on the streets of (Record from Black Star)	139		
Veterans returning to (Record from Black Star)	141		



Marshall, George C. (International) . . . . .	15	Paris, floodlighted Champs Élysées in (Planet News from Black Star) . . . . .	562	Soong, T. V., signing the United Nations charter (International) . . . . .	687
Meat in tins, for shipment to Europe through U.N.R.R.A. (National Film Board of Canada) . . . . .	465	Pastore, John O. . . . .	641	Spain, movie theatre in (Foto Rasgos from Black Star) . . . . .	692
Medicine		Patton, George S., Jr. (International) . . . . .	11	Stassen, Harold E. (International) . . . . .	10
Cold-room storage of fractionated blood (F. W. Goro)* . . . . .	467	Perón, Juan (International) . . . . .	14	Stettinius, Edward R., Jr. (International) . . . . .	7
Illinois prisoner being bitten by malaria-carrying mosquitoes (Myron Davis)* . . . . .	468	Peru, a tin plant in (Courtesy, Office of Inter-American Affairs) . . . . .	567	Stimson, Henry L., bidding farewell to many high ranking U.S. officers (Acme) . . . . .	699
Meitner, Lise (International) . . . . .	11	Peter II (Official U.S. Navy Photo from International) . . . . .	2	Striking oil workers at the Sinclair Refining Co., East Chicago, Ind. ( <i>Chicago Sun</i> ) . . . . .	703
Meteorology		Petroleum		Submarine Warfare	
Empire State building hit by lightning (Acme) . . . . .	473	Iranian women scooping up oil for home use (Dmitri Kessel)* . . . . .	569	German submarines in drydock at Bremen (U.S. Signal Corps from Wide World) . . . . .	707
Mexican airmen on duty in the Philippines (Acme) . . . . .	477	Testing new safety octane gasoline (Courtesy, Standard Oil Co. [N.J.]) . . . . .	570	Submarine control room (Official U.S. Navy Photo from Acme) . . . . .	707
Mitscher, Marc A., in a bosun's chair (Official U.S. Navy Photo from International) . . . . .	488	Philippines		Surrendered German submarine in U.S. waters (Press Association, Inc.) . . . . .	707
Molotov, Vyacheslav M. (International) . . . . .	15	Advancing on the Wawa dam in Luzon (Acme) . . . . .	572	Torpedoes being taken from a submarine tender (U.S. Navy Photo from Acme) . . . . .	707
Motion Pictures		Liberators of Cabanatuan prison (Carl Mydans)* . . . . .	573	Sugar in bags, for Dutch consumption (Press Association, Inc.) . . . . .	709
<i>A Tree Grows in Brooklyn</i> (Courtesy, 20th Century-Fox Film Productions) . . . . .	495	Reconstruction of Manila (Acme) . . . . .	574	Sultan, Daniel (International) . . . . .	2
<i>Ivan the Terrible</i> (Artkino-Mosfilm)* . . . . .	493	Photography		Supreme Court members with Pres. Truman (Acme) . . . . .	711
<i>Mildred Pierce</i> (Courtesy, Warner Bros. Pictures, Inc.) . . . . .	495	Two ladies entering the Metropolitan Opera House (Photo from <i>Naked City</i> by Weegee; courtesy Essential Books, publishers) . . . . .	576	Surplus jeeps parked at an English depot (International) . . . . .	715
<i>National Velvet</i> (Courtesy, Metro-Goldwyn-Mayer Pictures) . . . . .	495	Physical Medicine		Sweden	
<i>The Lost Weekend</i> (Courtesy, Paramount Pictures, Inc.) . . . . .	495	Legless convalescent learns to drive a car (Acme) . . . . .	579	Log piles for home fuel in a suburban street (Acme) . . . . .	716
<i>The Picture of Dorian Gray</i> (Courtesy, Metro-Goldwyn-Mayer Pictures) . . . . .	495	Navy veteran doing handiwork (Reproduced by special permission of the <i>Saturday Evening Post</i> ; copyright 1945 by The Curtis Publishing Co.; photo by Jack Manning-Pix) . . . . .	579	Swimming champion Ann Curtis with ex-title holder Brenda Helser (Press Association, Inc.)* . . . . .	717
Motor Transportation		One-armed golf game for convalescents (Acme) . . . . .	579	Telephone linemen repairing wires (International) . . . . .	726
Trucks taken over by U.S. army during Chicago teamsters' strike (International) . . . . .	497	Out-of-doors therapy for veterans (National Film Board of Canada) . . . . .	579	Television control room (Courtesy, Columbia Broadcasting System) . . . . .	727
Munitions of War		Veterans at a hospital dance (Acme) . . . . .	579	Theatre	
M18, recoilless rifle (U.S. Army Photo from Acme) . . . . .	501	Pittman, Vail (E. Charles D. Marriage, State Librarian, Carson City, Nev.) . . . . .	522	<i>The Glass Menagerie</i> (George Karger-Pix)* . . . . .	731
Proximity (VT) fuse (George Skadding)* . . . . .	503	Pius XII (Signal Corps Photo from International) . . . . .	7	Tuberculosis	
Radio controlled plane (Sam Shere)* . . . . .	501	Polish wall drawing in Warsaw (Acme) . . . . .	589	Roman orphans in Mussolini's villa (Vic Barnaba)* . . . . .	741
Rocket barrage from a navy landing craft (U.S. Navy from International) . . . . .	501	Post Office		Tuck, William M. (Courtesy, Colonial Studios, Richmond, Va.) . . . . .	804
Tank being loaded onto a C-54 "Skymaster" (Acme) . . . . .	501	Mail delivery on Luzon jungle trails (Acme) . . . . .	592	Tunnel construction by Seabees on Guam (Press Association, Inc.) . . . . .	742
Murray, Phillip ( <i>Pittsburgh Sun-Telegraph</i> from International) . . . . .	15	Negro WAC postal unit (British Combine) . . . . .	593	U.S.S.R.	
Music, servicemen at Paris Opera House listening to (B. M. Bernand from Black Star) . . . . .	506	Potatoes brought to Berlin on British army trucks (Planet News from Black Star) . . . . .	594	Young woman of the soviet army directing traffic in Lublin (G. Zelma from Sovfoto)* . . . . .	745
National Labor Relations Board conducting a strike poll (Acme) . . . . .	510	Power Engineering		United Nations Conference	
National Parks and Monuments		Jet-propelled plane engine (Acme) . . . . .	596	Pres. Truman addressing the final session (Acme) . . . . .	751
Fort Frederica, Georgia (Courtesy, National Park Service) . . . . .	512	Prisoners of War		United Nations Relief and Rehabilitation Administration	
Navies of the World		Allied prisoners at Yokohama wave to navy planes overhead (European) . . . . .	605	Bread distribution at Weimar, Germany (Acme) . . . . .	776
Delivering supplies to beaches of Okinawa (Official Coast Guard Photo) . . . . .	515	Germans leaving Vienna under Russian guard (International) . . . . .	605	United States	
Duck taking off from an LST (Official Coast Guard Photo) . . . . .	515	Germans watching nazi horror film (Jack Gould from Black Star) . . . . .	606	Funeral cortege for Pres. Roosevelt (International) . . . . .	781
Firefighting aboard the U.S.S. "Saratoga" (Official U.S. Navy Photo) . . . . .	515	Japanese on Guam hear surrender news (U.S. Navy Photo from Acme) . . . . .	605	New presidential flag (Acme) . . . . .	783
Part of the surrendered Japanese Fleet (International) . . . . .	515	Russians liberated in Germany by U.S. troops (International) . . . . .	605	U.S.S. "West Point" bringing troops from Europe docks at New York (Official U.S. Navy Photo) . . . . .	17
U.S. aircraft carrier "Franklin" (U.S. Navy Photo from Acme) . . . . .	515	Psychology		Urey, Harold C. (International) . . . . .	10
Netherlands		Packets of salt dropped on Burma (Acme) . . . . .	610	Vargas, Getulio (International) . . . . .	14
Dutch children promenade with U.S. soldiers (Acme) . . . . .	519	Streamers announcing Japanese surrender dropped on Luzon (International) . . . . .	611	Venezuelan rebels active in the military coup at Caracas (International) . . . . .	799
New Guinea, survivors of plane crash over (Acme) . . . . .	523	Radar		Vinson, Fred M. (International) . . . . .	10
Newspapers		Antennae atop a U.S. carrier (Official U.S. Navy Photo) . . . . .	619	Wallace, Henry A. (International) . . . . .	2
Pyle, Ernie, on Okinawa (Official U.S. Marine Corps Photo) . . . . .	527	Drawing illustrating radar (James Lewicki)* . . . . .	618	Warfare, Incendiary	
News photographs, prizewinning		Radar plotting board (Official U.S. Navy Photo) . . . . .	617	Flame-throwing tanks (W. Eugene Smith)* . . . . .	811
"Daddy, Daddy, Daddy" ( <i>Houston Post</i> Photo by Caroline Valenta) . . . . .	529	Radio, Mayor LaGuardia reading the "funnies" over the (International) . . . . .	623	War Production	
"Maklin (Porky) Hall, Strike Breaker" ( <i>Los Angeles Daily News</i> Photo by Gib Brush) . . . . .	529	Railroad reconstruction work in France (European) . . . . .	627	German underground assembly room for jet plane fuselages (International) . . . . .	816
Raising the flag at Iwo Jima (Press Association, Inc. Photo by Joe Rosenthal) . . . . .	528	Rayon and Other Synthetic Fibres		Propeller blade for a Liberty ship (Acme) . . . . .	815
"Smash Hit" (Press Association, Inc. Photo by Matthew Zimmerman) . . . . .	528	Nylon yarn feeding into a cord loom (Courtesy, E. I. Du Pont de Nemours & Co., Inc.; photo by Press Association, Inc.) . . . . .	631	War Relocation Authority	
Nimitz, Chester W. (U.S. Navy from International) . . . . .	14	Red Cross, Filipino orphan with gift from the Junior (Courtesy, American Red Cross; photo by Bullard) . . . . .	635	Family leaving a Japanese relocation centre (Acme) . . . . .	818
New York City		Refugees fleeing before the Russians to Silesia (Press Association, Inc.) . . . . .	636	Wavell, Viscount, with Indian leaders in Simla (Raj Gopal from Black Star) . . . . .	821
Empire State Building aflame after plane crash (International) . . . . .	532	Religion		Williams, Arnold (Photo by Sigler) . . . . .	381
Northwest Territories		Easter services at sea (U.S. Coast Guard from Acme) . . . . .	639	Women's Army Corps parade in Paris (U.S. Signal Corps Photo) . . . . .	830
El Dorado Mining and Refining (Courtesy, Department of Mines and Resources, Bureau N.W.T. and Yukon Affairs) . . . . .	537	Mass on Ie Jima with improvised altar (U.S. Coast Guard from Acme) . . . . .	638	World War II	
Norwegian informer identifies Gestapo agents (Press Association, Inc.) . . . . .	539	Renner, Karl (International) . . . . .	6	Coast guard lookout (Official Coast Guard Photo) . . . . .	848
Okinawa		Roads and Highways		Marines hold their ears against barrage din (Official U.S. Marine Corps Photo) . . . . .	846
Front line soldiers listen to radio on V-E day (Signal Corps Photo from Acme) . . . . .	546	Section of the Stilwell road (U.S. Signal Corps from Wide World) . . . . .	644	Slackened oil lines between a carrier and a destroyer at sea (International) . . . . .	843
Oppenheimer, J. Robert (Acme) . . . . .	10	Roman Catholic Church		The German surrender at Reims (International) . . . . .	841
Pacifism		The relic of St. Stephen being returned to Hungary (John Phillips)* . . . . .	647	The Japanese surrender aboard the U.S.S. "Missouri" (Official U.S. Navy Photo from International) . . . . .	847
Smoke-jumper combating forest fires (U.S. Forest Service Photo) . . . . .	552	Roosevelt, Eleanor (International) . . . . .	15	Wounded marines receiving plasma on Iwo Jima (Official U.S. Marine Corps Photo) . . . . .	845
Painting		Rubber and canvas dummy fleet on English beaches (Official U.S. Army Photo from Acme) . . . . .	651	X-raying an Italian child for tuberculosis (OWI Radiophoto from Acme) . . . . .	849
"Between Trains" (Niles) (Courtesy, National Gallery of Art, Washington, D.C.) . . . . .	554	Sculpture of Ernest Bevin with artist Jacob Epstein (International) . . . . .	659	Yalta	
Oil painting (Preyer) (Courtesy, <i>Scholastic Magazines</i> ) . . . . .	554	Seabees diving off a tanker (Official U.S. Coast Guard from International) . . . . .	660	Winston Churchill, Franklin D. Roosevelt and Joseph Stalin at the conference near (U.S. Signal Corps)* . . . . .	851
"Sentimental Moment" (Guston) (Courtesy, Carnegie Institute and the Midtown Galleries, New York) . . . . .	554	Secret Service protection for transport of United Nations charter (Army Air Corps) . . . . .	661	Yugoslav partisan presenting a flag to a New Zealand tankman (European) . . . . .	853
"Water" (Sheeler) (Courtesy, The Downtown Gallery, New York) . . . . .	554	Selective Service		Zoology	
Panama canal, upended floating drydock floating through the (Official U.S. Navy Photo from International) . . . . .	558	Homecoming U.S. veteran at a N.Y. dock (International) . . . . .	663	Polar bear with her cub ( <i>Milwaukee Journal</i> Photo by Harris W. Nowell)* . . . . .	856
		Shipbuilding yard workers celebrate V-J day (International) . . . . .	669		
		Shipping Merchant Marine			
		Disarming of a Liberty ship (Acme) . . . . .	670		
		Simpson, William H. (International) . . . . .	3		



---

# INTRODUCTION

---

**W**ITH the close of the year 1945—the year of the war's end and of the atomic bomb—men and women hoped for good will and peace and, as usual, didn't quite know where to find them. This ninth of a series of annuals which reflects the events and decisions of a most critical decade in the life of the world carries, among many other matters, the plans and agreements of the Conference at San Francisco, Bretton Woods, Yalta, Potsdam and Chapultepec. In this volume is to be found, no doubt, promise of an effective design for security against the threatening disasters of the future. But who is wise enough to recognize this promise? Who disinterested and strong enough to follow the design?

Confused by the conflict of loosely defined ideologies, we have at the moment no commonly accepted meanings for hopeful words like truth, freedom, tolerance, liberalism, democracy. And the pattern of peaceful international relations cannot be perfected unless there is a trustworthy language for communication.

Men and women, aware of the world's tragic problems, have a right to expect honesty in our intercourse. In the face of the threat of the atomic bomb we can afford no evasions, no semitruths—the spokesmen of the world must talk turkey and there must be not only an earnest desire for peace everywhere, but courage and patience to search for it.

It is clearly indicated that compromises must be made to keep peace, but never in anything less than justice dictates. The world surely cannot survive another war.

The Book of the Year reflects whatever persons think and do. Courage and sacrifice and honesty can be found in this book. That cruelty and crime, and subterfuge and lies are also herein reflected is the world's fault, not the book's.

WALTER YUST



# EDITORS AND CONTRIBUTORS

WALTER YUST, EDITOR OF ENCYCLOPÆDIA BRITANNICA  
AND OF THE BRITANNICA BOOK OF THE YEAR

HOWARD E. KASCH, *Assistant Editor of the Book of the Year*

## LIBRARIAN CONSULTANTS

ANNE FRASER LEIDENDEKER, *Department Librarian, Science and Industry Department, Public Library, Los Angeles, Calif.*  
CHARLES F. MCCOMBS, *Superintendent, Main Reading Room, New York Public Library.*  
WINIFRED VER NOOY, *Reference Librarian, University of Chicago.*

(Initials and names of contributors to the Britannica Book of the Year with the principal articles written by them. The arrangement is alphabetical by initials.)

- A.B.Bu.** Mississippi  
A. B. BUTTS. Chancellor, University of Mississippi, University, Miss.
- A.Bh.** Exchange Stabilization Funds; etc.  
ANTONIN BASCH. Lecturer in Economics, Columbia University, New York, N.Y. Author of *The Danube Basin and the German Economic Sphere*; etc.
- A.B.Ho.** Paints and Varnishes  
A. B. HOLTON. Superintendent, Technical Service Department, The Sherwin-Williams Co., Cleveland, Ohio.
- Ab.W.** Public Health Engineering  
ABEL WOLMAN. Professor of Sanitary Engineering, The Johns Hopkins University, Baltimore, Md.
- A.C.Ch.** X-Ray  
ARTHUR C. CHRISTIE, M.D. Professor of Clinical Radiology, Georgetown University Medical School, Washington, D.C.
- A.C.I.** Physiology  
A. C. IVY, M.D. Nathan Smith Davis Professor in Physiology and Professor of Pharmacology, Northwestern University Medical School, Chicago, Ill.
- A.Da.** Football (*in part*)  
ALLISON DANZIG. Member of Sports Staff, *The New York Times*, New York, N.Y. Author of *The Racquet Game*; etc.
- A.E.Du.** Decorations, Medals and Badges—Military, Naval and Civil  
ARTHUR E. DuBOIS. Chief, Heraldic Section, Office of the Quartermaster General, War Department, Washington, D.C.
- A.E.Gi.** Printing Office, U. S. Government  
AUGUSTUS E. GIEGENGACK. Public Printer of the United States.
- A.E.Pn.** Baseball  
ARTHUR E. PATTERSON. Manager, Service Bureau, The National League of Professional Base Ball Clubs, New York, N.Y.
- A.E.Sh.** Chemotherapy  
AUSTIN E. SMITH, M.D. Secretary, Council on Pharmacy and Chemistry, American Medical Association. Professorial Lecturer, Department of Pharmacology, The University of Chicago, Chicago, Ill.
- A.G.Bn.** Dyestuffs  
ANSCO G. BRUINIER, JR. Technical Advertising Manager, Dyestuffs Division, Organic Chemicals Department, E. I. du Pont de Nemours & Company, Inc., Wilmington, Del.
- A.G.S.** Insurance (*in part*)  
ANTONE G. SINGSEN. Public Relations Department, Blue Cross Commission, American Hospital Association, Chicago, Ill.
- A.J.A.** Social Security (*in part*)  
ARTHUR J. ALTMEYER. Chairman, Social Security Board, Federal Security Agency, Washington, D.C.
- A.J.Hp.** New Zealand, Dominion of  
ANGUS JOHN HARROP. Representative in England of the University of New Zealand, 1931–43. Editor of *The New Zealand News*, London, Eng.
- A.J.Li.** Liquors, Alcoholic (*in part*)  
ALFRED J. LIEBMANN. President, Schenley Research Institute, Lawrenceburg, Ind.
- A.J.Lo.** Birth Statistics; etc.  
ALFRED J. LOTKA. Assistant Statistician, Metropolitan Life Insurance Company, New York, N.Y.
- A.J.M.** Pacifism  
A. J. MUSTE. Executive Secretary, Fellowship of Reconciliation. Co-editor, *Fellowship*. Associate Editor, *The Presbyterian Tribune*.
- A.J.Md.** Combined Chiefs of Staff, The  
ANDREW J. MCFARLAND. Brigadier General, U.S.A. United States Secretary, The Combined Chiefs of Staff.
- A.K.B.** Horse Racing (*in part*)  
A. K. BRYCESON. "Hotspur" of *The Daily Telegraph and Morning Post*, London, Eng.
- A.Le.R.L.** Negroes (American)  
ALAIN LEROY LOCKE. Professor of Philosophy, Howard University, Washington, D.C. Author of *Race Contacts and Interracial Relations*; *The New Negro*; *The Negro in America*; *The Negro and His Music*; etc.
- A.M.Ds.** Municipal Government (*in part*)  
AUDREY M. DAVIES. Librarian, Institute of Public Administration, New York, N.Y.
- A.Mu.** Dance (*in part*)  
ARTHUR MURRAY. President, National Institute of Social Dancing. Author of *How to Become a Good Dancer*; *Modern Dancing*; *Dance Book*; etc.
- A.O.** Surgery  
ALTON OCHSNER, M.D. Director, Section on Surgery, Ochsner Clinic, New Orleans, La. William Henderson Professor of Surgery, School of Medicine, Tulane University of Louisiana, New Orleans, La.
- A.P.Cw.** Food Research; etc.  
ARTHUR P. CHEW. Special writer, Office of Information, U.S. Department of Agriculture, Washington, D.C.
- A.R.N.** North Carolina  
ALBERT RAY NEWSOME. Professor and Head of the Department of History, University of North Carolina, Chapel Hill, N.C.
- A.Rt.** Colorado  
ALIOUS ROCKETT. Director, The Colorado State Planning Commission, Denver, Colo.
- A.T.M.** Irrigation  
A. T. MITCHELSON. Senior Irrigation Engineer, Division of Irrigation, Soil Conservation Service, U.S. Department of Agriculture, Berkeley, Calif.
- A.V.O.** North Dakota  
A. V. OVERN. Visiting Professor of Educational Administration, Pennsylvania State College, State College, Pa. Author of *The Teacher in Modern Education*; etc.

- E.H.Co.** Gold (in part)  
EDWARD H. COLLINS. Associate Financial Editor, *New York Herald Tribune*, New York, N.Y. Author of *Inflation and Your Money*.
- E.H.He.** Business Review; Prices; etc.  
ERNEST HERMAN HAHNE. Professor of Economics, Northwestern University, Evanston, Ill.
- E.H.Kr.** Mineralogy  
EDWARD HENRY KRAUS. Dean of the College of Literature, Science and the Arts, University of Michigan, Ann Arbor, Mich.
- E.I.F.** Horticulture  
E. I. FARRINGTON. Secretary, Massachusetts Horticultural Society and Editor of *Horticulture*.
- E.J.C.** Canning Industry  
EDWIN J. CAMERON. Director, Research Laboratories, National Canners Association.
- E.J.H.** Civilian Defense (in part)  
SIR ERIC JOHN HODSOLL. Wing Commander, R.A.F. (Retired). Inspector General of Civil Defense, Ministry of Home Security.
- E.Js.** French Literature  
EUGENE JOLAS. Editor of *Transition*. Author of *Mots-Déluge; I Have Seen Monsters and Angels; Words from the Deluge; Anthologie de la Nouvelle Poesie Americaine*.
- E.J.Te.** Minnesota  
EDWARD J. THYE. Governor of Minnesota.
- E.L.R.** St. Louis  
E. LANSING RAY. President and Editor, *St. Louis Globe-Democrat*, St. Louis, Mo.
- E.M.Hn.** Institutum Divi Thomae  
EDGAR M. HELTMAN. Assistant to the Dean, Institutum Divi Thomae, Cincinnati, Ohio.
- E.Mn.** Pennsylvania  
EDWARD MARTIN. Governor of Pennsylvania.
- E.O.E.** Entomology  
EDWARD OLIVER ESSIG. Head, Division of Entomology and Parasitology, University of California, Berkeley, Calif.
- E.P.A.** Wisconsin  
EDWARD P. ALEXANDER. Director, Wisconsin State Historical Society, Madison, Wis.
- E.P.J.** Arthritis; Cold, Common  
EDWIN P. JORDAN, M.D. Associate Editor, *The Journal of the American Medical Association*, Chicago, Ill. Editor, *Standard Nomenclature of Disease*.
- E.P.Jo.** Diabetes  
E. P. JOSLIN, M.D. Professor Emeritus of Clinical Medicine, Harvard University Medical School; Medical Director, George F. Baker Clinic, New England Deaconess Hospital, Boston, Mass.
- E.R.Ck.** Masonic Fraternity  
EDWARD R. CUSICK. Chairman, Metropolitan Masonic Study Club, New York, N.Y.
- E.R.G.** Marriage and Divorce  
ERNEST R. GROVES. Professor of Sociology, University of North Carolina, Chapel Hill, N.C. Author of *The American Family; Marriage; The Family and Its Social Functions; Christianity and the Family*; etc.
- E.R.H.** Fires and Fire Losses; etc.  
EDWARD R. HARDY. Secretary-Treasurer, Insurance Institute of America, New York, N.Y.
- E.S.L.** Shipping, Merchant Marine (in part); etc.  
EMORY S. LAND. Rear Admiral, U.S.N. Former Chairman, U.S. Maritime Commission, Washington, D.C.
- E.T.** Kentucky  
EDWARD TUTHILL. Professor of History, University of Kentucky, Lexington, Ky., 1908-1945.
- E.Ts.** Agriculture (in part)  
EDGAR THOMAS. Lecturer and Advisory Officer in Agricultural Economics, University of Reading, Reading, Eng.
- E.W.H.** Inter-American Defense Board  
EDMUND W. HILL. Major General, U.S.A. Coordinator, Inter-American Defense Board, Washington, D.C.
- E.W.Py.** Allied Commission on Reparations  
EDWIN W. PAULEY. United States Representative, Allied Commission on Reparations.
- E.W.Sg.** Berlin Conference (in part)  
E. WILDER SPAULDING. Chief, Division of Research and Publication, Department of State, Washington, D.C.
- F.Aa.** Spanish-American Literature  
FERNANDO ALEGRÍA. Teaching Fellow, Department of Spanish and Portuguese, University of California, Berkeley, Calif. Author of *Ideas Estéticas de la Poesía Moderna*, etc.
- F.A.J.** Inter-American Affairs, Office of  
FRANCIS A. JAMIESON. Acting Director, Office of Inter-American Affairs, Washington, D.C.
- F.A.Sw.** Art Exhibitions; etc.  
FREDERICK A. SWEET. Associate Curator of Painting and Sculpture, The Art Institute of Chicago, Chicago, Ill.
- F.C.Bg.** Bread and Bakery Products  
FRANKLIN C. BING. Director, American Institute of Baking.
- F.C.Bo.** Shipbuilding (in part); etc.  
FRANK C. BOWEN. Editor of *Merchant Ships of the World*. Author of *The Golden Age of Sail*; etc.
- F.C.W.** Cancer  
FRANCIS CARTER WOOD, M.D. Director of Laboratories, St. Luke's Hospital, New York, N.Y. Emeritus Director, Cancer Research, Columbia University, New York, N.Y.
- F.D.N.** Seventh Day Adventists  
FRANCIS D. NICHOL. Editor, *Review and Herald*. Author of *The Midnight Cry; The Answer to Modern Religious Thinking*; etc.
- F.D.R.** New Mexico  
FRANK D. REEVE. Associate Professor of History, University of New Mexico, Albuquerque, N.M.
- F.D.S.** Greenland; Sweden; etc.  
FRANKLIN D. SCOTT. Professor of History, Northwestern University, Evanston, Ill. Author of *Bernadotte and the Fall of Napoleon*; etc.
- F.E.McM.** Navies of the World  
FRANCIS E. McMURTRIE. Editor, *Jane's Fighting Ships*. Naval and Shipping Correspondent of the *Sunday Express*, London, Eng.
- F.E.R.** Michigan, University of  
FRANK E. ROBBINS. Assistant to the President, University of Michigan, Ann Arbor, Mich.
- F.H.F.** Air Conditioning  
F. H. FAUST. Commercial Engineer, Air Conditioning and Commercial Refrigeration Department, General Electric Co., Bloomfield, N.J.
- F.J.B.** Relief  
FRANK J. BRUNO. Professor of Applied Sociology and Chairman, Department of Social Work, Washington University, St. Louis, Mo.
- F.J.Se.** Vitamins  
FREDERICK J. STARE, M.D. Associate Professor of Nutrition, Schools of Medicine and Public Health, Harvard University, Boston, Mass.
- F.J.W.** Secret Service, U.S.  
FRANK J. WILSON. Chief, United States Secret Service, Treasury Department, Washington, D.C.
- F.L.W.** Jewish Welfare Board, National  
FRANK L. WEIL. President, The National Jewish Welfare Board. Vice-President, United Service Organizations, Inc.
- F.M.B.** Marine Biology  
FRANCIS MARSH BALDWIN. Professor and Chairman, Biology Division; Sometime Director, Marine Biological Station, University of Southern California, Los Angeles, Calif.
- F.M.R.** Insurance (in part)  
F. M. ROESING. Manager, Automobile Department, Continental Casualty Company, Chicago, Ill.
- F.M.V.T.** Geology (in part)  
FRANCIS M. VAN TUYL. Professor and Head of the Department of Geology, Colorado School of Mines, Golden, Colo.
- F.Nn.** Seismology  
FRANK NEUMANN. Chief, Section of Seismology, U.S. Coast and Geodetic Survey, U.S. Department of Commerce, Washington, D.C.
- F.R.I.** Electrical Industries  
FRANK R. INNES. Associate Editor, *Electrical World*.
- Fr.Ro.** Hand-ball  
FREDERICK ROTHE. Chairman, Committee on Handball, New York Athletic Club, New York, N.Y.
- Fr.T.** Painting  
FREDERIC TAUBES. Formerly Carnegie Visiting Professor and Resident Painter, University of Illinois, Urbana, Ill. Author of *Studio Secrets*; etc.
- F.W.N.** Yeast  
FREDERIC W. NORDSIEK. Assistant Director, Department of Applied Research, Standard Brands Inc., New York, N.Y.
- F.W.Rr.** Meteorology (in part)  
F. W. REICHELDERFER. Chief, Weather Bureau, U.S. Department of Commerce, Washington, D.C.
- G.A.Ro.** Copper; Nickel; etc.  
GAR A. ROUSH. Editor, *Mineral Industry*, New York, N.Y. Author of *Strategic Mineral Supplies*.



- G.A.Si.** United Church of Canada  
GORDON A. SISCO, D.D. Secretary, The United Church of Canada.
- G.B.En.** Alimentary System, Disorders of  
GEORGE B. EUSTERMAN, M.D. Head, Section in Medicine, Mayo Clinic, Rochester, Minn. Professor of Medicine, Mayo Foundation, University of Minnesota Graduate School, Minneapolis, Minn.
- G.D.H.C.** Labour Party; etc.  
GEORGE DOUGLAS HOWARD COLE. Chichele Professor of Social and Political Theory, Oxford, Oxford, Eng. Author of *The World of Labour*; *Self-Government in Industry*; *Guild Socialism Restated*; etc.
- G.F.Hy.** Munitions of War (in part)  
GEORGE FREDERICK HUSSEY, JR. Vice-Admiral, U.S.N. Chief of Bureau of Ordnance, Navy Department, Washington, D.C.
- G.Gr.** National Geographic Society  
GILBERT GROSVENOR. President and Editor, National Geographic Society, Washington, D.C.
- G.I.Q.** Archaeology (in part)  
GEORGE I. QUIMBY, JR. Curator of Exhibits, Department of Anthropology, Chicago Natural History Museum, Chicago, Ill. Author of *Aleutian Islanders*.
- G.J.B.F.** Warfare, Incendiary  
GEORGE J. B. FISHER. Colonel, U.S.A. Chemical officer, Third Army. Former Editor, *Chemical Warfare Magazine*. Author of *Incendiary Warfare*.
- G.J.N.** Theatre (in part)  
GEORGE JEAN NATHAN. Critic. Author of *The Critic and the Drama*; *Encyclopaedia of the Theatre*; *Materia Critica*; etc.
- G.J.R.** Netherlands (in part); etc.  
G. J. RENIER. Reader in Dutch History and Institutions, University of London, London, Eng.
- G.L.Bs.** Radio (in part); etc.  
GEORGE LISLE BEERS. Assistant Director of Engineering, RCA Victor Division of Radio Corporation of America, New York, N.Y.
- G.L.Kk.** United Nations Conference on International Organization (in part)  
GRAYSON L. KIRK. Professor of Government, Columbia University, New York, N.Y. Executive Officer, Commission III, San Francisco Conference. Staff Member, United States Delegation, Dumbarton Oaks Conversations.
- G.L.W.** Refugees  
GEORGE L. WARREN. Executive Secretary, President's Advisory Committee on Political Refugees, New York, N.Y.
- G.M.C.** Ear, Nose and Throat, Diseases of  
GEORGE MORRISON COATES, M.D. Professor of Otorhinology, Graduate School of Medicine, University of Pennsylvania, Philadelphia, Pa.
- G.McA.** Housing (in part)  
GILBERT McALLISTER. Chairman, The London Planning Group. Honorary Treasurer, Town and Country Planning Association, London, Eng. Author of *Town and Country Planning*; *Homes, Town and Countryside*; etc.
- G.M.Hy.** Newspapers and Magazines (in part)  
GRANT M. HYDE. Director, School of Journalism, University of Wisconsin, Madison, Wis.
- G.M.J.** Interior Decoration  
G. McSTAY JACKSON. President, McStay Jackson Co., Chicago, Ill.
- G.M.M.** Aviation, Civil  
GREER M. MURPHY. Attorney, Civil Aeronautics Board, Washington, D.C.
- G.N.P.** British Columbia  
G. NEIL PERRY. Director, Bureau of Economics and Statistics, Province of British Columbia, Victoria, B.C.
- G.P.** Television (in part)  
G. PARR. Editor, *Electronic Engineering*. Hon. Secretary, The Television Society.
- G.P.DuS.** Zoology (in part)  
GRAHAM P. DuSHANE. Associate Professor of Zoology, The University of Chicago, Chicago, Ill.
- G.PI.** Securities and Exchange Commission  
GANSON PURCELL. Chairman, Securities and Exchange Commission, Philadelphia, Pa.
- G.R.G.** Toronto  
GEORGE R. GEARY. Barrister and Solicitor, Toronto, Ont.
- G.St.** Russian Literature  
GLEB STRUVE. Reader in Russian Literature, School of Slavonic and East European Studies, University of London, London, Eng. Author of *Soviet Russian Literature*.
- G.W.McC.** Pennsylvania, University of  
GEORGE W. McCLELLAND. President, University of Pennsylvania, Philadelphia, Pa.
- H.A.C.** Deafness  
HOWARD A. CARTER. Secretary, Council on Physical Medicine, American Medical Association.
- H.A.H.** Arizona  
HOWARD ARCHIBALD HUBBARD. Professor of History, University of Arizona, Tucson, Ariz.
- Ha.H.** Friends, Religious Society of  
HAROLD HADLEY. Associate Secretary, American Section, Friends World Committee for Consultation.
- H.A.Mu.** Insurance (in part)  
H. A. MULLIGAN. President, War Damage Corporation, Washington, D.C.
- H.A.Wm.** Great Britain and Northern Ireland, United Kingdom of (in part)  
HUGH ARCHIBALD WYNDHAM. Author of *The Atlantic and Slavery*; *Native Education*; etc.
- H.Bec.** Sociology  
HOWARD BECKER. Professor of Sociology, University of Wisconsin, Madison, Wis. Co-author of *Systematic Sociology*; *Social Thought from Lore to Science*; etc.
- H.Bi.** American Literature  
HERSCHEL BRICKELL. Editor, *O. Henry Memorial Award Prize Stories*; etc. Chief, Division of the International Exchange of Persons, Department of State, Washington, D.C.
- H.Bm.** Red Cross (in part)  
HOWARD BONHAM. Vice-Chairman in Charge of Public Relations, American Red Cross.
- H.Bu.** Epidemics and Public Health Control  
HERMAN N. BUNDESEN, M.D. President, Board of Health, Chicago, Ill. Author of *The Growing Child*; etc.
- H.C.D.** Education (in part)  
HAROLD COLLETT DENT. Editor of *The Times Educational Supplement*, London, Eng.
- H.C.Lh.** Medicine (in part)  
HAROLD C. LUETH, M.D. Colonel, M.C.A.U.S. Associate Professor of Medicine, College of Medicine, University of Illinois, Chicago, Ill. Author of *Diseases of the Coronary Arteries*.
- H.D.G.** Candy  
H. DON GUSSOW. Publisher and Editor of *Candy Industry*, New York, N.Y.
- H.E.Ba.** Flour and Flour Milling  
HARRY E. BARNARD. Former Research Director, National Farm Chemurgic Council.
- He.Br.** Banking (in part)  
HENRY BRUÈRE. President, Bowery Savings Bank, New York, N.Y.
- H.F.D.** Smith College  
HALLIE FLANAGAN DAVIS. Dean and Director of Theatre, Smith College, Northampton, Mass.
- H.F.Ms.** European Advisory Commission  
H. FREEMAN MATTHEWS. Director, Office of European Affairs, Department of State, Washington, D.C.
- H.Fx.** Dermatology  
HOWARD FOX, M.D. Emeritus Professor of Dermatology and Syphilology, College of Medicine, New York University, New York, N.Y. Author of *Skin Diseases in Infancy and Childhood*; etc.
- H.G.Rn.** India (in part); etc.  
H. G. RAWLINSON. Former Principal, Deccan College, Poona, India.
- H.H.A.** Aviation, Military (in part)  
HENRY H. ARNOLD. General, U.S.A. Commanding General, Army Air Forces, Washington, D.C.
- H.H.Be.** Soil Erosion and Soil Conservation  
HUGH H. BENNETT. Chief, Soil Conservation Service, U.S. Department of Agriculture, Washington, D.C.
- H.H.L.** United Nations Relief and Rehabilitation Administration  
HERBERT H. LEHMAN. Director General, United Nations Relief and Rehabilitation Administration, Washington, D.C.
- H.J.A.** Drugs and Drug Traffic (in part)  
H. J. ANSLINGER. Commissioner of Narcotics, Treasury Department, Washington, D.C. Author of *The Physician and the Federal Narcotic Law*.
- H.J.De.** Washington  
HERMAN J. DEUTSCH. Professor of History, State College of Washington, Pullman, Wash.

- H.Jo.** Federal Deposit Insurance Corporation  
HOMER JONES. Chief, Division of Research and Statistics, Federal Deposit Insurance Corporation, Washington, D.C.
- H.Js.** Town and Regional Planning; etc.  
HARLEAN JAMES. Executive Secretary, American Planning and Civic Association, Washington, D.C.
- H.Ke.** New York  
HAROLD KELLER. Deputy Commissioner and Director of State Publicity, Department of Commerce, State of New York, Albany, N.Y.
- H.Ko.** Communism; Czechoslovakia; etc.  
HANS KOHN. Sydenham Clark Parsons Professor of History, Smith College, Northampton, Mass. Author of *The Idea of Nationalism, a Study of Its Origins and Background*; etc.
- H.Ks.** Chambers of Commerce (in part)  
HENRY KEARNS. President, The United States Junior Chamber of Commerce.
- H.L.** Burma  
SIR HARRY LINDSAY. Director, Imperial Institute, South Kensington, London, Eng. Trade Commissioner for Burma.
- H.L.B.** Ohio State University  
HOWARD LANDIS BEVIS. President, Ohio State University, Columbus, Ohio.
- H.L.G.** Air Transport Command  
HAROLD L. GEORGE. Lieutenant General, U.S.A. Commanding General, Air Transport Command, Army Air Forces, Washington, D.C.
- H.L.Jn.** Spanish Literature  
HARVEY L. JOHNSON. Associate Professor, Department of Romance Languages, Northwestern University, Evanston, Ill.
- H.L.St.** Motor-Boat Racing; etc.  
HERBERT L. STONE. Editor, *Yachting*, New York, N.Y. Author of *America's Cup Races*; etc.
- H.L.Tl.** Rubber  
HARLAN L. TRUMBULL. Assistant to the Director of Research, The B. F. Goodrich Co., Akron, Ohio.
- H.M.Sh.** Italy  
HOWARD McGAW SMYTH. Country Specialist (Italy), Division of Southern European Affairs, Department of State, Washington, D.C.
- H.N.MacC.** Vassar College  
HENRY N. MacCRACKEN. President, Vassar College, Poughkeepsie, N.Y.
- H.O.V.** New York University  
HAROLD O. VOORHIS. Vice-Chancellor and Secretary, New York University, New York, N.Y.
- H.P.D.** Christian Unity; Religion  
HARLAN PAUL DOUGLASS, D.D. Editor, *Christendom*. Author of *A Decade of Objective Progress in Church Unity*; etc.
- H.R.Bd.** Forests (in part)  
H. R. BLANFORD. Former Chief Conservator of Forests, Burma. Editor-Secretary, Empire Forestry Association, London, Eng.
- H.R.V.** Psychiatry  
HENRY R. VIETS, M.D. Lecturer on Neurology, Harvard Medical School. Neurologist, Massachusetts General Hospital. Librarian, Boston Medical Library, Boston, Mass.
- H.S.S.** South Dakota  
HERBERT S. SCHELL. Professor of American History and Director of the Graduate School, University of South Dakota, Vermillion, S. D. Author of *South Dakota, Its Beginnings and Growth*.
- H.T.** Soap, Perfumery and Cosmetics  
HENRY TETLOW. Henry Tetlow Company, Washington, D.C.
- H.T.Ch.** Chiang Kai-shek; China  
HUNG-TI CHU. Head of Information and Reference Department, Chinese News Service.
- H.V.L.S.** British West Africa; etc.  
HENRY VALENTINE LEONARD SWANZY. Colonial Assistant in Overseas Service of B.B.C. Editor of *African Affairs*.
- H.W.At.** Morrison, Herbert Stanley; etc.  
HEINZ WOLFGANG ARNDT. Assistant Lecturer in Economics, Manchester University. Former Research Assistant, Royal Institute of International Affairs, London, Eng. Author of *The Economic Lessons of the Nineteen-Thirties*.
- H.W.Do.** Princeton University  
HAROLD W. DODDS. President, Princeton University, Princeton, N.J.
- H.W.L.** Socialism (in part)  
HARRY W. LAIDLER. Executive Director, League for Industrial Democracy.
- H.Z.** Fisheries; Wildlife Conservation  
HOWARD ZAHNISER. Executive Secretary, The Wilderness Society. Editor of *The Living Wilderness*.
- I.Bo.** Johns Hopkins University  
ISAIAH BOWMAN. President, The Johns Hopkins University, Baltimore, Md. Author of *Geography in Relation to the Social Sciences*; etc.
- I.Br.** Theatre (in part)  
IVOR BROWN. Editor of the *Observer*, London, Eng. Professor of Drama to the Royal Society of Literature.
- I.Gg.** Post Office (in part)  
ISAAC GREGG. Director of Press Relations, Office of the Postmaster General, Washington, D.C.
- I.L.Bi.** Linen and Flax; etc.  
IRENE L. BLUNT. Secretary, The National Federation of Textiles, Inc., New York, N.Y.
- I.L.K.** Education (in part)  
ISAAC LEON KANDEL. Professor of Education, Teachers College, Columbia University, New York, N.Y. Editor, *Educational Yearbook*.
- I.St.** Scientific Research and Development, Office of  
IRVIN STEWART. Executive Secretary, Office of Scientific Research and Development; Executive Secretary, National Defense Research Committee. Executive Secretary, Committee on Medical Research, Washington, D.C.
- I.W.D.** Farm Credit Administration  
I. W. DUGGAN. Governor, Farm Credit Administration, U.S. Department of Agriculture, Kansas City, Mo.
- I.W.R.** Words and Meanings, New  
I. WILLIS RUSSELL. Chairman of the Research Committee on New Words of the American Dialect Society which prepared the article. The Committee consists of: Henry Alexander, C. L. Barnhart, Atcheson L. Hench, A. H. Marckwardt, Mamie J. Meredith, Peter Tamony and Harold Wentworth.
- J.A.G.** Furniture Industry  
J. A. GARY. Editor, *Furniture Age*, Chicago, Ill.
- J.A.K.** Priorities and Allocations; etc.  
JULIUS A. KRUG. Chairman, War Production Board, Washington, D.C.
- J.A.Ma.** Montreal  
J. ARTHUR MATHEWSON. Of Mathewson and Smith, Barristers, Montreal, Que.
- J.A.Mi.** Electric Transportation  
JOHN ANDERSON MILLER. General Electric Co., Schenectady, N.Y. Author of *Fares Please!*; etc.
- J.A.My.** Tuberculosis  
J. A. MYERS, M.D. Professor of Medicine and Preventive Medicine and Public Health, University of Minnesota Medical School, Minneapolis, Minn. Author of *Man's Greatest Victory over Tuberculosis*; etc.
- J.A.S.R.** Coal (in part)  
J. A. S. RITSON. Professor of Mining, Royal School of Mines, South Kensington. Member of Council of the Institutions of Mining and Metallurgy and Mining Engineers, London, Eng.
- J.B.Bd.** Airports and Flying Fields  
J. B. BAYARD, JR. Director, Airport Division, Horner & Shiffrin and Smith, Hinchman & Grylls, Inc.
- J.B.Bi.** Housing (in part)  
JOHN B. BLANDFORD, JR. Administrator, National Housing Agency, Washington, D.C.
- J.Br.** Connecticut  
JAMES BREWSTER. State Librarian, Connecticut State Library, Hartford, Conn.
- J.C.Ar.** Utah  
J. CECIL ALTER. Senior Meteorologist, U.S. Weather Bureau. Historian and Editor, Utah State Historical Society. Author of *Utah, the Storied Domain*; etc.
- J.C.C.** Stabilization Administrator, Office of  
JOHN CASKIE COLLET. Stabilization Administrator, Office of War Mobilization and Reconversion, Washington, D.C.
- J.C.Mn.** Kansas  
JAMES C. MALIN. Professor of History, University of Kansas, Lawrence, Kan.
- J.C.Ms.** Agriculture (in part); Fruit; etc.  
J. CLYDE MARQUIS. American Representative and Vice-President, International Institute of Agriculture, Rome, Italy, 1935-41. Former Director of Economic Information, U.S. Department of Agriculture, Washington, D.C.



- J.E.Ar.** Notre Dame, University of  
JAMES E. ARMSTRONG. Alumni Secretary, Alumni Association, Notre Dame University, Notre Dame, Ind.
- J.E.B.** Iowa  
JOHN E. BRIGGS. Professor of Political Science, State University of Iowa, Iowa City, Iowa. Author of *History of Social Legislation in Iowa*; etc.
- J.E.Ds.** War Relief, U.S.  
JOSEPH E. DAVIES. Chairman, President's War Relief Control Board, Washington, D.C. Author of *Mission to Moscow*.
- J.E.H.** Federal Bureau of Investigation  
J. EDGAR HOOVER. Director, Federal Bureau of Investigation, U.S. Department of Justice, Washington, D.C.
- J.E.Mo.** National Education Association  
JOY ELMER MORGAN. Editor of the *Journal of the National Education Association*, Washington, D.C.
- J.E.Wt.** National Association of Evangelicals  
J. ELWIN WRIGHT. Executive Secretary, National Association of Evangelicals, Boston, Mass.
- J.Fe.** Tunnels  
JAMES FORGIE. Internationally known authority on tunnels.
- J.F.Le.** English Literature  
JOHN FREDERICK LEHMANN. Managing Partner, Hogarth Press, London, Eng. Author of *Evil Was Abroad*; *The Sphere of Glass*; etc.
- J.F.Ws.** National Guard  
JOHN F. WILLIAMS. Major General, U.S.A. Acting Chief, National Guard Bureau, War Department, Washington, D.C.
- J.H.Fa.** Housing (in part)  
JOHN H. FAHEY. Commissioner, Federal Home Loan Bank Administration, National Housing Agency, Washington, D.C.
- J.H.Hg.** Allied Military Government  
J. H. HILLDRING. Major General, U.S.A. Director, Civil Affairs Division, War Department, Washington, D.C.
- J.H.L.** Unitarian Church  
JOHN HOWLAND LATHROP, D.D. Minister of the First Unitarian Congregational Society in Brooklyn, N.Y.
- J.I.C.** Canada; etc.  
JOHN I. COOPER. Assistant Professor of History, McGill University, Montreal, Que.
- J.J.Dn.** Civil Service, U.S.  
J. J. DONOVAN. Associate Director, Civil Service Assembly of the United States and Canada.
- J.J.Kt.** Virginia  
JAMES J. KILPATRICK. Staff Writer, *The Richmond News Leader*, Richmond, Va.
- J.K.L.** Banking (in part); etc.  
JOHN K. LANGUM. Vice-President, Federal Reserve Bank of Chicago, Chicago, Ill.
- J.K.Sy.** Power Engineering (in part)  
J. KENNETH SALISBURY. Turbine Engineer.
- J.LaF.** Roman Catholic Church; Pius XII; etc.  
JOHN LaFARGE, S. J. Editor in Chief, *America*, National Catholic Weekly, New York, N.Y.
- J.L.E.** Telegraphy  
JOSEPH L. EGAN. President, The Western Union Telegraph Company, New York, N.Y.
- J.L.F.** Printing  
J. L. FRAZIER. Editor and Manager, *The Inland Printer*. Author of *Modern Type Display*; *Type Lore*.
- J.L.He.** Horse Racing (in part)  
JOHN L. HERVEY. Author of *Racing in America*; *American Race Horses*; *The Old Gray Mare of Long Island*; etc.
- J.L.J.** Manitoba  
J. L. JOHNSTON. Librarian, Provincial Library, Winnipeg, Man.
- J.L.Mi.** Minnesota, University of  
J. L. MORRILL. President, University of Minnesota, Minneapolis, Minn.
- J.L.N.** Virginia, University of  
JOHN LLOYD NEWCOMB. President, University of Virginia, Charlottesville, Va.
- J.L.R.** Interstate Commerce Commission  
JOHN L. ROGERS. Chairman, Interstate Commerce Commission, Washington, D.C.
- J.M.Ca.** West Virginia  
J. M. CALLAHAN. Research Professor of History, West Virginia University, Morgantown, W.Va.
- J.McAt.** Social Security (in part)  
JOHN McALMONT. Civil Servant, London, Eng.
- J.Md.** South Africa, The Union of (in part)  
JULIAN MOCKFORD. Journalist and Author. Public Relations Officer to the South African High Commissioner in London, Eng.
- J.M.J.** Defense Transportation, Office of  
J. MONROE JOHNSON. Director, Office of Defense Transportation, Washington, D.C.
- J.M.L.** Florida  
JAMES MILLER LEAKE. Professor of History and Political Science, University of Florida, Gainesville, Fla.
- J.Nn.** Ethical Culture Movement  
JEROME NATHANSON. Leader, New York Society for Ethical Culture, New York, N.Y. Author of *Forerunners of Freedom*.
- Jo.St.** American Legion  
JOHN STELLE. National Commander, The American Legion.
- Jo.W.S.** War Mobilization and Reconversion, Office of  
JOHN WESLEY SNYDER. Director, Office of War Mobilization and Reconversion, Washington, D.C.
- J.P.D.** Boxing  
JAMES P. DAWSON. Writer on baseball and boxing, *The New York Times*, New York, N.Y.
- J.P.J.** Donations and Bequests  
JOHN PRICE JONES. President and Treasurer, The John Price Jones Corporation, New York, N.Y. Author of *The Yearbook of Philanthropy*.
- J.Ra.** Pacific Islands, British (in part), etc.  
JOSEPHINE RAMAGE. Assistant Librarian, London School of Economics and Political Science, 1936-43.
- J.R.Cl.** Mormons  
J. REUBEN CLARK, JR. First Counselor in the First Presidency, Church of Jesus Christ of Latter-Day Saints, Salt Lake City, Utah.
- J.R.Hr.** Venereal Diseases  
J. R. HELLER, JR., M.D. Medical Director; Chief, Venereal Disease Division, U.S. Public Health Service, Washington, D.C.
- J.R.J.** Methodist Church  
JAMES R. JOY. Librarian and Historian, The Methodist Historical Society in the City of New York.
- J.R.St.** War Labor Board, National  
JOHN R. STUART. Information Specialist, National Wage Stabilization Board, Washington, D.C.
- J.R.Tu.** Tennis  
JOHN R. TUNIS. Author of *Sports For the Fun of It*; *Democracy and Sport*; etc.
- J.S.L.** Anaesthesia  
JOHN S. LUNDY, M.D. Professor of Anaesthesiology, University of Minnesota Graduate School, Minneapolis, Minn. Head, Section on Anaesthesiology, Mayo Clinic, Rochester, Minn.
- J.Sto.** Radar; etc.  
JAMES STOKLEY. Author of *Science Remakes Our World*; *Electrons in Action*.
- J.T.Ar.** Etching  
JOHN TAYLOR ARMS. President, Society of American Etchers. First Vice-President, National Academy of Design. Author of *Hand-Book of Print Making and Print Makers*.
- J.T.L.** Aviation, Military (in part)  
JAMES T. LOWE. Associate in Political Science, School of Foreign Service, Georgetown University, Washington, D.C. Air Intelligence Specialist, U.S. Army Air Forces, Washington, D.C.
- J.T.W.** Book-collecting and Book Prices  
JOHN T. WINTERICH. Managing Editor, *Saturday Review of Literature*. Author of *A Primer of Book Collecting*; etc.
- J.W.Hy.** American Veterans of World War II (Amvets)  
JACK W. HARDY. National Commander, American Veterans of World War II (Amvets).
- J.W.Je.** Federal Power Commission  
JOHN W. JENKINS. Chief, Division of Information, Federal Power Commission, Washington, D.C.
- J.K.E.M.** Bryn Mawr College  
KATHARINE ELIZABETH McBRIDE. President, Bryn Mawr College, Bryn Mawr, Pa.

- K.F.L.** **KATHARINE F. LENROOT.** Chief, Children's Bureau, U.S. Department of Labor, Washington, D.C. **Child Welfare**
- K.M.E.** **KITTY M. EGAN.** Assistant, University of London, London, Eng. **London University**
- K.R.K.** **KENNETH R. KENNEDY.** Assistant Chief, Information Service Staff, Tennessee Valley Authority, Knoxville, Tenn. **Tennessee Valley Authority**
- K.S.L.** **KENNETH SCOTT LATOURETTE, D.D.** Professor of Missions and Oriental History, Yale University, New Haven, Conn. **Missions, Foreign**
- K.Sm.** **KAZIMIERZ SMOGORZEWSKI.** Polish Journalist in Paris, Berlin, etc. Founder and Editor, *Free Europe*. Author of *Poland's Access to the Sea*; etc. **Poland (in part)**
- K.T.C.** **KARL T. COMPTON.** President, Massachusetts Institute of Technology, Cambridge, Mass. **Massachusetts Institute of Technology**
- K.W.M.** **KENNETH W. MARKWELL.** Assistant Commissioner, Bureau of Reclamation, U.S. Department of the Interior, Washington, D.C. **Aqueducts**
- L.A.L.** **LEROY A. LINCOLN.** President, Metropolitan Life Insurance Company, New York, N.Y. **Insurance (in part)**
- L.A.M.** **LOUIS A. MERILLAT, M.D.V., V.S.** Editor, *Journal of the American Veterinary Medical Association* and *American Journal of Veterinary Research*. Author of *Veterinary Military History of the United States*; etc. **Veterinary Medicine**
- L.A.McA.** **LEWIS A. McARTHUR.** Vice-President and Director, Oregon Historical Society, Portland, Ore. Member and Secretary, Oregon Geographic Board. Author of *Oregon Place Names*. **Oregon**
- L.A.We.** **LUTHER ALLAN WEIGLE, D.D.** Dean of the Divinity School, Yale University, New Haven, Conn. **Church Membership; Sunday Schools**
- L.B.H.** **LEWIS B. HERSHEY.** Major General, U.S.A. Director, Bureau of Selective Service, Washington, D.C. **Selective Service, U.S.**
- L.C.S.** **LOUIS CARTER SMITH.** Secretary-Treasurer, National Archery Association of the United States. **Archery**
- L.deB.H.** **L. de BRED A HANDLEY.** Honorary Coach, Women's Swimming Association of New York. Author of *Swimming for Women*; etc. **Swimming**
- L.D.U.** **LENT D. UPSON.** Dean, School of Public Affairs and Social Work, Wayne University, Detroit, Mich. **Detroit**
- L.Du.** **LEONARD DUDENEY.** Parliamentary Gallery and Lobby correspondent 1918-43. **Conservative Party, Great Britain; etc.**
- L.D.V.** **LEON DE VALINGER, JR.** State Archivist, The Public Archives Commission, Dover, Del. Author of *Colonial Military Organization in Delaware 1638-1776*; etc. **Delaware**
- L.Ef.** **LOUIS EFFRAT.** Member of sports staff, *The New York Times*, New York, N.Y. **Billiards**
- L.E.L.** **LEWIS E. LAWES.** Former Warden, Sing Sing Prison, Ossining, N.Y. Former Chief Business Consultant, Prison War Program Branch, War Production Board, New York, N.Y. **Prisons**
- L.E.T.** **LEON E. TRUESDELL.** Chief, Population Division, United States Bureau of the Census, Washington, D.C. Author of *Farm Population of the U.S.; The Canadian Born in the United States*; etc. **Census Data, 1945; etc.**
- L.Fd.** **LOUISE FIELD.** Research Associate, The Twentieth Century Fund, New York, N.Y. **Reconstruction Planning**
- L.Gu.** **LUTHER GULICK.** Director, Institute of Public Administration, New York, N.Y. **Municipal Government (in part)**
- L.G.V.V.** **LEWIS GEORGE VANDER VELDE.** Professor of History and Director of the Michigan Historical Collections, University of Michigan, Ann Arbor, Mich. **Michigan**
- L.Gy.** **LEO GERSHOY.** Professor of History, Sarah Lawrence College, Bronxville, N.Y. Author of *The French Revolution and Napoleon*; etc. **France**
- L.H.L.** **LEWIS HARPER LEECH.** Editorial writer, *The Chicago Daily News*, Chicago, Ill. Author of *The Paradox of Plenty*. **Chicago; Illinois**
- L.J.Br.** **LYMAN J. BRIGGS.** Director, National Bureau of Standards, U.S. Department of Commerce, Washington, D.C. **Standards, National Bureau of**
- L.Md.** **LA MOYNE MAYFIELD.** Boise, Idaho. **Idaho**
- L.M.Eds.** **LE ROY M. EDWARDS.** President, Los Angeles Chamber of Commerce, Los Angeles, Calif. **Los Angeles**
- L.M.F.** **LEONARD M. FANNING.** Author of *The Rise of American Oil*. **Petroleum**
- L.Mh.** **LUCILE MARSH.** Director, National Dance League. Author of *The Dance in Education*; *Textbook of Social Dancing*; etc. **Dance (in part)**
- L.M.S.M.** **LEROY M. S. MINER, D.M.D., M.D.** Professor of Oral Surgery, Harvard University; Professor of Stomatology, Boston University, Boston, Mass. **Dentistry**
- L.M.W.** **LEW M. WILLIAMS.** Secretary of Alaska, U.S. Department of the Interior, Juneau, Alaska. **Alaska**
- L.O.C.** **LEO OTIS COLBERT.** Rear Admiral, U.S.C. & G.S. Director, U.S. Coast and Geodetic Survey. Department of Commerce, Washington, D.C. **Coast and Geodetic Survey, U.S.**
- L.O.P.** **LOUELLA O. PARSONS.** Motion Picture Editor, International News Service. Author of *The Gay Illiterate*; *How To Write in the Movies*. **Motion Pictures (in part)**
- L.S.Ro.** **L. S. ROWE.** Director General, Pan American Union, Washington, D.C. **Pan American Union**
- L.W.Ba.** **LORNE W. BARCLAY.** National Director of Publications, Boy Scouts of America. **Boy Scouts**
- L.W.L.** **LANE W. LANCASTER.** Professor of Political Science, University of Nebraska, Lincoln, Neb. **Nebraska**
- L.W.M.** **LON W. MORREY, D.D.S.** Director, Bureau of Public Relations, American Dental Association, Chicago, Ill. **American Dental Association**
- L.Wo.** **LEO WOLMAN.** Professor of Economics, Columbia University, New York, N.Y. Author of *Ebb and Flow in Trade Unionism*; *Planning and Control of Public Works*. **Labour Unions (in part)**
- M.Ab.** **MILTON ABELSON.** Economic Analyst, Bureau of Foreign and Domestic Commerce, Department of Commerce, Washington, D.C. **Foreign Investments in the United States**
- M.A.Hs.** **MINNETTA A. HASTINGS (Mrs. William A. Hastings).** President, National Congress of Parents and Teachers. **Parents and Teachers, National Congress of**
- M.A.Mr.** **MARC A. MITSCHER.** Vice-Admiral, U.S.N. Deputy Chief of Naval Operations (Air), Navy Department, Washington, D.C. **Aviation, Military (in part)**
- M.C.Ml.** **MATTHEW C. MITCHELL.** Associate Professor of Political Science, Brown University, Providence, R.I. **Rhode Island**
- M.Dn.** **MITCHELL DAWSON.** Lawyer, writer. Former Editor, *Chicago Bar Record*, Chicago, Ill. **Law**
- M.D.T.** **MAXWELL D. TAYLOR.** Major General, U.S.A. Superintendent, U.S. Military Academy, West Point, N.Y. **Military Academy, U.S.**

- M.E.H.** **Biochemistry**  
MARTIN E. HANKE. Associate Professor of Biochemistry, The University of Chicago, Chicago, Ill. Co-author of *Practical Methods in Biochemistry*.
- M.F.C.** **Italian Literature**  
MICHELE F. CANTARELLA. Associate Professor of Italian language and literature; Chairman of the Department of Latin, Smith College, Northampton, Mass. Co-author of *Dieci Novelle Contemporanee*; etc.
- M.Fd.** **Pneumonia**  
MAXWELL FINLAND, M.D. Associate Physician, Thorndike Memorial Laboratory; Physician in Chief, Fourth Medical Service, Boston City Hospital. Assistant Professor of Medicine, Harvard Medical School, Boston, Mass.
- M.Fe.** **League of Nations; Mandates**  
MAURICE FANSHAW. Chief Intelligence Officer, Central Office, League of Nations Union of Great Britain.
- M.Fi.** **Medicine (in part)**  
MORRIS FISHBEIN, M.D. Editor, *The Journal of the American Medical Association and Hygeia*, Chicago, Ill. Editor of medical articles, *Britannica Book of the Year*.
- M.Fr.** **Bacteriology**  
MARTIN FROBISHER, JR. Associate Professor of Bacteriology, The Johns Hopkins School of Hygiene and Public Health. Author of *Fundamentals of Bacteriology*; etc.
- M.G.G.** **Public Utilities**  
MARTIN G. GLAESER. Professor of Economics, University of Wisconsin, Madison, Wis.
- M.Gt.** **Budget, National; etc.**  
MILTON GILBERT. Chief, National Income Unit, Bureau of Foreign and Domestic Commerce, Department of Commerce, Washington, D.C.
- M.H.A.** **Indiana**  
MARGUERITE H. ANDERSON. Chief, Indiana Division, Indiana State Library, Indianapolis, Ind.
- M.Ha.** **Philately**  
MANNEL HAHN. Head, Service Section, *The Rotarian* and *Revista Rotaria*. Author of *U.S. Post Office, 1851-60; U.S. Postal Markings, 1847-51; So You're Collecting Stamps*; etc.
- M.H.E.** **Wyoming**  
MARIE H. ERWIN. First Assistant Historian, Wyoming State Library and State Historical Department, Cheyenne, Wyo.
- M.H.T.** **Columbia University**  
MILTON HALSEY THOMAS. Curator of Columbiana, Columbia University, New York, N.Y.
- M.H.W.** **Oklahoma**  
MURIEL H. WRIGHT. Associate Editor, *The Chronicles of Oklahoma*, Oklahoma Historical Society, Oklahoma City, Okla.
- M.J.Hs.** **Anthropology**  
MELVILLE J. HERSKOVITS. Professor of Anthropology, Northwestern University, Evanston, Ill.
- M.J.To.** **Massachusetts**  
MAURICE J. TOBIN. Governor of Massachusetts.
- M.Lb.** **Liquors, Alcoholic (in part)**  
MAX LOEB. Chief of Field Division, Illinois Liquor Control Commission.
- M.L.E.** **Civil Liberties**  
MORRIS L. ERNST. Attorney, firm of Greenbaum, Wolff and Ernst, New York, N.Y. Author of *The Best Is Yet*; etc.
- M.L.W.** **Four-H Clubs**  
M. L. WILSON. Director of Extension Work, U.S. Department of Agriculture, Washington, D.C. Author of *Farm Relief and Domestic Allotment Plan*; etc.
- M.M.H.** **Women's Reserve of the Navy; etc.**  
MILDRED McAFEE HORTON (Mrs. D. Horton). Captain, U.S. N.R. Director, Women's Reserve, U.S.N.R. President, Wellesley College, Wellesley, Mass.
- M.Mw.** **War Information, Office of**  
MALCOLM MORROW. Chief, Division of Public Inquiries, Government Information Service, Washington, D.C.
- M.O.P.** **American Library Association**  
MILDRED OTHMER PETERSON. Special writer, American Library Association.
- M.P.W.** **Track and Field Sports; etc.**  
MILTON P. WOODARD. Sports Writer, *The Chicago Sun*, Chicago, Ill.
- M.Rs.** **Fair Employment Practice, Committee on**  
MALCOLM ROSS. Chairman, President's Committee on Fair Employment Practice, Washington, D.C.
- M.Sr.** **Birth Control**  
MARGARET SANGER. Honorary Chairman Planned Parenthood Federation, Inc.
- M.S.Ss.** **Young Womens Christian Association**  
MARY S. SIMS. Secretary, General Administration, National Board, Young Womens Christian Associations of the United States of America. Author of *The Natural History of a Social Institution—The Y.W.C.A.*
- M.T.** **Eire (in part)**  
MICHAEL TIERNEY. Professor of Greek, University College, Dublin, Eire. Member of Council of State, Eire. Vice-Chairman, Seanad Eireann, 1938-44.
- N.B.D.** **National Parks and Monuments**  
NEWTON B. DRURY. Director, National Park Service, U.S. Department of the Interior, Washington, D.C.
- N.C.B.** **Lumber (in part)**  
NELSON C. BROWN. Professor in Charge of Forest Utilization, New York State College of Forestry, Syracuse University, Syracuse, N.Y. Author of *American Lumber Industry; Timber Products and Industries*; etc.
- N.E.C.** **Bank of England**  
NORMAN E. CRUMP. City Editor, *London Sunday Times*, London, Eng.
- N.E.W.** **Plague, Bubonic and Pneumonic**  
N. E. WAYSON, M.D. Medical Officer in Charge, Plague Investigations, U.S. Public Health Service, San Francisco, Calif.
- N.F.** **Lumber (in part)**  
NORMAN FRENCH. Editor, *The Timber Trades Journal and Sawmill Advertiser*.
- N.F.S.** **Munitions of War (in part)**  
NATHANIEL F. SILSBEE. Lieutenant Colonel, Air Corps (Inactive). Former Chief, Information Control, Office of the Assistant Chief of Air Staff—2 (Intelligence). Technical Editor, *Skyways*.
- N.Ke.** **Building and Construction Industry (in part)**  
NORMAN KEEP. Head of Department of Architecture and Building, Municipal College, Southend-on-Sea, Eng.
- N.L.P.** **Astronomy**  
NEWTON LACY PIERCE. Assistant Professor of Astronomy, Princeton University, Princeton, N.J.
- N.M.Bz.** **National Mediation Board**  
NELSON M. BORTZ. Assistant in Charge Wage and Salary Stabilization, National Railway Labor Panel, Washington, D.C.
- N.T.** **Socialism (in part)**  
NORMAN THOMAS. Socialist presidential candidate, 1940, 1944. Author of *America's Way Out*.
- N.T.R.** **Coinage**  
NELLIE TAYLOE ROSS. Director of the United States Mint, Washington, D.C.
- O.C.T.** **Insurance (in part)**  
OWEN C. TORREY. General Manager, Marine Office of America, New York, N.Y.
- O.E.P.** **Young Men's Christian Association**  
OWEN E. PENCE. Director, Bureau of Records, Studies and Trends, National Council of the Young Men's Christian Associations of the United States, New York, N.Y.
- O.J.W.** **Wines**  
OSCAR J. WILE. Senior Partner, Oscar J. Wile & Co., New York, N.Y. President, Browne-Vintners Co., Inc., New York, N.Y. Author of *Wine Without Frills; What, When and How to Serve*.
- O.N.B.** **Veterans' Administration**  
OMAR N. BRADLEY. General, U.S.A. Administrator of Veterans' Affairs, Veterans' Administration, Washington, D.C.



- O.P.P.** Automobile Industry in Reconversion  
OSCAR PAUL PEARSON. Manager, Statistical Department, Automobile Manufacturers' Association, Detroit, Mich.
- P.A.P.** Federal Communications Commission; etc.  
PAUL A. PORTER. Chairman, Federal Communications Commission, Washington, D.C.
- P.B.D.** Drugs and Drug Traffic (*in part*)  
PAUL B. DUNBAR. Commissioner of Food and Drugs, Food and Drug Administration, Federal Security Agency, Washington, D.C.
- P.B.F.** Federal Works Agency  
PHILIP B. FLEMING. Major General, U.S.A. Administrator, Federal Works Agency, Washington, D.C.
- P.Bn.** Crime (*in part*); etc.  
PRESTON BENSON. Journalist for the *Star*, London, Eng. Author of *Unknown Country*.
- P.By.** Cleveland; Ohio  
PAUL BELLAMY. Editor, *Cleveland Plain Dealer*, Cleveland, Ohio.
- P.D.W.** Heart and Heart Diseases  
PAUL D. WHITE, M.D. Lecturer on Medicine, Harvard University Medical School; Physician, Massachusetts General Hospital, Boston, Mass. Author of *Heart Disease*.
- P.E.R.** Prisoners of War and Displaced Persons; etc.  
PHILIP E. RYAN. Director, Civilian Relief, Insular and Foreign Operations, American Red Cross.
- P.G.H.** Committee for Economic Development  
PAUL G. HOFFMAN. Chairman, Board of Trustees, Committee for Economic Development. President, The Studebaker Corporation, South Bend, Ind.
- P.M.Hg.** National Labor Relations Board  
PAUL M. HERZOG. Chairman, National Labor Relations Board, Washington, D.C.
- P.M.K.** Housing (*in part*)  
PHILIP M. KLUTZNICK. Commissioner, Federal Public Housing Authority, National Housing Agency, Washington, D.C.
- P.My.** Congress of Industrial Organizations  
PHILIP MURRAY. President, Congress of Industrial Organizations.
- P.O.McG.** Palaeontology  
PAUL ORMAN MCGREW. Assistant Curator of Palaeontology, Chicago Natural History Museum, Chicago, Ill.
- P.R.Cr.** Power Engineering (*in part*)  
PETER RITCHIE CALDER. Science Editor, *News Chronicle and New Statesman and Nation*. Author of *The Birth of the Future; Carry on London*; etc.
- P.R.Hy.** Physical Medicine and Occupational Therapy for the Wounded  
PAUL R. HAWLEY. Major General, U.S.A. Co-author of *Studies in Human Biology*; etc.
- P.T.** Gynaecology and Obstetrics  
PAUL TITUS, M.D. Secretary-Treasurer, American Board of Obstetrics and Gynecology.
- P.V.C.** Agricultural Research Administration  
P. V. CARDON. Research Administrator, Agricultural Research Administration, U.S. Department of Agriculture, Washington, D.C.
- P.V.M.** Federal Security Agency; etc.  
PAUL V. McNUTT. Former Chairman, War Manpower Commission; Former Federal Security Administrator, Washington, D.C.
- P.W.Bi.** United Nations Monetary and Financial Program (*in part*)  
PERCY W. BIDWELL. Director of Studies, Council on Foreign Relations, Inc., New York, N.Y.
- P.Ws.** International Trade (*in part*)  
PAUL WIERS. Assistant to the Chief, International Trade Unit, Bureau of Foreign and Domestic Commerce, Department of Commerce, Washington, D.C.
- R.A.G.** Northwest Territories  
R. A. GIBSON. Deputy Commissioner, Administration of the Northwest Territories, Can.
- Ra.L.** Endocrinology (*in part*)  
RACHMIEL LEVINE, M.D. Director of Metabolic and Endocrine Research, Michael Reese Hospital, Chicago, Ill.
- R.A.Wr.** Canals and Inland Waterways (*in part*); etc.  
RAYMOND A. WHEELER. Lieutenant General, U.S.A. Chief of Engineers, War Department, Washington, D.C.
- R.B.B.** Leather  
RALPH B. BRYAN. Editor, *The Community News*, Chicago, Ill. Author of *Encyclopedia of the Shoe and Leather Industry*.
- R.B.E.** Lynching  
ROBERT BURNS ELEAZER. Specialist in Race Relations, General Board of Education, The Methodist Church.
- R.B.Kr.** San Francisco  
R. B. KOEBER. Manager, Research Department, San Francisco Chamber of Commerce, San Francisco, Calif.
- R.B.S.** American Citizens Abroad  
RUTH B. SHIPLEY. Chief, Passport Division, Department of State, Washington, D.C.
- R.C.R-G.** Cricket  
RAYMOND CHARLES ROBERTSON-GLASGOW. Cricket Correspondent of the *Sunday Observer*.
- R.d'E.** Brazil  
RAUL d'EÇA. Assistant Chief, Foreign Language Division, Interim International Information Services, Department of State, Washington, D.C. Co-author of *Outline History of Latin America*.
- R.D.Hu.** Southern California, University of  
ROCKWELL D. HUNT. Dean Emeritus of the Graduate School, University of Southern California, Los Angeles, Calif. Author of *California, The Golden*; etc.
- R.E.Cd.** Botany (*in part*)  
R. E. CLELAND. Professor of Botany, Head of Department of Botany and Bacteriology, Indiana University, Bloomington, Ind.
- R.E.E.H.** Baptist Church  
REUBEN E. E. HARKNESS. President, The American Baptist Historical Society.
- R.E.F.** Federal Trade Commission  
ROBERT E. FREER. Commissioner, Federal Trade Commission, Washington, D.C.
- R.E.Rh.** Accidents (*in part*)  
ROBERT E. RALEIGH. Associate Director, The Traffic Institute, Northwestern University, Evanston, Ill. Associate Director, International Association of Chiefs of Police.
- R.F.K.** Polo  
ROBERT F. KELLEY. Assistant Secretary, United States Polo Association. Former Sports Writer, *The New York Times*, New York, N.Y.
- R.Fs.** Wisconsin, University of  
ROBERT FOSS. Editor, News Service, University of Wisconsin, Madison, Wis.
- R.G.Ha.** Mount Holyoke College  
ROSWELL GRAY HAM. President, Mount Holyoke College, South Hadley, Mass.
- R.G.Hu.** Osteopathy  
RAY G. HULBURT, D.O. Editor, American Osteopathic Association.
- R.G.M.** Paper and Pulp Industry  
R. G. MACDONALD. Secretary-Treasurer, Technical Association of the Pulp and Paper Industry, New York, N.Y.
- R.G.S.** California, University of  
ROBERT G. SPROUL. President, University of California, Berkeley, Calif.
- R.H.Fn.** Argentina; Venezuela; etc.  
RUSSELL H. FITZGIBBON. Associate Professor of Political Science, University of California, Los Angeles, Calif. Author of *Cuba and the United States, 1900-1935; Outline of Latin American History*.
- R.H.H.** Contract Terminations  
ROBERT H. HINCKLEY. Director, Office of Contract Settlement, Washington, D.C.
- R.Hs.** Community Trusts  
RALPH HAYES. Executive Director, New York Community Trust. Member, Executive Committee, National War Fund.

- R.H.Sd.** Rowing  
ROLLIN H. SANFORD. Head Crew Coach, Cornell University, Ithaca, N.Y.
- Ri.M.F.** Commission on a Just and Durable Peace  
RICHARD M. FAGLEY. Co-secretary, The Commission on a Just and Durable Peace of the Federal Council of the Churches of Christ in America.
- R.Is.** Anaemia  
RAPHAEL ISAACS, M.D. Director, Haematology Research Laboratory and Attending Physician in Haematology, Michael Reese Hospital, Chicago, Ill.
- R.J.B.** Archaeology (*in part*)  
ROBERT J. BRAIDWOOD. Assistant Professor of Old World Prehistory, The Oriental Institute and the Department of Anthropology, The University of Chicago, Chicago, Ill.
- R.L.Fo.** Accidents (*in part*)  
R. L. FORNEY. General Secretary, National Safety Council, Chicago, Ill.
- R.L.Fy.** Music (*in part*)  
ROSS LEE FINNEY. Professor of Music, Smith College, Northampton, Mass.
- R.L.Ss.** U.S. Investments Abroad  
ROBERT L. SAMMONS. Economic Analyst, Bureau of Foreign and Domestic Commerce, Department of Commerce, Washington, D.C.
- R.L.W.** Stanford University  
RAY LYMAN WILBUR. Chancellor, Stanford University, Stanford University, Calif. Author of *Human Hopes*; etc.
- R.M.Fy.** Housing (*in part*)  
RAYMOND M. FOLEY. Commissioner, Federal Housing Agency, Washington, D.C.
- R.Nt.** Consumer Credit  
ROLF NUGENT. Deputy Chief, Bureau of Supply, United Nations Relief and Rehabilitation Administration, Washington, D.C.
- Ro.M.** Naval Academy, U.S.  
ROBERT MORRIS. Captain, U.S.N. Secretary, Academic Board, United States Naval Academy, Annapolis, Md.
- Ro.P.B.** Federal Council of the Churches of Christ in America  
ROSWELL P. BARNES, D.D. Acting General Secretary, The Federal Council of the Churches of Christ in America. Editor, *Federal Council Bulletin*.
- Ro.Sto.** Church of England  
ROBERT STOKES. Secretary, Press and Publications Board, Church Assembly, London, Eng. Editor of the Official Year Book of the Church of England.
- R.P.Be.** Radio (*in part*)  
RUPERT POLLARD BROWNE. Secretary, The Radio Industry Council, London, Eng.
- R.P.Bo.** Mathematics  
RALPH PHILIP BOAS, JR. Executive Editor of *Mathematical Reviews*.
- R.P.Br.** Missouri  
RALPH P. BIEBER. Professor of History, Washington University, St. Louis, Mo.
- R.R.E.** Philippines, Commonwealth of  
RICHARD R. ELY. Special Assistant to the United States High Commissioner to the Philippine Islands.
- R.R.W.** Coast Guard, U.S. (*in part*)  
RUSSELL R. WAESCHE. Admiral, U.S. Coast Guard.
- R.S.McC.** Geography  
R. S. MCCLURE. Adviser to the American Representative to the Central Rhine Commission; Special Assistant to the Chief, Office of Transport and Communications Policy, Department of State.
- R.S.S.** Spain  
ROBERT SIDNEY SMITH. Associate Professor of Economics, Duke University, Durham, N.C. Author of *The Spanish Guild Merchant*; etc.
- R.S.T.** Camouflage; Munitions of War (*in part*)  
ROBERT S. THOMAS. Military Historian, Army War College, Washington, D.C. Author of *The Story of the 30th Division, A.E.F.*
- R.T.B.** Rural Electrification  
ROBERT T. BEALL. Principal Economist, Rural Electrification Administration, U.S. Department of Agriculture, St. Louis, Mo.
- R.T.K.** Photography (*in part*)  
RICHARD T. KRIEBEL. Former Director, Vectograph War School; Secretary, Polaroid Corporation, Cambridge, Mass.
- R.Tu.** Democratic Party; Republican Party; etc.  
RAY TUCKER. Writer of syndicated column, "The National Whirligig." Author of *The Mirrors of 1932*; *Sons of the Wild Jackass*.
- R.Wd.** Public Opinion Surveys  
RICHARDSON WOOD. Consultant on Public Opinion, New York, N.Y.
- R.W.Hs.** Farm Security Administration  
ROBERT W. HUDGENS. Associate Administrator, Farm Security Administration, U.S. Department of Agriculture, Washington, D.C.
- R.W.T.** Foreign Economic Administration  
ROGER W. TUBBY. Information Officer, Office of International Trade, Department of Commerce, Washington, D.C.
- S.B.F.** Berlin; Germany; etc.  
SIDNEY B. FAY. Professor of History, Harvard University and Radcliffe College, Cambridge, Mass. Author of *Origins of the World War*; *Rise of Brandenburg—Prussia to 1786*.
- S.B.Wr.** Copyright  
SAM B. WARNER. Register of Copyrights, Washington, D.C.
- S.C.Ha.** Dartmouth College  
SIDNEY CHANDLER HAYWARD. Secretary of Dartmouth College, Hanover, N.H.
- S.F.R.** Surplus Property Disposal  
SIERT F. RIEPMA. Information Specialist, Surplus Property Administration, Washington, D.C.
- S.J.Bu.** Archives, National  
SOLON JUSTUS BUCK. Archivist of the United States. Author of *The Granger Movement*; etc.
- S.J.Hy.** Radiology  
S. J. HAWLEY, M.D. Director, Department of Roentgenology and Radiotherapy, George F. Geisinger Memorial Hospital, Danville, Pa. Consulting Radiologist, Danville State Hospital, Danville, Pa.
- S.J.McK.** Boston  
S. JUSTUS MCKINLEY. Professor of Social Sciences, Emerson College, Boston, Mass.
- S.L.Pr.** British-U.S. War Boards  
STANLEY L. PHRANER. U.S. Secretary, Combined Production and Resources Board, Washington, D.C.
- S.L.S.** Clothing Industry  
STANLEY L. SIMONS. Editor, *The Clothing Trade Journal*. Director, Garment Technical Institute. Author of *Drafting Trousers for Men, Women and Boys*.
- S.McC.L.** International Labour Organization  
SAMUEL McCUNE LINDSAY. Professor Emeritus of Social Legislation, Columbia University, New York, N.Y. Author of *Railway Labor in the U.S.*; *Emergency Housing Legislation*; etc.
- S.McG.** Texas  
STUART MCGREGOR. Associate Editor, *The Dallas Morning News*, Dallas, Tex.
- S.R.C.** Newspapers and Magazines (*in part*); etc.  
SIDNEY R. CAMPION. Barrister-at-Law and Journalist. Press Officer to the British General Post Office. Former Chief of the Allied Newspapers Parliamentary Press Gallery Staff.
- S.R.S.** Glass  
SAMUEL RAY SCHOLLES. Professor of Glass Technology, New York State College of Ceramics, Alfred University, Alfred, N.Y.

- S.S.H.** **Stocks and Bonds**  
SOLOMON S. HUEBNER. President, American College of Life Underwriters. Professor of Insurance and Commerce, Wharton School of Finance and Commerce, University of Pennsylvania, Philadelphia, Pa.
- S.So.** **Endocrinology (in part)**  
SAMUEL SOSKIN, M.D. Former Director of Metabolic and Endocrine Research; Director of the Research Institute and Medical Director, Michael Reese Hospital; Professorial Lecturer in Physiology, School of Medicine, Division of Biological Sciences, The University of Chicago, Chicago, Ill.
- S.Sp.** **Music (in part)**  
SIGMUND SPAETH. Lecturer and Broadcaster. Author of *The Art of Enjoying Music*; *At Home With Music*; *Music For Fun*; etc.
- S.Tf.** **Radio (in part)**  
SOL TAISHOFF. President, Editor and Publisher of Broadcasting Publications, Inc., Washington, D.C.
- St.W.** **New York City**  
STANLEY WALKER. Editorial Writer, *New York Herald Tribune*. Author of *City Editor*; *Mrs. Astor's Horse*.
- T.H.MacD.** **Roads and Highways**  
THOMAS H. MacDONALD. Commissioner, Public Roads Administration, Federal Works Agency, Washington, D.C.
- T.H.O.** **Physics**  
THOMAS H. OSGOOD. Head, Department of Physics and Astronomy, Michigan State College, East Lansing, Mich. Co-author of *An Outline of Atomic Physics*.
- T.J.D.** **Cycling; La Crosse**  
THOMAS J. DEEGAN, JR. Vice-President, Abbott Kimball Company, New York, N.Y. Author of *This Is Public Relations*.
- T.Pn.** **Nursing, War**  
THOMAS PARRAN, M.D. Surgeon General, U.S. Public Health Service, Washington, D.C.
- T.P.W.** **Civil Aeronautics Administration**  
THEODORE P. WRIGHT. Administrator of Civil Aeronautics, Department of Commerce, Washington, D.C.
- T.S.P.** **Texas, University of**  
T. S. PAINTER. Acting President, University of Texas, Austin, Tex.
- T.Td.** **Angling**  
TED TRUEBLOOD. Fishing Editor, *Field & Stream*.
- T.T.S.** **Nervous System**  
THEODORE T. STONE, M.D. Associate Professor in Nervous and Mental Diseases, Northwestern University Medical School, Chicago, Ill. Attending Neurologist and Chairman, Neurological Division, Cook County Hospital, Chicago, Ill. Chairman, Department of Nervous and Mental Diseases, Wesley Memorial Hospital, Chicago, Ill.
- U.C.** **Immigration and Emigration, U.S.; etc.**  
UGO CARUSI. Commissioner, Immigration and Naturalization Service, U.S. Department of Justice, Philadelphia, Pa.
- V.R.** **Zoology (in part)**  
VIOLA RIPLEY. Former Assistant Lecturer in Biology, Huddersfield Technical College, Huddersfield, Eng.
- W.A.Dw.** **Fencing**  
WARREN A. DOW. Secretary, Amateur Fencers League of America.
- W.B.Be.** **Women's Army Corps**  
WESTRAY BATTLE BOYCE. Colonel, WAC. Director, Women's Army Corps.
- W.B.M.** **United Nations Information Organization; etc.**  
W. BRYANT MUMFORD. Secretary-General, United Nations Information Office, New York, N.Y. Co-author of *Africans Learn To Be French*; etc.
- W.B.Pu.** **Presbyterian Church**  
WILLIAM BARROW PUGH, D.D. Stated Clerk, The Presbyterian Church in the United States of America.
- W.C.** **Botany (in part)**  
WILLIAM CROCKER. Director, Boyce Thompson Institute for Plant Research, Inc., Yonkers, N.Y.
- W.C.Tr.** **Export-Import Bank of Washington**  
WAYNE C. TAYLOR. President, Export-Import Bank of Washington, Washington, D.C.
- W.D.K.** **Christian Science**  
WILLIAM D. KILPATRICK. Manager, Committees on Publication, The First Church of Christ, Scientist, Boston, Mass.
- W.D.Ma.** **Australia, Commonwealth of; etc.**  
WILLIAM D. MARTIN. Economic and Statistical Research Station, Intelligence Branch, Australia House, London, Eng.
- W.D.Mn.** **Photography (in part)**  
WILLARD D. MORGAN. Editor, *The Complete Photographer* and *The Encyclopedia of Photography*.
- W.D.R.** **Golf**  
WILLIAM D. RICHARDSON. Golf Editor, *The New York Times*, New York, N.Y.
- W.E.Ga.** **Disciples of Christ**  
W. E. GARRISON. Professor Emeritus of Church History, Disciples Divinity House, The University of Chicago, Chicago, Ill. Literary Editor of *The Christian Century*.
- W.E.O.** **Shows (in part)**  
WILLIAM E. OGILVIE. Assistant Live Stock Agent, The Union Stock Yard and Transit Company, Chicago, Ill.
- W.E.Ss.** **New Hampshire**  
WAYNE EDSON STEVENS. Professor of History, Dartmouth College, Hanover, N.H.
- W.E.Th.** **Canadian-U.S. War Committees**  
WENDELL E. THORNE. International Section, Division of Research and Statistics, Board of Governors of the Federal Reserve System.
- W.F.B.** **Architecture**  
WALTER F. BOGNER. Associate Professor of Architecture, Graduate School of Design, Harvard University, Cambridge, Mass.
- W.F.Br.** **Urology**  
WILLIAM F. BRAASCH, M.D. Mayo Clinic, Rochester, Minn. Professor of Urology, University of Minnesota Graduate School, Minneapolis, Minn. Editorial Committee, *Journal of Urology*.
- W.For.** **Belgium (in part); etc.**  
WALTER FORD. Author of *La Guerre Totale au Congo*.
- W.Ft.** **Paraguay**  
WESLEY FROST. Visiting Professor, New York State Teachers College, Oswego, N.Y.
- W.G.** **American Federation of Labor**  
WILLIAM GREEN. President, American Federation of Labor.
- W.G.P.** **Netherlands Colonial Empire (in part)**  
WIBO G. PEEKEMA. Head of the Legal and Political Division of the Netherlands Ministry for Overseas Territories.
- W.H.Ch.** **Japan; Yalta Conference (in part); etc.**  
WILLIAM HENRY CHAMBERLIN. Author and Journalist. Former Correspondent for *The Christian Science Monitor* in the Soviet Union, the Far East and France.
- W.H.G.** **Lutherans**  
WALTON HARLOWE GREEVER, D.D. Secretary, The United Lutheran Church in America, New York, N.Y.
- W.J.Bt.** **Furs**  
W. J. BRETT. Editor, *Fur Trade Review*, New York, N.Y.
- W.J.C.** **Railroads (in part)**  
WILLIAM J. CUNNINGHAM. James J. Hill Professor of Transportation, Graduate School of Business Administration, Harvard University, Boston, Mass.
- W.Ju.** **Shows (in part)**  
WILL JUDY. Editor, *Dog World*, Chicago, Ill. Author of *Principles of Dog Breeding*; etc.



- W.L.Be.** **Eye, Diseases of**  
WILLIAM L. BENEDICT, M.D. The Mayo Clinic, Rochester, Minn. Professor of Ophthalmology, University of Minnesota Graduate School, Mayo Foundation, Rochester, Minn.
- W.L.C.** **International Trade (in part)**  
WILLIAM L. CLAYTON. Assistant Secretary, Department of State, Washington, D.C.
- W.Ln.** **Motion Pictures (in part)**  
WILLIAM LEWIN. Chairman, Committee on Motion Pictures, Department of Secondary Teachers, National Education Association. Author of *Photoplay Appreciation in American High Schools*; etc.
- W.L.T.** **Intoxication, Alcoholic**  
W. L. TREADWAY, M.D. Medical Director, U.S. Public Health Service (Retired), Santa Barbara, Calif.
- W.M.Ci.** **World Federation of Trade Unions**  
SIR WALTER McLENNAN CITRINE. General Secretary, Trades Union Congress, London, Eng. President, World Federation of Trade Unions. Author of *British Trade Unions*; etc.
- W.McM.** **Chemurgy**  
WHEELER McMILLEN. Editor in Chief, *Farm Journal and Farmer's Wife*.
- W.N.Ha.** **Civilian Defense (in part)**  
WILLIAM N. HASKELL. Lieutenant General (Retired). Formerly Director, Office of Civilian Defense, Washington, D.C.
- W.P.Mi.** **Hospitals**  
WARREN P. MORRILL, M.D. Director of Research, American Hospital Association, Chicago, Ill. Author of *Hospital Manual of Operation*.
- W.Pr.** **Louisiana**  
WALTER PRICHARD. Professor and Head of the Department of History, Louisiana State University, Baton Rouge, La. Editor, *Louisiana Historical Quarterly*.
- W.P.S.** **Genetics**  
WARREN P. SPENCER. Professor of Genetics, College of Wooster, Wooster, Ohio.
- W.R.Ck.** **New Jersey**  
WILLIAM R. CLARK. On the staff of *Newark Evening News*, Newark, N.J.
- W.Rs.** **Liberal Party**  
WILFRID ROBERTS. Member of Parliament for Cumberland North, Eng. Chairman, Organization Committee of the Liberal Party.
- W.R.Sp.** **Inter-American Conference on Problems of War and Peace (in part)**  
WALTER RICE SHARP. Chairman, Department of Government, College of the City of New York, N.Y. Author of *The French Civil Service: Bureaucracy in Transition*; etc.
- W.S.G.** **Telephone**  
WALTER S. GIFFORD. President, American Telephone and Telegraph Company, New York, N.Y.
- W.T.M.** **Protestant Episcopal Church**  
WILLIAM T. MANNING. Protestant Episcopal Bishop of New York.
- W.V.W.** **Motion Pictures (in part)**  
WALLACE V. WOLFE. Film Recording Sales Manager, Radio Corporation of America, Victor Division, Hollywood, Calif.
- W.W.B.** **Indians, American**  
WILLARD W. BEATTY. Director of Education, Office of Indian Affairs, U.S. Department of the Interior, Chicago, Ill.
- X**  
ANONYMOUS.

1945													
JANUARY							JULY						
S	M	T	W	T	F	S	S	M	T	W	T	F	S
1	2	3	4	5	6	7	1	2	3	4	5	6	7
8	9	10	11	12	13	14	8	9	10	11	12	13	14
15	16	17	18	19	20	21	15	16	17	18	19	20	21
22	23	24	25	26	27	28	22	23	24	25	26	27	28
29	30	31					29	30	31				
FEBRUARY							AUGUST						
1	2	3	4	5	6	7	1	2	3	4	5	6	7
8	9	10	11	12	13	14	8	9	10	11	12	13	14
15	16	17	18	19	20	21	15	16	17	18	19	20	21
22	23	24	25	26	27	28	22	23	24	25	26	27	28
29	30						29	30	31				
MARCH							SEPTEMBER						
1	2	3	4	5	6	7	1	2	3	4	5	6	7
8	9	10	11	12	13	14	8	9	10	11	12	13	14
15	16	17	18	19	20	21	15	16	17	18	19	20	21
22	23	24	25	26	27	28	22	23	24	25	26	27	28
29	30	31					29	30					
APRIL							OCTOBER						
1	2	3	4	5	6	7	1	2	3	4	5	6	7
8	9	10	11	12	13	14	8	9	10	11	12	13	14
15	16	17	18	19	20	21	15	16	17	18	19	20	21
22	23	24	25	26	27	28	22	23	24	25	26	27	28
29	30						29	30	31				
MAY							NOVEMBER						
1	2	3	4	5	6	7	1	2	3	4	5	6	7
8	9	10	11	12	13	14	8	9	10	11	12	13	14
15	16	17	18	19	20	21	15	16	17	18	19	20	21
22	23	24	25	26	27	28	22	23	24	25	26	27	28
29	30	31					29	30					
JUNE							DECEMBER						
1	2	3	4	5	6	7	1	2	3	4	5	6	7
8	9	10	11	12	13	14	8	9	10	11	12	13	14
15	16	17	18	19	20	21	15	16	17	18	19	20	21
22	23	24	25	26	27	28	22	23	24	25	26	27	28
29	30						29	30	31				

1946													
JANUARY							JULY						
S	M	T	W	T	F	S	S	M	T	W	T	F	S
1	2	3	4	5	6	7	1	2	3	4	5	6	7
8	9	10	11	12	13	14	8	9	10	11	12	13	14
15	16	17	18	19	20	21	15	16	17	18	19	20	21
22	23	24	25	26	27	28	22	23	24	25	26	27	28
29	30	31					29	30	31				
FEBRUARY							AUGUST						
1	2	3	4	5	6	7	1	2	3	4	5	6	7
8	9	10	11	12	13	14	8	9	10	11	12	13	14
15	16	17	18	19	20	21	15	16	17	18	19	20	21
22	23	24	25	26	27	28	22	23	24	25	26	27	28
29	30						29	30	31				
MARCH							SEPTEMBER						
1	2	3	4	5	6	7	1	2	3	4	5	6	7
8	9	10	11	12	13	14	8	9	10	11	12	13	14
15	16	17	18	19	20	21	15	16	17	18	19	20	21
22	23	24	25	26	27	28	22	23	24	25	26	27	28
29	30	31					29	30					
APRIL							OCTOBER						
1	2	3	4	5	6	7	1	2	3	4	5	6	7
8	9	10	11	12	13	14	8	9	10	11	12	13	14
15	16	17	18	19	20	21	15	16	17	18	19	20	21
22	23	24	25	26	27	28	22	23	24	25	26	27	28
29	30						29	30	31				
MAY							NOVEMBER						
1	2	3	4	5	6	7	1	2	3	4	5	6	7
8	9	10	11	12	13	14	8	9	10	11	12	13	14
15	16	17	18	19	20	21	15	16	17	18	19	20	21
22	23	24	25	26	27	28	22	23	24	25	26	27	28
29	30	31					29	30					
JUNE							DECEMBER						
1	2	3	4	5	6	7	1	2	3	4	5	6	7
8	9	10	11	12	13	14	8	9	10	11	12	13	14
15	16	17	18	19	20	21	15	16	17	18	19	20	21
22	23	24	25	26	27	28	22	23	24	25	26	27	28
29	30						29	30	31				

1947													
JANUARY							JULY						
S	M	T	W	T	F	S	S	M	T	W	T	F	S
1	2	3	4	5	6	7	1	2	3	4	5	6	7
8	9	10	11	12	13	14	8	9	10	11	12	13	14
15	16	17	18	19	20	21	15	16	17	18	19	20	21
22	23	24	25	26	27	28	22	23	24	25	26	27	28
29	30	31					29	30	31				
FEBRUARY							AUGUST						
1	2	3	4	5	6	7	1	2	3	4	5	6	7
8	9	10	11	12	13	14	8	9	10	11	12	13	14
15	16	17	18	19	20	21	15	16	17	18	19	20	21
22	23	24	25	26	27	28	22	23	24	25	26	27	28
29	30						29	30	31				
MARCH							SEPTEMBER						
1	2	3	4	5	6	7	1	2	3	4	5	6	7
8	9	10	11	12	13	14	8	9	10	11	12	13	14
15	16	17	18	19	20	21	15	16	17	18	19	20	21
22	23	24	25	26	27	28	22	23	24	25	26	27	28
29	30	31					29	30					
APRIL							OCTOBER						
1	2	3	4	5	6	7	1	2	3	4	5	6	7
8	9	10	11	12	13	14	8	9	10	11	12	13	14
15	16	17	18	19	20	21	15	16	17	18	19	20	21
22	23	24	25	26	27	28	22	23	24	25	26	27	28
29	30						29	30	31				
MAY							NOVEMBER						
1	2	3	4	5	6	7	1	2	3	4	5	6	7
8	9	10	11	12	13	14	8	9	10	11	12	13	14
15	16	17	18	19	20	21	15	16	17	18	19	20	21
22	23	24	25	26	27	28	22	23	24	25	26	27	28
29	30	31					29	30					
JUNE							DECEMBER						
1	2	3	4	5	6	7	1	2	3	4	5	6	7
8	9	10	11	12	13	14	8	9	10	11	12	13	14
15	16	17	18	19	20	21	15	16	17	18	19	20	21
22	23	24	25	26	27	28	22	23	24	25	26	27	28
29	30						29	30	31				

## JANUARY 1946

- 1 New Year's day.
- 3 Partial eclipse of the sun, invisible at Washington.
- 4 50th anniversary, admission of Utah to the union.
- 6 Epiphany, or Twelfth Night.
- 8 Jackson day.
- 12 200th anniversary, birth of Johann H. Pestalozzi, Swiss educator.
- 13 Festival of St. Veronica.
- 14 Second session of 79th U.S. congress convenes.
- 20 Eve of St. Agnes.
- 26 Foundation day, Australia.
- 27 Feast of St. Chrysostom.

## FEBRUARY

- 2 Candlemas. Purification of the Virgin.
- 2 Ground-Hog day.
- 8 Boy Scout day, U.S.A.
- 12 Birth of Abraham Lincoln, 1809.
- 14 St. Valentine's day.
- 17 Septuagesima Sunday.
- 22 Washington's birthday, 1732.
- 24 Feast of St. Matthias.
- 25 200th anniversary, birth of Charles C. Pinckney, U.S. statesman.

## MARCH

- 1 St. David's day

# CALENDAR OF EVENTS, 1945

For elections and disasters of 1945, see under those headings in the text. For obituaries of prominent persons who died during 1945, see under the entry Obituaries.

## JANUARY

**1 Adolf Hitler** said German people would never capitulate because surrender would mean "enslavement."

**Sec'y of State Stettinius** announced U.S. would continue to recognize Polish regime in London despite formation of Russian-sponsored Lublin committee.

**France formally** joined United Nations.

**Capture of two German agents** who were landed in U.S. by U-boats was announced by FBI.

**Enactment of laws** which would make about 4,000,000 men in 4-F draft classification available for essential industries was suggested by OWM Director Byrnes.

**2 Gen. Nicholas Plastiras** was designated to form government as Greek civil war continued to rage.

**Japanese military targets** and other installations on Formosa and Okinawa Island were battered by U.S. carrier planes.

**3 Battle of Ardennes** reached turning point as U.S. 1st army attacked German lines on northern perimeter of Belgian bulge.

**Philippine Island of Marinduque** was occupied by Lt. Gen. Walter Krueger's U.S. 6th army.

**Strategic Burmese port** of Akyab was occupied by British imperial amphibious forces.

**House of representatives** voted 207 to 186 to put Committee on Un-American Activities on permanent basis.

**4 Geoffrey Francis Fisher**, bishop of London, was named archbishop of Canterbury.

**5 Disclosure that Marshal Montgomery** had assumed command of U.S. 1st and 9th armies when Germans threatened to spill through Ardennes Bulge was made by S.H.A.E.F.

**Soviet union** recognized provisional Lublin government, bringing to head Big Three quarrel over fate of postwar Poland.

**6 Pres. Roosevelt** asked congress to enact national service law that would fully mobilize nation's manpower as war entered "critical phase."

**8 U.S. carrier planes** launched savage attacks on Japanese targets on Formosa and Ryukyu Islands.

**9 U.S. troops** under Gen. MacArthur's command landed on Luzon Island at Lingayen gulf, about 107 mi. from Manila.

**Pres. Roosevelt** asked congressional approval of \$83,000,000,000 budget for 1946 fiscal year, of which \$70,000,000,000 would be earmarked for war effort.

**10 Proposal that U.S., Russia, Britain, France and China** sign immediately a "hard and fast" treaty to keep Germany and Japan permanently demilitarized was made by Sen. Vandenberg.

**Argentine government** announced it would not participate in meetings of Pan American Union so long as that body continued to "disregard Argentine rights."

**11 Cancellation of passenger train service** providing seasonal transportation to resort towns, and of all trains whose seats were 65% vacant during Nov. 1944 was ordered by Col. John Monroe Johnson, ODT chief.

**Japanese bases in French Indo-China**, including Saigon, were subjected to blistering attack by carrier planes of U.S. 3rd fleet which sank 41 Japanese ships and damaged 28 others; 112 Japanese planes were destroyed.

**12 Marshal von Rundstedt's** armies began retreat from Ardennes Bulge.

**Russians** opened giant drive in south central Poland, advancing 25 mi.

**13 China coast** was attacked for first time by U.S. carrier planes which bombed Japanese targets at Hong Kong, Amoy and Swatow.

**15 Nation-wide dimout** of lighting in outdoor show windows, signboards and theatre marquees to start Feb. 1 was ordered by WPB Chairman Krug to conserve dwindling coal stocks.

**Gen. Sultan**, commander of U.S. forces in Burma and India, announced that Ledo road linking

India and China had been completed.

**17 Warsaw** was liberated by Red army troops.

**18 Heavy U.S. army casualties** in Dec. 1944 in western Europe, which totalled 74,788 men, were believed due to German offensive in Ardennes forest.

**E.A.M. (National Liberation Front)** party of Greece was assailed as "Trotskyites" by Prime Minister Churchill, who also appealed for greater Big Three unity.

**19 German lines in Poland** collapsed under sledge-hammer Russian onslaughts as soviet forces captured Lodz, Cracow and Tarnow and reached border of German Silesia.

**German Ardennes counter-offensive** was termed failure by Allied supreme headquarters which added that von Rundstedt's drive had not "seriously affected" Allied plans.

**20 Franklin D. Roosevelt** was inaugurated for fourth term as president of U.S.

**Disclosure that 6,300 of 15,600** Canadian soldiers scheduled for overseas duty were absent without leave was made by Canadian national defense headquarters.

**Provisional Hungarian regime** seated at Debrecen signed armistice agreement with U.S., Russia and Britain; Marshal Klementiy Voroshilov signed truce document for Big Three.

**U.S. forces** sweeping southward through Luzon captured Tarlac and were only 65 mi. from Manila.

**21 Hungary** surrendered unconditionally to Allies, declared war on Germany and agreed to pay equivalent of \$300,000,000 in reparations in kind, U.S. state department disclosed.

**Soviet armoured columns** drove 19 mi. into German Silesia, and to the north captured Junker shrine of Tannenberg in East Prussia.

**Jesse Jones** acceded to Pres. Roosevelt's request and resigned as secretary of commerce and as head of government financing agencies.

**22 King Peter of Yugoslavia** dismissed Dr. Ivan Subasitch as premier because of latter's willingness to co-operate with Marshal Tito's regime.

**23 Marshal Ivan S. Konev's** 1st Ukrainian army reached

Oder river on 37-mi. front in drive to engulf all of German Silesia.

**24 Lt. Gen. Ben Lear** was named deputy commander in European war theatre, Allied headquarters announced.

**25 Henry Wallace** denied charges of unfitness to handle government finance agencies as secretary of commerce, declaring that real issue was between big and little business.

**Sec'y Stimson** confirmed that Gen. Stilwell had been named commander of U.S. army ground forces.

**U.S. troops** overran Clark field and Fort Stotsenburg in drive toward Manila.

**26 Herbert C. Pell** resigned as U.S. member of United Nations War Crimes commission after congress failed to appropriate funds for his post; Pell had championed more vigorous action in prosecuting war criminals.

**New York Yankees baseball club** was purchased for estimated \$2,800,000 by syndicate headed by Col. Larry S. MacPhail.

**Report by Donald Nelson**, who visited China at Roosevelt's behest, noted substantial improvements in China's economic and military effort.

**27 Stoppage in making or delivering** machinery for production of peacetime goods was ordered by WPB.

**28 Baltic port of Memel** and Silesian industrial centres of Beuthen and Katowice fell to Russian armies.

**Generalissimo Chiang Kai-shek** named new Burma-Ledo road after Gen. Stilwell.

**29 Marshal Zhukov's 1st White Russian army** invaded Pomerania in powerful drive aimed at Berlin.

**King Peter of Yugoslavia** backed down on regency dispute and reappointed Dr. Subasitch as premier.

**30 Adolf Hitler** told his countrymen that he expected them to die in their tracks in defense of Germany.

**Naval base of Olongapo** on Subic bay fell to U.S. forces in Luzon.

**513 captives** were rescued from Japanese prison camp in

## JANUARY—Continued

eastern Luzon by U.S. Rangers and Philippine guerrillas.

## FEBRUARY

**1** Sinking of huge Singapore floating dock by U.S. Superfortresses was indicated in reconnaissance photographs.

**2** U.S. and French troops battled way into Alsatian city of Colmar after hard street fighting.

Alexei was unanimously elected patriarch of Russian Orthodox Church by Council of Bishops convening in Moscow.

**3** 3,000 tons of explosives and incendiaries were rained on Berlin by more than 1,000 U.S. 8th air force bombers in raid co-ordinated with Red army's drive on reich capital.

Troops of U.S. 1st cavalry division entered Manila and captured Santo Tomas prison camp, freeing several thousand internees.

**5** Gen. de Gaulle demanded separation of Rhineland and Ruhr from reich and occupation of entire Rhine area by French troops; he also declared France would not be bound by decisions reached by Big Three in absence of France.

Electoral defeat of Defense Minister McNaughton of Canada was viewed as sign of popular disapproval of Prime Minister Mackenzie King's failure to apply full conscription for overseas duty.

**6** Fall of Manila was formally proclaimed by Gen. MacArthur although isolated Japanese units in city continued resistance.

**7** Marshal Zhukov's armies reached Oder river near Kuestrin and were 38 mi. from Berlin.

Hubert Pierlot resigned as premier of Belgium.

**8** Premier Pieter Gerbrandy's cabinet resigned and he was renamed to form Netherlands government to include representatives of liberated areas.

**9** Large squadrons of German jet-planes struck back at 1,300 U.S. bombers and 850 fighter escorts that raided German oil refineries, factories and rail yards.

U.S. war department reported that Gen. Wainwright and 177 U.S. war prisoners were shifted from Japanese prison camps in Formosa to Manchuria.

**10** Proposal calling for 29 amendments to Dumbarton Oaks plan for world security was submitted to U.S. and Britain by Polish government in London.

Baltic port of Elbing fell to Russian armies in East Prussia.

Large force of B-29 Superfortresses launched heavy daylight attack on Tokyo, leaving wake of great fires in industrial areas.

Pres. Roosevelt, Premier Stalin and Prime Minister Churchill met at Yalta, Feb. 4-11, and agreed (1) to crush nazism and German militarism; (2) to establish popular governments in liberated countries; (3) to make Germany pay reparations in kind for war damages; (4) to set up occupation zones in conquered Germany; (5) to call a United Nations conference at San Francisco, Calif., April 25; and (6) to broaden base of Polish and Yugoslav governments.

Achille van Acker, Socialist, formed coalition Belgian government, including representatives of Communist and Conservative parties.

**12** Pres. Roosevelt urged congress to take immediate action on Bretton Woods proposals, declaring U.S. participation in fund and bank were essential to plans for "peaceful and prosperous world."

British-supported Greek government and E.A.M. leftist parties reached accord to end civil war.

**13** Russian forces won all Budapest after bitter 50-day siege in which German and Hungarian defenders suffered estimated 159,000 casualties.

Polish regime in London said it could not be bound by Yalta

decisions for revising Poland's frontiers.

U.S. delegation named to attend San Francisco parley included Sec'y of State Stettinius, Cordell Hull, Senators Connally and Vandenberg, Representatives Bloom and Eaton, Comdr. Stassen and Dean Virginia Gildersleeve.

**14** Capture of Cavite naval base on Luzon by 11th air-borne division was announced in U.S. army communiqué.

Two German agents, William C. Colepaugh and Erich Gimpel, were sentenced to death by hanging after secret trial by U.S. military commission.

**15** Dresden was left in smoldering ruins after fourth heavy Allied air attack on city in 48 hours.

**16** Induction into armed forces of men under 38 who were not qualified for full military service but who left war jobs was disclosed by war department.

Torpedoing and sinking of Japanese prison ship carrying 1,800 Americans was reported to war department by five survivors of disaster.

U.S. air-borne and ground forces invaded Corregidor.

**17** Armada of 1,200 U.S. carrier planes in first raid in force on Tokyo rained bombs on that city and surrounding area for two days in succession.

World Trades Union conference sitting in London set up committee of 41 members to draft plans for formation of new international labour body.

All German assets in Switzerland were ordered frozen by Swiss federal council in move to prevent nazis from shipping loot to that country.

**18** Senate delay in acting on National Service bill was assailed by Sec'y of War Stimson, who denounced absence of laws to keep men at war jobs as "failure of American democracy."

**19** U.S. 4th and 5th marine divisions invaded Iwo Island in Volcano group.

Industrial areas of Tokyo were bombed by large force of Superfortresses in eighth B-29 raid on Japan's capital.

**20** White House disclosed that Prime Minister Churchill told Pres. Roosevelt in talks at Alexandria, following Yalta conference, that Britain was determined to give fullest possible assistance in battle against Japan after defeat of Germany; Roosevelt later received King Farouk of Egypt, Emperor Haile Selassie of Ethiopia and King Ibn-Sa'ud of Saudi Arabia aboard U.S. war vessel anchored in Great Bitter lake.

**21** Pres. Avila Camacho of Mexico "deplored" absence of Argentina at Inter-American Conference on Problems of War and Peace which opened in Mexico City.

U.S. 3rd marine division was thrown into battle for Iwo Island as Japanese attacks against original landing forces grew in fury.

U.S. escort carrier, "Bismarck Sea," was sunk by Japanese planes off Iwo Island.

**22** German railway network was nearly paralyzed by 14,000 tons of bombs dropped over it by 7,000 Allied planes based throughout Europe.

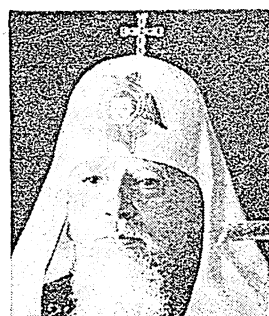
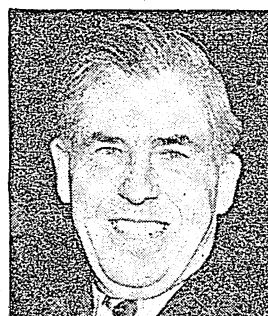
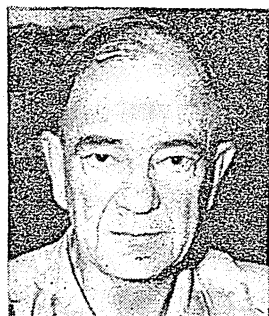
Premier Stalin prophesied that "full victory" over reich was near, adding that Russian offensive cost wehrmacht 1,150,000 men in 40 days.

Sec'y of State Stettinius in speech at Inter-American parley asked Latin-American republics to stamp out all nazi influence and said U.S. would give full economic and industrial support to raise western hemisphere living standards.

Four public members of WLB reported to Pres. Roosevelt that no change in Little Steel formula was warranted as wages had outrun prices.

The pictures on this page are, left to right:

HITLER.....Jan. 1  
SULTAN.....Jan. 15  
PETER II.....Jan. 22  
WALLACE.....Jan. 25  
ALEXEI.....Feb. 2





FEBRUARY—Continued

**23** Great Allied offensive in to Germany opened on western front as U.S. army forces hurdled Roer river barrier.

**48,000 Germans were killed or captured** in Posen battle as soviet forces captured Polish city after month-long siege.

Turkey declared war on axis in order to win seat at San Francisco parley of United Nations.

**Daring U.S. and Filipino troops** struck behind enemy lines and freed 2,146 civilian war prisoners from Los Banos concentration camp.

**24 U.S. carrier aircraft** staged second big raid on Tokyo area, bombing industrial targets.

Japanese troops in Intramuros quarter of Manila were annihilated, ending all enemy resistance in Philippine capital.

**Adolf Hitler urged every man, woman and child** in reich to fight until last breath, and threatened death for all shirkers.

**25 Dueren fell** to Lt. Gen. Hodges' 1st army as U.S. forces stepped up drive to clear Germans out of Rhineland and Saar.

**Red army troops** captured Preussich Friedland in big drive toward Baltic coast of Pomerania.

**More than 200 B-29 Superfortresses** bombed Tokyo after U.S. carrier planes raided capital for second day, hitting city with estimated 2,000 tons of explosives.

**Canadian mounted police and army troops** frustrated efforts of mob of 1,500 men in Drummondville, Que., that attempted to free suspected army deserters and draft evaders from police custody.

**Mahmoud Nokrashy Pasha**

The pictures on this page are, left to right:

McNAUGHTON.....Feb. 5  
GILDERSLEEVE.....Feb. 13  
SIMPSON.....March 2  
EICHELBERGER.....March 10  
KING.....March 27

became premier of Egypt.

**26 Midnight curfew** on all places of amusement throughout United States went into effect.

**Syrian chamber of deputies** voted declaration of war against Germany and Japan.

**Egypt's declaration of war** against Germany and Japan was approved by both houses of parliament.

**Field Marshal Sir Harold Alexander and Marshal Tito** reached agreement for co-ordinating their military activities, Allied communiqué said.

**27 Gen. MacArthur** turned civil government of Philippines over to President Sergio Osmeña in formal ceremony.

**WLB authorized regional boards** to permit 55-cent hourly wage to eliminate substandard salaries in many industries.

**28 House of commons** approved Yalta declaration by 396 to 25 vote.

**Pres. Getulio Vargas** of Brazil agreed to his cabinet's request to permit general elections for president, and said date for voting would be set in 90 days.

**U.S. state department** signed lend-lease agreement with France under which latter country would get civilian as well as military equipment.

MARCH

**Special joint session of congress** heard Pres. Roosevelt, reporting on Yalta parleys, declare U.S. must collaborate in world peace organization or face possibility of third world war.

**Big Three's plans** to establish world peace organization as outlined at Yalta parley were approved by 413 to 0 vote in Britain's house of commons.

**Henry Wallace** was confirmed as secretary of commerce in senate by 56 to 32 vote.

**President John L. Lewis** of United Mine Workers asked that miners get 10-cent royalty per ton of coal mined.

**2 U.S. 9th army forces** of Lt. Gen. William H. Simpson steam-rolled German resistance and reached Rhine's west bank at two places.

**Ryukyu Islands**, 450 mi. below Japan proper, were bombarded for 48 hours by U.S. surface craft and carrier planes.

**3 Act of Chapultepec** was unanimously adopted by 20 states represented at Inter-American conference in Mexico City; under act each signatory was pledged to protect territorial and political integrity of each other.

**4 Eastern Pomerania** was sliced into three segments as Marshal Zhukov's 1st White Russian army reached Baltic coast at Kolberg and Marshal Rokossovsky's 2nd White Russian army reached sea at Köslin.

**German radio** admitted that Dresden had been "wiped from map of Europe" by Allied bombs.

**5 Fred M. Vinson**, director of the Office of Economic Stabilization, was named to succeed Jesse H. Jones as federal loan administrator.

**Ives-Quinn bill**—designed to eliminate discrimination in employment on grounds of race, creed, colour or national origin—was passed in New York senate by 49 to 6 vote.

**Sec'y of Navy Forrestal** warned on return from Iwo that Allies would have to beat army of 5,000,000 enemy troops in far east before Japan was defeated.

**6 Cologne was occupied** by Lt. Gen. Courtney H. Hodges' U.S. 1st army forces.

**7 William H. Davis**, chairman of WLB, was appointed director of economic stabilization.

**WPB authorized** threefold increase in distribution of penicillin for civilian use after March 15.

**U.S. 1st army forces** seized intact rail bridge at Remagen and poured across Rhine river.

**9 Allied headquarters** disclosed that U.S. 15th army, under command of Lt. Gen.

Leonard T. Gerow, was on western front.

**10 Fifteen square miles** of heart of Tokyo was set afire by explosives dropped by 300 Superfortresses.

**Zamboanga peninsula** of Mindanao Island in the Philippines was invaded by troops of Lt. Gen. Robert L. Eichelberger's U.S. 8th army.

**Rumania received** official authority from Russia to take over administration of northern Transylvania in accordance with armistice terms.

**11 Establishment of new inter-agency committee**, designed to co-ordinate foreign shipments to "protect" U.S. domestic economy and support war effort, was announced by Director Byrnes of OWM; committee was placed under direction of Leo T. Crowley, foreign economic administrator.

**12 Oder river fortress** of Kuestrin was captured by Marshal Zhukov's 1st White Russian army.

**13 Pres. Roosevelt** named Generals Bradley, Krueger, McNarney, Somervell, Spaatz, Kenney, Clark, Devers and Handy for promotion to rank of full general.

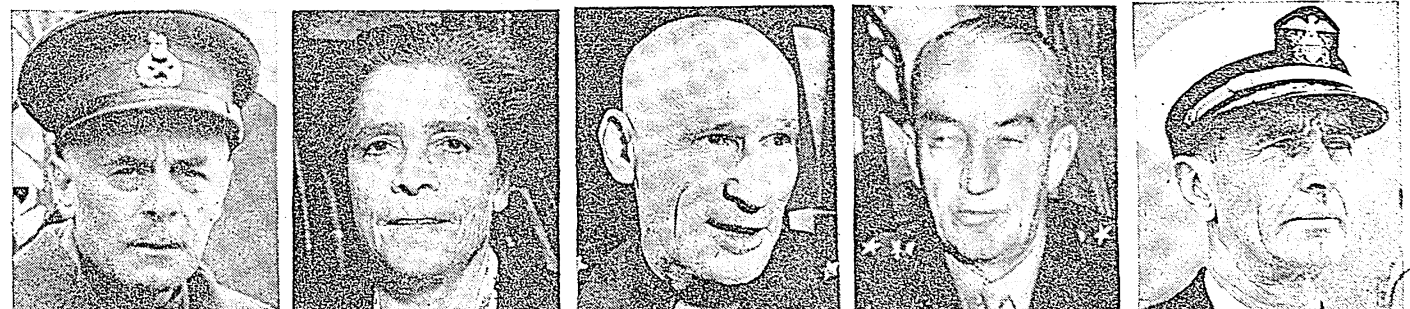
**14 Giant 11-ton "earthquake" bombs** were dropped on rail viaduct at Bielefeld, Germany, by R.A.F. Lancaster bombers.

**15 German general staff** headquarters at Zossen and rail centre of Oranienburg were blasted by more than 1,350 U.S. 8th air force bombers.

**Duke of Windsor** resigned as governor and commander in chief of Bahamas, colonial office in London announced.

**16 Organized Japanese resistance** on Iwo Island ended; U.S. marine casualties were 4,275 dead, 19,540 wounded and 12 missing; Japanese dead were estimated at about 21,000.

**Pres. Roosevelt** said shipment of food to devastated countries was matter of decency and that Americans would have to tighten belts before war's end.



## MARCH—Continued

**17** About 300 Superfortresses dropped more than 2,500 tons of bombs on 5-sq. mi. area of Kobe, Japan, setting huge fires.

**Coblentz on Rhine's west bank** fell to Gen. Patton's 3rd army forces.

**18** Vatican audience was told by Pope Pius that "disciples of violence" could achieve salvation only by repudiating nationalistic and racial dogmas.

**Closing of all schools, colleges and universities** for one year and mobilization of students for war effort was ordered by Tokyo cabinet as of April 1.

**U.S. infantry forces** invaded Panay Island in central Philippines.

**19** Nagoya was set afire by 2,000 tons of incendiaries dropped by large Superfortress fleet, one week after experiencing raid of similar proportions.

**Division of British empire** into component parts would not serve world peace, declared Col. Oliver Stanley, British colonial secretary.

**Returns of Finnish election** disclosed that new Popular Democrat coalition, pro-Russian party, received 51 of 200 seats.

**U.S. carrier planes** bombed Japanese warships in Inland sea, damaging between 15 and 17 Japanese naval units.

**U.S. 27,000-ton aircraft carrier "Franklin"** suffered casualties of 832 in dead and missing and 270 wounded when it was struck by lone Japanese dive-bomber.

**20** Mandalay was recaptured by British imperial forces in Burma.

**Pres. Roosevelt** disclosed that he had ordered Office of War Mobilization to study question of guaranteed annual wage.

**Soviet union** informed Turkey of its desire to terminate Russo-Turkish pact of 1925 because agreement needed improvement and adjustment to new conditions, Moscow broadcast said.

**21** Chairman Paul McNutt of WMC ruled that baseball players could leave war plants, where they were employed off-season, to return to game.

**22** Marshal Konev's armies trapped 45,000 Germans in twin drive into Silesia, Moscow communiqué said.

**U.S. 3rd army forces** crossed

Rhine in surprise offensive above Ludwigshafen.

**Dictator Franco** was urged to relinquish power in Spain and pave way for restoration of monarchy by Don Juan, pretender to the Spanish throne.

**Disclosure** that Field Marshal Kesselring had replaced Field Marshal von Rundstedt as commander in chief of German forces in west was made at headquarters of Allied 21st army group.

**23** Pres. Roosevelt's nomination of Aubrey Williams as Rural Electrification administrator was rejected by senate, 52 votes to 36.

**Gen. de Gaulle** announced that French Indo-China would gain limited autonomy after war.

**Germans fell back** as British 2nd, U.S. 9th and Allied 1st airborne armies covered by huge air fleets, crossed Rhine in drive to seize Ruhr industrial area.

**24** A 43-mi. advance was marked up by Marshal Tolbukhin's 3rd Ukrainian army driving westward through Hungary in new offensive co-ordinated with Allied assault on western front, soviet communiqué disclosed.

**25** Marshal Malinovsky's 2nd Ukrainian army joined drive on Vienna with 28-mi. advance along Danube river's south bank, Moscow announced.

**26** Okinawa Island, main Japanese bastion in Ryukyu chain, was bombed by surface units and carrier planes.

**Landings on eastern coast** of Cebu Island in Philippines were made by Gen. Eichelberger's U.S. 8th army.

**U.S. 14th air force** in China evacuated its air base in Laohokow area.

**R.A.F. bombing of The Hague** area on March 3, in which 800 Netherlands civilians were killed, was termed error and "deplorable catastrophe" by British government.

**Pres. Roosevelt** asked congress for authority to slash tariff rates 50% in reciprocal trade agreements.

**27** Argentine government declared war against Germany and Japan.

**Gen. Eisenhower** declared that German main defensive line had been broken and that wehrmacht on western front was a "whipped army."

**Adm. King's annual report** said war in Pacific area moved

faster than had been expected and that Iwo invasion marked opening drive against Japan's inner defenses.

**28** Baltic naval base of Gdynia was captured by Russian forces.

**Kerama isles in Ryukyu group** were overrun by troops of U.S. 77th division.

**29** Appointment of Maj. Gen. Lucius D. Clay as Gen. Eisenhower's deputy in charge of civil affairs in reich was announced by Pres. Roosevelt.

**Lt. Gen. Vandegrift** of U.S. marines was named for promotion to full general and Vice-Admiral Russell R. Waesche, coast guard commandant, was named for promotion to full admiral by Pres. Roosevelt.

**30** Russian armies on Baltic coast captured Danzig while other soviet columns in central Europe invaded Austria.

**Adm. Nimitz** disclosed that large British task force had joined U.S. Pacific fleet and had participated in Ryukyu bombardment.

**31** Russia's request that Lublin provisional government be invited to San Francisco conference was rejected by U.S. and Britain.

## APRIL

**1** U.S. 10th army invaded Okinawa in Ryukyu chain, 350 mi. from Japanese home islands; landings were covered by Adm. Spruance's U.S. 5th fleet and strong British carrier force under Vice Adm. Sir Bernard Rawlings; U.S. ground forces were under command of Lt. Gen. Simon Bolivar Buckner, Jr.

**Legaspi harbour** on southern tail of Luzon was captured by U.S. forces in new amphibious landing.

**Ruhr industrial basin** was completely encircled when U.S. 9th army linked up with U.S. 1st army near Lippstadt.

**2** U.S. troops invaded Tawi-tawi Island in Sulu archipelago about 30 mi. from Borneo.

**James F. Byrnes' resignation** as director of Office of War Mobilization and Reconversion was announced; he was succeeded by Fred M. Vinson.

**3** German naval base of Kiel was subjected to intense aerial attack by 1,400 U.S. warplanes.

**4** U.S. 3rd army broke into Thuringian plain and captured Gotha.

**5** Soviet Russia denounced neutrality pact with Japan, accused Japanese of helping Germany and said agreement had lost its meaning.

**Gravity of Japan's military situation** resulted in resignation of Premier Kuniaki Koiso's cabinet; Adm. Baron Kantaro Suzuki was called on to form new government.

**Appointment of Gen. MacArthur and Adm. Nimitz** as commanders respectively of all army and navy forces in entire Pacific theatre was announced by joint chiefs of staff.

**6** Six Japanese warships, including 45,000-ton battleship "Yamato," were sunk by U.S. carrier planes in action 50 mi. southwest of Kyushu.

**7** Escorted by fighter planes for first time, about 100 Superfortresses raided Nagoya and Tokyo suburbs; 173 Japanese planes were shot down by U.S. craft.

**Pres. Eduard Beneš** named Zdeněk Fierlinger premier of new Czechoslovak cabinet, Moscow disclosed.

**Japanese 15th army in Burma**, estimated at 50,000 men, "no longer exists as effective fighting force," Allied communiqué asserted.

**Huge German gold reserve** as well as foreign currencies and art treasures were found by U.S. army forces in salt mine in Merkers.

**9** U.S. and other American republics resumed diplomatic relations with Argentina.

**U.S. forces** landed on and occupied Jolo Island in Sulu archipelago.

**10** Entire centre of German line on western front caved in as Allied armies raced eastward; U.S. 12th army group alone took 1,018,367 axis prisoners after D-day.

**11** 2nd armoured division of U.S. 9th army reached Elbe river at Magdeburg, only 63 mi. from Berlin; other 9th army units captured Essen, while 3rd army forces took Coburg.

**Reconnaissance photographs** disclosed that German pocket battleship, "Admiral Scheer," was sunk by bombs during R.A.F. attack on Kiel on April 9.

**12** Franklin Delano Roosevelt died suddenly of brain hemorrhage at his estate in Warm Springs, Ga.; Vice-Presi-

APRIL—Continued

dent Harry S. Truman was sworn in as president.

**13 Vienna was captured** by soviet armies.

**14 Marshal Stalin**, acceding to request of President Truman, agreed to send Foreign Commissar Vyacheslav Molotov to United Nations conference at San Francisco, White House announced.

**15 Pres. Roosevelt was buried** at his ancestral estate in Hyde Park, N.Y., amid solemn rites.

**16 Pres. Truman**, in first speech before joint session of congress, declared he would carry out Roosevelt's war and peace policies.

**U.S. 5th and British 8th armies** opened big offensive in northern Italy.

**1,200 German civilians** from Weimar were brought into Buchenwald by U.S. troops to make forced tour of concentration camp and witness conditions under which 20,000 prisoners lived under gestapo rule.

**Sinking of "Lützow,"** German pocket battleship, in Swinemünde harbour by R.A.F. six-ton bombs was claimed by British air ministry.

**17 Prime Minister Churchill** eulogized Franklin D. Roosevelt in commons address as "greatest American friend we have ever known."

**Lt. Generals George S. Patton, Jr., and Courtney H. Hodges** were nominated by Pres. Truman for promotion to full generals.

**John W. Snyder** was appointed federal loan administrator by President Truman.

**18 U.S. 3rd army**, racing through Germany, crossed Czechoslovak border.

**Balabac Isle**, 45 mi. north of Borneo, was invaded and captured by U.S. forces.

**19 Great Russian drive on Berlin** was officially disclosed in soviet communiqué.

**Capture of at least 316,930 German prisoners** in Ruhr pocket was disclosed by Gen. Omar Bradley, 12th Allied army group commander.

**Leipzig and Halle** were seized by troops of U.S. 1st army.

**U.S. forces launched big offensive** into southern Okinawa, supported by artillery and naval barrages.

**U.S. again rejected soviet union's request** that provisional government of Poland should be invited to United Nations parley at San Francisco.

**Most Rev. Geoffrey Francis Fisher** was enthroned as 97th archbishop of Canterbury and primate of all England.

**20 Nuernberg**, one-time National-Socialist shrine city, was captured by U.S. 7th army on Adolf Hitler's 56th birthday.

**21 German broadcasts** admitted that Red army tanks had broken into streets of Berlin.

**Bologna was captured** by U.S., Italian and Polish troops of Allied 5th and 8th armies in Italy.

**22 U.S. 7th army columns** crossed Danube river at Dillingen; capture of Stuttgart and Freiburg by French 1st army was announced by Paris dispatches.

**Conclusion of "treaty of friendship, mutual assistance and post-war collaboration"** between Russia and Polish provisional government was announced by Moscow radio.

**23 Capture of Frankfurt-on-Oder** by 1st White Russian army was announced by Moscow.

**Allied warplanes** showered German lines with leaflets signed by Truman, Churchill and Stalin, warning German guards that mistreatment of Allied prisoners of war, internees or deportees would be severely punished.

**24 1st Ukrainian and 1st White Russian armies** joined inside Berlin.

**Marshal Henri Philippe Pétain** was permitted to enter Switzerland on declaring intention of returning to France to stand trial on treason charges.

**Allied 5th army** crossed Po river at several points and captured Modena while British 8th army took Ferrara.

**Senator Albert B. ("Happy") Chandler** was named high commissioner for baseball.

**25 United Nations Conference on International Organization** opened in San Francisco and Pres. Truman, in radio broadcast, urged conferees to rise above "personal interest" and work together for world peace.

**Soviet communiqué** revealed that Edouard Herriot, famed French statesman, was liberated

from prison camp by Russian troops.

**26 Troops of Gen. Courtney Hodges' U.S. 1st army** and Marshal Ivan Konev's 1st Ukrainian army formed junction at Torgau on Elbe river.

**Reichsmarshal Hermann Goering** was relieved of command as head of luftwaffe and was succeeded by Col. Gen. Robert Ritter von Greim, Hamburg radio disclosed.

**Allied armies in Italy** raced toward Brenner pass after capturing Verona and Parma.

**Baltic port of Stettin** was stormed and captured by Marshal Rokossovsky's 2nd White Russian army while Marshal Malinovsky's 2nd Ukrainian army occupied Moravian city of Brno.

**Gen. Eisenhower** ordered Lt. Gen. William H. Simpson's U.S. 9th army to halt at Elbe river to await junction with Red army.

**Bremen was occupied** by troops of Lt. Gen. Dempsey's British 2nd army.

**Marshal Pétain was arrested** by French military forces as he crossed from Switzerland into France.

**27 Allied 5th army troops**, with substantial aid from Italian partisan units, entered Genoa.

**Baguio**, summer capital of Philippines, was taken by U.S. 33rd and 37th infantry divisions.

**United Nations conference** in San Francisco agreed to grant soviet union 3 votes in proposed assembly of world security organization.

**28 Benito Mussolini**, his mistress Clara Petacci and several other high-ranking fascist officials were executed by Italian partisan firing squad near Lake Como; their bodies were returned in moving van to Milan where they were strung up by heels in Piazza Loretto for public display.

**Allied headquarters** indicated that Lt. Gen. Leonard T. Gerow's U.S. 15th army would rule U.S. occupation zone of Germany.

**German retreat in northern Italy** turned into headlong rout as U.S. 5th army captured Bergamo and Brescia.

**Lt. Gen. Patch's 7th army forces** swept across Bavaria and into Austria after 130-mi. advance in nine days.

**Capture of Marshal Rodolfo**

**Graziani**, commander of fascist armed forces in northern Italy, was disclosed to Allied headquarters by Italian partisan leaders.

**Buchenwald concentration camp** was described in official report made by Allied military mission as "extermination factory" in which thousands of civilian internees were deliberately starved or put to death by nazi guards.

**At least 28 persons** were killed and 33 injured when Japanese suicide plane dived into U.S. hospital ship 50 mi. south of Okinawa.

**29 Milan was captured** by Lt. Gen. Lucian K. Truscott's U.S. 5th army; Padua fell to Lt. Gen. Richard L. McCreery's British 8th army.

**Austrian provisional government** headed by Dr. Karl Renner, Social Democrat, was established in Vienna under soviet sponsorship, Tass news agency dispatch disclosed.

**45,000-ton aircraft carrier** constructed at cost of \$90,000,000 was christened "Franklin D. Roosevelt" by late president's widow at navy yard in Brooklyn.

**U.S. 7th army troops** broke into Munich and British 2nd army forces crossed Elbe river southeast of Hamburg.

**32,000 inmates** of notorious Dachau concentration camp were freed by U.S. forces who killed or captured German prison guards after furious battle.

**Machinato airfield** on Okinawa's west coast was captured by U.S. infantry forces.

**30 Undersec'y of State Joseph C. Grew** said U.S. did not recognize new Austrian regime set up in Vienna.

**U.S. 7th army columns** swept into Austrian Tyrol in drive toward Innsbruck.

**"Virtual elimination"** of German armies in Italy was announced by Gen. Mark Wayne Clark, Allied ground commander.

**United Nations delegates** voted 31 to 4 to invite Argentina to attend parley in San Francisco, despite Russian protest.

**Sugar ration in U.S.** was cut another 25% as sugar reserves hit "rock bottom."

**Judge Samuel I. Rosenman** advised Pres. Truman in public report that U.S. should supply "substantial share" of civilian needs in Europe, declaring that permanent peace in Europe depended upon restoration of its economy.



## MAY

**1** Hamburg radio declared Adolf Hitler had died at his post in reichschancellery in Berlin; Grand Admiral Karl Doenitz proclaimed himself new fuehrer of Germany.

**Gen. Mark W. Clark's forces** established junction with Marshal Tito's Yugoslav armies at Monfalcone, northwest of Trieste.

**Braunau**, Hitler's birthplace, was reached by U.S. 3rd army columns sweeping through Austria; U.S. 7th army occupied all of Munich.

**Final tallies of air war** against reich disclosed Allied planes had dropped more than 2,450,000 tons of explosives on German targets, destroyed 40,822 luft-waffe planes and lost 26,715 of their own.

**Invasion of Tarakan Island** off Borneo by Australian troops was announced by Australian government.

**2** Berlin was captured by Russian armies which also seized ports of Rostock and Warnemünde.

**Capture of Field Marshal Karl von Rundstedt** in Bad Tolz by U.S. 7th army was announced in Paris.

**Hostilities in Italy** ended officially at noon in agreement with terms of unconditional surrender signed by Germans April 29 at Allied headquarters in Caserta.

**Pres. Truman announced** that Robert E. Hannegan would replace Frank C. Walker as postmaster general as of June 30.

**Pierre Laval** arrived in Barcelona in German military plane and was placed under arrest by Spanish authorities.

**3** Russian and British forces linked up on 65-mi. front south of Baltic.

**Rangoon** was captured by British 14th army.

**Moscow press** said Russian forces in Berlin had found no trace of bodies of either Hitler or Goebbels and voiced doubt

that either of two nazi leaders were dead.

**4** All German forces in Netherlands, northwest Germany and Denmark, including Helgoland and Frisian Islands, surrendered to Field Marshal Montgomery's 21st army group.

**All Slovakia** was cleared of nazi forces by Russian armies.

**Lt. Gen. Patch's U.S. 7th army** drove through Brenner pass and joined up with U.S. 5th army after capturing Berchtesgaden, Salzburg and Innsbruck.

**Five light U.S. surface units** were sunk by Japanese planes in heavy attack on U.S. fleet off Okinawa.

**5** Army group G of wehrmacht, totalling between 200,000 and 400,000 men, surrendered to Gen. Jacob L. Devers 6th army group, with capitulation effective as of noon May 6.

**Swinemünde**, last big German-held port on Baltic, was captured by soviet troops.

**Adm. Doenitz** admitted wehrmacht struggle against western Allies had become "senseless" but appealed to German troops to continue fighting Russians.

**U.S. war department** announced plans to discharge some 2,000,000 men from army after fall of Germany and to send 6,000,000 selected troops against Japan.

**Russian Foreign Commissar Molotov** disclosed that 16 Polish underground leaders had been arrested by soviet authorities on charge of "diversionist activities against Red army."

**Paul Reynaud, Edouard Daladier** and Generals Maurice Gamelin and Maxime Weygand were freed by U.S. troops from imprisonment in Itter, Austria.

**Delegation of 18 U.S. editors and publishers**, who toured German concentration camps at Gen. Eisenhower's invitation, said nazis were guilty of calculated and organized brutality and urged U.S. to adopt strong attitude toward war criminals.

**6** Plzen (Pilsen) and Karlsbad in Czechoslovakia were taken by Gen. Patton's 3rd army troops.

**Estimate that 12,000,000 tons** of imported food would be required to feed continental Europe from Aug. 1945 to Aug. 1946 was made by U.S. agriculture department.

**Portugal severed diplomatic relations** with Germany on grounds that German government no longer existed.

**7** Germany surrendered unconditionally to western allies and soviet union at 2:41 A.M. in Gen. Eisenhower's headquarters at Reims, France, thus ending European phase of World War II.

**Capitulation document** was signed for Germany by Col. Gen. A. Jodl, German chief of staff; for supreme Allied command by Lt. Gen. Walter Bedell Smith, Eisenhower's chief of staff; for soviet union by Gen. Ivan Susloparov and for France by Gen. François Sevez.

**Edward Kennedy**, Associated Press correspondent, was suspended by Allied supreme headquarters on charges that his premature announcement of Germany's surrender violated pledge he had made not to release story until authorized.

**Capture of Breslau** and its garrison of 40,000 German troops was announced in Russian communiqué.

**All German U-boats** were ordered to cease fighting by Adm. Doenitz.

**Dispatches from Italy** said Leon Blum, Kurt von Schuschnigg and Pastor Martin Niemöller were liberated from prison camp near Italo-Austrian border by U.S. troops.

**8** Unconditional surrender of Germany was formally ratified in Berlin; document was signed by Field Marshal Gen. Wilhelm Keitel, Gen. Adm. Hans Georg Friedeburg and Gen. Hans Juergen Stumpff for Germany; by Marshal Georgi K. Zhukov for soviet union and Air Chief Marshal Sir Arthur William Tedder, Gen. Eisenhower's deputy, for Allies; Gen. Carl A. Spaatz, commander of U.S. strategic air forces and Lt. Gen. Jean de Latre de Tassigny, commander of French 1st army, witnessed signing.

**King George VI** commended Gen. Eisenhower and his armies on their "complete and crushing victory" in Europe.

**Pres. Truman** officially announced unconditional surrender of Germany but added that only when last Japanese division surrendered would "our fighting job be done."

**Prime Minister Churchill** formally proclaimed end of war in Europe, but warned that Japan still remained to be beaten.

**U.S. 7th army headquarters** announced that King Leopold III of the Belgians and his wife, Princess Rethy, were liberated by U.S. troops.

**WPB revoked "brown-out"** of nonessential lighting.

**Russian forces** captured Dresden.

**Crown Prince Olaf** returned to Oslo and proclaimed surrender of all German forces in Norway.

**9** Director Vinson of OWMR lifted midnight entertainment curfew and ban on horse-racing; he warned of continued shortages in food, clothing and shelter until war with Japan was over.

**Redeployment** of some of U.S. armed forces from European to Pacific war theatres was underway, Gen. Brehon B. Somervell disclosed.

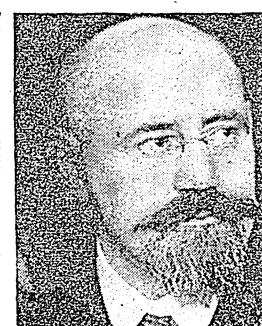
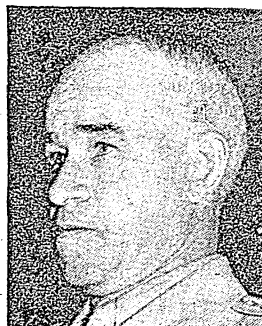
**Reichsmarshal Hermann Goering** gave himself up to U.S. 7th army, it was disclosed in Paris; Field Marshal Albert Kesselring and Gen. Franz Xaver von Epp were captured by U.S. forces.

**Vidkun Quisling** and several of his cabinet members surrendered to Oslo police and were immediately imprisoned.

**10** U.S. army set up point system based on length of

The pictures on this page are, left to right:

BENEŠ.....April 7  
BRADLEY.....April 19  
CHANDLER.....April 24  
RENNER.....April 29  
EISENHOWER.....May 5





## MAY—Continued

service, combat record and parenthood which was to determine eligibility for demobilization.

**Chairman Krug** of WPB lifted 73 orders banning or limiting manufacture of certain categories of civilian goods.

**11 Gen. Eisenhower** ordered that no combat soldiers who had fought in both North Africa and Europe were to be sent to Pacific.

**Two Japanese Kamikaze planes** crashed on deck of U.S. aircraft carrier "Bunker Hill," causing 656 casualties.

**Russian delegates** at San Francisco submitted trusteeship plan which would give colonial peoples opportunity to work for self-government and eventually "full national independence."

**12 Yugoslavia's action** in occupying Trieste was denounced by U.S. Undersec'y of State Joseph C. Grew as "sudden unilateral" action running counter to Yalta accord.

**13 More than 500 Superfortresses** unloaded heavy load of fire bombs on Nagoya in daylight raid.

**Prime Minister Churchill** warned that he would not permit "totalitarian or police governments" to replace nazi tyranny in liberated Europe.

**14 Disclosure that U.S. anticipated** large reductions in lend-lease shipments to Russia because of changed military situation was made by Undersec'y of State Joseph C. Grew.

**Austrian provisional government** declared its independence, abolished all nazi decrees and restored republican laws.

**At least 284 Japanese aircraft** were destroyed or damaged over 72-hour period by U.S. carrier-based planes.

The pictures on this page are, left to right:

CLAY..... May 16  
HALSEY..... May 27  
DE GAULLE..... May 31  
PIUS XII..... June 2  
STETTINIUS..... June 23

**15 Vice Adm. Richmond K. Turner** was nominated by Pres. Truman for promotion to rank of full admiral.

**16 U.S. military government** would apply policy of hard realism in administering its occupation zone of Germany, Lt. Gen. Lucius D. Clay, deputy military governor, disclosed.

**17 U.S. 6th marine division** won foothold in Nawa, capital of Okinawa.

**18 Deportation of Fritz Kuhn**, one-time leader of German-American Bund in U.S., to Germany was announced by U.S. department of justice.

**19 Chungking communiqué** said Chinese troops had reoccupied port of Foochow.

**Disclosure that U.S. 15th army** was occupying 14,000 sq. mi. of Germany, including Saar basin, Rhine valley and part of Ruhr, was made by Allied headquarters.

**Temporary 10% reduction** in railroad freight rates in and between southern, western and southwestern territories, and 10% increase in eastern territory freight rates were ordered by I.C.C. as of Aug. 30, pending study for effecting permanent and uniform freight rates for entire nation.

**21 Tension over Trieste dispute** was relaxed when Yugoslav partisan forces evacuated Carinthia and Styria in Austria.

**War department announced** that U.S. 1st army was being shifted from European to Pacific war theatre.

**23 Pres. Truman reorganized cabinet;** Thomas C. Clark succeeded Francis Biddle as attorney general, Lewis B. Schwellenbach succeeded Mrs. Frances Perkins as secretary of labour; Rep. Clinton P. Anderson succeeded Claude Wickard as secretary of agriculture.

**Prime Minister Churchill** and his cabinet resigned when Labourites refused to continue in wartime coalition cabinet; King George VI reappointed Churchill as prime minister; dissolution of parliament as of June 15 and general elections as of July 5 were announced.

**Adm. Doenitz' government** was dissolved by Allied authorities; Doenitz, other members of his government and general staff were placed under arrest.

**Heinrich Himmler**, nazi gestapo chieftain and interior minister who had been captured by British army troops, ended his life by swallowing poison.

**Pres. Truman** sent Harry L. Hopkins to Moscow to confer with Premier Stalin, and Joseph E. Davies to London to confer with Prime Minister Churchill.

**24 Bills designed to broaden social security program** by providing health insurance, nationalizing existing services and extending coverage to additional 15,000,000 persons were submitted to congress by Senators Wagner and Murray and Representative Dingell.

**4,500 tons of incendiary bombs** were dumped over Tokyo by fleet of 550 Superfortresses.

**Pres. Truman** asked congress to enact immediately legislation which would enable him to reorganize executive branch of government.

**25 Estimated 111 Japanese planes** were shot out of air in Okinawa battle theatre in 48-hour period by U.S. forces after enemy attack which caused damage to 11 light naval units.

**Prime Minister Churchill** revised cabinet to fill vacancies caused by resignation of Labourite members.

**Reduction of 30% in production** of U.S. military aircraft, resulting in cutback of 17,000 planes over 18-month period, was announced by war department.

**26 Measure to extend and broaden reciprocal trade program** was approved by house of representatives by 239 to 153 vote.

**Disclosure that U.S. 8th air force** would be transferred to Pacific theatre under command of Lt. Gen. James H. Doolittle was made by U.S. army air forces.

**27 Chinese troops** recaptured inland treaty port of Nan-king, Chungking announced.

**Adm. William F. Halsey's** Allied 3rd fleet took over naval operations in Ryukyu area.

**28 Sec'y of State Stettinius** declared adoption of "strong and democratic" world security charter at San Francisco parley was virtually assured, and added that U.S. must play role of mediator between major allies when their interests conflict.

**Congress** was asked by Pres. Truman to boost federal unemployment insurance to as much as \$25 a week and extend coverage to more workers.

**Yokohama** was raided for first time by Superfortresses; more than 450 B-29s hit city with 3,200 tons of incendiary bombs.

**29 Damascus** was shelled by French mortars as clashes between French troops and natives spread in Syria.

**30 Shuri castle**, keystone of Japanese defense line in Okinawa, was captured by U.S. marines.

**Maj. Gen. Curtis LeMay** disclosed that 51 sq.mi. of Tokyo had been laid waste by six Superfortress attacks.

**Iran government** asked U.S., Britain and Russia to withdraw troops from country as war in Europe was over.

**31 Prime Minister Churchill** informed Gen. de Gaulle that British forces had been instructed to "intervene" in Levant states to end bloodshed and avoid threat to Allied lines to Pacific.

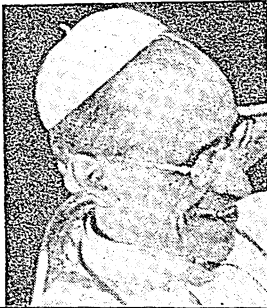
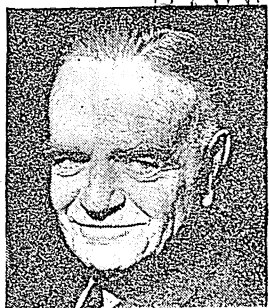
## JUNE

**1 Pres. Truman** said that U.S. would have army of 7,000,000 men to hurl against Japan by 1946.

**Osaka** was set afire by more than 3,000 tons of incendiary bombs dropped by 450 B-29s, escorted by Mustang fighters.

**City of Shuri** was captured by U.S. 10th army on Okinawa.

**U. S. government officials** announced meat shipments to liberated countries would be halted during July, August and September to alleviate domestic food shortage.



## JUNE—Continued

**Gen. de Gaulle** disclosed that he had ordered French troops in Levant to cease fire in compliance with British request.

**2 Pope Pius XII** expressed hope that Germany would rise to "new dignity and new life" and asserted small states in Europe were entitled to refuse "new political or cultural" systems.

Russian delegates insisted that permanent members of proposed United Nations council have right to veto discussion of international disputes.

**4 Prime Minister Churchill** opened electioneering campaign warning that a Labour government would establish totalitarian state employing some form of gestapo.

Program calling for \$4,375,000,000 in lend-lease aid for year starting July 1 "in order to shorten war" and reduce expenditure in Allied lives and materials was sent to congress by Pres. Truman.

**5 Reich came under full control of United Nations** as U.S., British, Russian and French commanders in chief "assumed supreme authority" over defeated nation.

**Clement R. Attlee** told British voters that socialist economy based on state control would lead country "into happier and securer future."

**Gen. de Gaulle's** accusation of British meddling in Levant states was denied by Prime Minister Churchill who said British sought no territorial or other advantages in that zone.

**Kobe was struck** by 3,000 tons of fire bombs and explosives unloaded by fleet of nearly 450 Superfortresses.

**7 Bretton Woods pacts** were approved in house of representatives by 345 to 18 vote.

**Gen. Omar N. Bradley** was designated to succeed Brig. Gen. Frank T. Hines as administrator of veterans' affairs.

**Justice Robert H. Jackson** pledged stern punishment of axis war criminals, declaring that "to free them without trial would mock the dead and make cynics of the living."

**8 Undersec'y of State Joseph C. Grew** denied reports that Russia would obtain Korea and other concessions for its entry into Pacific war.

**9 Temporary tripartite** military administration of Venezia Giulia, which includes Trieste, was agreed upon by U.S., Britain and Yugoslavia, state department announced.

**Marshal Zhukov** said Adolf Hitler had married Eva Braun two days before Berlin's fall and that Russians "found no corpse that could be Hitler's."

**Premier Kantaro Suzuki** stated Japan would fight to last rather than accept unconditional surrender.

**Disclosure** that nazis had exterminated at least 80% of Germany's Jews was made by Allied military government authorities in Frankfurt-on-Main.

**Hoop Jr.** won Kentucky Derby.

**10 Australian troops** landed at four points on northwestern Borneo in Brunei bay area.

**11 Liberal party** won heavy majority in Canadian elections, returning Prime Minister Mackenzie King's government to office.

**12 Measure** designed to outlaw poll tax as voting requisite was passed by house of representatives by 251 to 105 vote.

**13 United Nations shipping** losses from start of World War II were 4,770 ships totalling 21,140,000 gross tons, U.S. and Britain disclosed jointly.

**U.S. army ordnance experts** declared German plans to bomb U.S. with V-2 rocket projectiles by November of 1945 might have succeeded had war continued.

**14 Yaeju hill**, key point in Japanese defenses on Okinawa, was captured by U.S. forces.

**Town of Brunei** in northern Borneo was seized by Australian troops.

**Proposal that viceroy's executive council** be broadened to include representatives of all Indian political groups was made by Leopold Amery, secretary for India.

**15 Clement Attlee**, British Labour leader, accepted Prime Minister Churchill's invitation to attend Big Three parley in Potsdam as "friend and counsellor."

**Gen. Eisenhower** asserted he favoured peacetime draft in letter dated June 2 to house committee on postwar military policy.

**Truk Island** was shelled and

bombed over 48-hour period by units of British Pacific fleet.

**More than 3,000 tons of bombs** were unloaded on Osaka by more than 500 Superfortresses.

**16 Vice Pres. Juan Perón's** social and economic policies were attacked in manifesto issued by Argentine industrial and commercial groups.

**Pleas for continuance** of universal military training in peacetime were voiced by Sec'y of Navy Forrestal, Gen. Marshall and Adm. King before house committee on postwar military policy.

**Cabinet of Premier Achille van Acker** resigned in protest over projected return of King Leopold to Belgium's throne.

**Assertion that Spain** was moving toward complete internal liberty was made by Generalissimo Franco.

**18 Chungking communiqué** announced that Chinese troops had recaptured port of Wenchow.

**Ruling that membership** by laws of Associated Press violated Sherman antitrust act was upheld by supreme court.

**Order to deport Harry Bridges**, west coast labour leader, was ruled illegal in supreme court decision.

**19 Estimated 4,000,000 New Yorkers** jammed line of march to welcome Gen. Eisenhower as he visited city.

**20 Senators Hatch, Burton and Ball** introduced measure intended to revise Wagner Labor act in move to avert what they termed danger of management-labour battle in postwar period.

**Senate approved**, by 54 to 21 vote, Pres. Truman's request for extension of Trade Agreements law for three years and authority to cut current tariffs 50% in agreements with other nations.

**21 Okinawa fell to U.S. 10th army** after gruelling 82-day battle.

**Soviet court** sentenced 12 of 16 Polish underground leaders, convicted of subversive activities, to prison terms ranging from 4 months to 10 years; three were acquitted and trial of fourth was postponed.

**22 Gen. Joseph W. Stilwell** was made commander of U.S. 10th army, succeeding Gen. Simon Bolivar Buckner, Jr., who had been killed in action, MacArthur announced.

**Japanese arsenal city of Kure**

on Honshu Island was raided by 450 Superfortresses.

**New Polish regime** was formed in Moscow with Edward Osobka-Morawski as premier and Stanislaw Mikolajczyk as vice-premier.

**Gen. Roy S. Geiger** was named chief field commander of U.S. marine corps.

**23 Disclosure that U.S., Russia, Britain and China** had agreed to permit entry of new Polish government into projected world league was made by Sec'y of State Stettinius.

**24 Gen. Arnold** asserted that U.S. must retain island air bases in Pacific for own defense.

**25 Leo T. Crowley**, foreign economic administrator, revealed that U.S. was continuing to supply Russia with lend-lease goods via Siberian ports.

**26 United Nations concluded conference** at San Francisco and each of its members signed charter designed to ensure lasting peace; Pres. Truman concluded final session with plea that 50 signatories translate lofty words of new charter into worthy deeds.

**27 Edward J. Stettinius** resigned as secretary of state and was named U.S. member of United Nations security council and chairman of U.S. delegation on general assembly.

**28 Liberation of Luzon** was announced by Gen. MacArthur after U.S. forces split last Japanese force in Cagayan valley into three isolated segments.

**29 Japanese naval base of Sasebo** and three other cities were battered by nearly 500 Superfortresses.

**Ruthenia was ceded to Russia** in agreement drawn up by Czechoslovakia and soviet governments.

**Three German civilians**, convicted by U.S. military court of slaying U.S. airman in Aug. 1944, were hanged by U.S. army executioners.

**30 House of representatives** voted 255 to 94 to continue OPA for another year and measure was speeded to Pres. Truman for signature.

**James F. Byrnes** was named by Pres. Truman as secretary of state.

**Liuchow**, former U.S. air base in China, was recaptured from Japanese by Chinese troops.

**Pres. Truman** signed measure ordering 15% pay raise for federal employees to become effective as of July 1.

JULY

**1 Australian troops** landed at Balikpapan, east Borneo oil centre.

**2 Pres. Truman** submitted United Nations charter to senate and urged that body ratify it quickly as only way to achieve enduring peace.

**Comdr. Harold E. Stassen** said world peace lasting at least 50 years could be achieved if U.S. adopted wise course in its foreign policy.

**James F. Byrnes** was unanimously confirmed by senate to succeed Edward R. Stettinius, Jr., as secretary of state.

**3 U.S. and British troops** began entering their respective zones of occupation in Berlin.

**Sec'y of State Byrnes** asserted there would be no change in basic foreign peace policies as charted by late Pres. Roosevelt.

**4 Three Japanese cities** on Shikoku and one on Honshu were attacked by estimated 500 Superfortresses which dropped 3,000 tons of bombs on targets.

**Japanese reports** said U.S. warships bombarded Karafuto, southern half of Sakhalin Island, on July 2 and 3.

**5 Gen. MacArthur** announced entire Philippines campaign could be regarded as closed, but admitted there would be isolated guerrilla action.

**Recognition of new Polish government** of national unity sitting in Warsaw was announced simultaneously in Washington and London.

**U.S. military government** seized assets and 24 plants of I.G. Farbenindustrie in its zone of occupation for ultimate disposition by four Allies ruling Germany.

**Henry Morgenthau, Jr.**, resigned as secretary of treasury.

**Owen J. Roberts** announced decision to resign as associate justice of supreme court as of July 31.

**6 ODT issued order** banning civilians from sleeping cars between points less than 450 mi. apart.

**Nicaragua** became first nation to ratify United Nations charter.

**7 Nearly 4,000 tons of bombs** including petroleum jelly fire bombs were dropped on four Honshu cities by some 600 Superfortresses.

**10 Japanese home islands** were attacked by estimated 2,000 army, navy and marine aircraft.

**12 Compromise legislation** designed to continue Fair Employment Practices committee for another year was voted by both houses of congress.

**Joseph Benedict Chifley** was elected prime minister of Australia on first ballot by parliamentary Labour party.

**13 U.S. government** admitted full responsibility for sinking of Japanese relief ship "Awa Maru" and informed Japanese government it would discuss indemnity after war's end.

**Supreme headquarters**, Allied expeditionary force, at Frankfurt-on-Main, were dissolved by Gen. Eisenhower.

**14 Warships of U.S. Pacific fleet** bombarded Japanese mainland for first time, hitting targets on northern Honshu and Hokkaido Islands.

**Soviet union and China** reached understanding on many important questions, said Russo-Chinese joint communiqué issued in Moscow.

**Gen. Eisenhower** relaxed order forbidding fraternization between U.S. soldiers and German civilians.

**Viscount Wavell**, viceroy of India, declared Simla parley envisaging British proposals for greater Indian self-government had failed and assumed blame for failure.

**15 Prime Minister Achille van Acker** disclosed that King Leopold had informed Belgian leaders that he would neither return to Belgium nor abdicate throne.

**17 British carrier task force** joined U.S. 3rd fleet in attack "in great strength" on targets in Tokyo area.

**Pres. Truman** was selected by Prime Minister Churchill and Premier Stalin to preside over Big Three conference that opened in Potsdam.

**Restoration of "traditional" monarchy** at some future date was promised to Spain by Generalissimo Francisco Franco.

**18 Yokosuka naval base**, hiding place for remnants of Japanese fleet, was raided by U.S. carrier aircraft.

**20 Pres. Truman**, in speech at raising of U.S. flag in Berlin, said U.S. prime goal was to bring peace and prosperity to world.

Both houses of congress passed (1) Bretton Woods bill, (2) measure to increase Export-Import bank's lending authority from \$700,000,000 to \$3,500,000,000.

**21 U.S. membership** in United Nations Food and Agriculture organization was voted by senate.

**22 Domei news agency** said Japan would be amenable to "fair arguments" in discussing peace proposals but would not be "intimidated" by threats, according to broadcast heard by FCC.

**State department** disclosed that Japan had agreed to permit neutral observers to inspect its prisoner-of-war camps.

**Recommendations that Harvard university** abolish free elective system of study and place more emphasis on general education after end of war were made in report by special faculty committee appointed to study this question in 1943.

**23 Marshal Pétain** went on trial in Paris courtroom and asserted that, far from betraying France as indictment charged, he had "prepared the road for liberation."

**Fred M. Vinson** was sworn in as secretary of treasury, succeeding Henry Morgenthau, Jr.

**24 Two Japanese battleships** and two cruisers were damaged by U.S. and British airmen of U.S. 3rd fleet's carrier forces that bombed Japanese naval base of Kure and other enemy anchorages in Inland sea.

**Marshal Pétain** was accused by Paul Reynaud and Edouard Daladier of being pro-German plotter who had conspired to destroy third republic before and during war.

**Maj. Gen. Curtis E. LeMay** was named chief of staff to Gen. Carl Spaatz, commander of U.S. strategic air force in Pacific; Lt. Gen. Nathan F. Twining was named successor to LeMay as head of 20th air force in Marianas.

**25 Russian request** for assistance from U.N.R.R.A. amounting to \$700,000,000 was disclosed by U.N.R.R.A. official.

**26 Churchill government** was defeated in general elections by overwhelming Labourite majority; Clement R. Attlee became prime minister and pledged full co-operation in war against Japan.

**Pres. Truman** and retiring Prime Minister Churchill, with concurrence of Generalissimo

Chiang Kai-shek, called on Japan to accept unconditional surrender or face "prompt and utter destruction."

**Belgian chamber of deputies** gave Premier Achille van Acker 95 to 68 vote in support of his opposition against return of King Leopold.

**27 Prime Minister Attlee** appointed six Labour party leaders to his cabinet: Ernest Bevin was named foreign secretary; Arthur Greenwood, lord privy seal; Hugh Dalton, chancellor of exchequer; Herbert Morrison, lord president of council; Sir Stafford Cripps, president of board of trade; and Sir William Jowitt, lord chancellor.

**Leon Blum**, former French premier, told court that Marshal Pétain "morally" betrayed France by misrepresenting degrading German armistice to French people.

**Chinese forces** recaptured Kweilin, former U.S. air base city, Chinese high command asserted.

**28 United Nations security charter** was ratified by U.S. senate by 89 to 2 vote; Pres. Truman said senate approval of document advanced "cause of world peace."

**U.S. 20th air force** notified Japanese people in advance of cities that Superfortresses would bomb.

**Earl Browder** was formally deposed as president of Communist Political association and was replaced by William Z. Foster.

**29 U.S. cruiser "Indianapolis"** was torpedoed and sunk by Japanese submarine; 880 men and officers were lost and 316 survivors were officially listed as casualties.

**30 T. V. Soong** resigned as foreign minister of China but retained concurrent post of premier; Wang Shih-chieh replaced Soong as foreign minister.

**31 Pierre Laval**, former Vichy chief, flew from Barcelona to Linz, Austria, where he surrendered to U.S. army.

**Field Marshal Sir Harold R. L. G. Alexander** was appointed by King George VI as governor general of Canada to succeed Earl of Athlone.

AUGUST

**Army's jet-propelled fighter plane** travelled 544 mi. from Dayton, O., to La Guardia field, New York, in 62 min.

**Letter from Adm. Leahy** to



## AUGUST—Continued.

Marshal Pétain, which both criticized and extolled Vichy chief-tain, was introduced by defense in trial of Pétain in Paris.

**2 Agreement on measures** (1) to reduce German industrial power to subsistence levels; (2) to permit Poland and soviet union to annex East Prussia and large part of eastern Germany and (3) to establish reparations scales was reached by Pres. Truman, Premier Stalin and Prime Minister Attlee at Berlin conference.

**6,000 tons of explosives** and incendiaries were dropped on four Japanese cities and oil centres by some 800 Superfortresses.

**3 Pres. Truman** asserted no "secret agreements of any kind" were made at Big Three conference in Berlin.

**5 Sen. Vandenberg** proposed that European powers grant American republics "exclusive responsibility" for policing western hemisphere under new World Security organization.

**6 First atomic bomb**, said to have destructive force of more than 20,000 tons of T.N.T., was dropped on Japanese city of Hiroshima by U.S. plane.

**Pres. Truman** asserted U.S. was prepared to obliterate with atomic explosives every major Japanese city unless Japan acceded to Potsdam ultimatum.

**Maj. Gen. Leslie R. Groves** was given executive charge of atomic bomb program in 1942 by Pres. Roosevelt, Sec'y of War Stimson disclosed in statement on development of atomic bomb. Roosevelt appointed Dr. Vannevar Bush chairman of military policy committee on atomic energy. Dr. J. Robert Oppenheimer directed and organized atomic bomb laboratory in Los Alamos, N.M. Eminent scientists who contributed to the success of the project, either by direct developmental work or previous theoretical achievement, included Hans Bethe, Niels Bohr, James Chadwick, Arthur H. Compton, Enrico Fermi, Otto Hahn, E. O. Lawrence, Lise Meitner, Lord Ernest Rutherford, Fritz Strassmann and Harold C. Urey.

War dep't disclosed first test

firing of atomic bomb in New Mexico, July 16, 1945, vaporized steel tower from which it was suspended.

**7 Alfred P. Sloan and Dr. Charles F. Kettering** disclosed \$4,000,000 grant for establishment of cancer research institute in New York city in which industrial techniques would be applied to cancer study.

**Marshal Josip Broz (Tito)** told Yugoslav national assembly that "outmoded" monarchy was repudiated by majority of Yugoslavia and that King Peter would be barred from returning.

**8 Soviet union declared war on Japan**; Foreign Commissar Molotov declared Russia joined war against "Japanese aggression" to shorten conflict, reduce number of victims and facilitate early restoration of peace.

**Representatives of U.S., Russia, Britain and France** agreed on new international code defining aggressive warfare as crime against world and providing punishment for provokers of such wars.

**About 4.1 sq.mi.,** or 60% of Hiroshima, were wiped out by atomic bomb explosion, U.S. army air forces reported.

**Four-power occupation machinery** for rule of Austria was set up by U.S., Russia, Britain and France; system divided Austria, as well as Vienna, into four zones of occupation.

**9 U.S. air forces dropped second atomic bomb** on Japan; target for this attack was city of Nagasaki.

**Russia's far eastern army** began hostilities at 12:10 A.M., launching strong drives against Japanese forces along eastern Soviet-Manchurian border.

**10 White House** announced that Japan had offered to surrender and that terms were being studied by U.S., Britain, Russia and China.

**11 Pres. Truman** said Allies agreed to Japanese surrender proposal on basis of Potsdam ultimatum, provided Hirohito submitted to authority of Allied commander in chief.

**Preliminary assessment** by U.S. army strategic air force experts disclosed that 30% of Nagasaki was destroyed by atomic bomb.

**12 Chiang Kai-shek** criticized "independent action" by Chinese communist commanders and instructed China's communist troops to remain at their posts and await further orders.

**Prime Minister Attlee** said British would co-operate with Pres. Truman's proposal to keep secret of atomic bomb until complete control of weapon was assured.

**13 U.S. 3rd fleet carrier planes** resumed attacks on Tokyo area as Japanese government officials pondered Allied surrender terms.

**Program requesting establishment of Jewish state** in Palestine, which was submitted to British government in May, was disclosed by World Zionist conference.

**14 Japan accepted Allied unconditional surrender terms.**

**Moscow radio** disclosed China and soviet union signed friendship treaty.

**Gen. de Gaulle** and Foreign Minister Georges Bidault ratified United Nations charter for France.

**Marshal Pétain** was sentenced to death with recommendation for mercy by Paris court after conviction on charges of intelligence with enemy.

**War Manpower commission** abolished all manpower controls over employees enabling employers to hire men at their discretion.

**Gen. MacArthur** was named supreme Allied commander in chief to receive Japan's capitulation.

**15 Emperor Hirohito** broadcast to his subjects first announcement of Japan's decision to accept Allied unconditional surrender terms.

**Japanese cabinet** of Premier Kantaro Suzuki resigned.

**Broad outlines** of plans to speed up demobilization were

announced by U.S. army, navy and marine corps.

**Program to speed reconversion** was outlined by John W. Snyder, director of war mobilization and reconversion.

**Government ownership of Bank of England** and nationalization of mines were stressed in King George's address opening new Labour parliament.

**16 Japanese army** in Manchuria was ordered by Marshal Alexander Vasilevsky, commander of soviet far eastern armies, to surrender by Aug. 20.

**Seven wartime controls** over commercial motor traffic were lifted by ODT.

**Relaxed wage controls** were announced by Pres. Truman who urged labour and management to renew no-strike, no-lockout pledge until adequate substitute for WLB could be established.

**Joseph C. Grew** resigned as undersecretary of state and Dean G. Acheson was named to succeed him.

**Soviet union and Poland** signed treaty which fixed new Russo-Polish frontier and which determined how they would share German reparations.

**17 Prince Naruhiko Higashi-Kuni** formed new Japanese cabinet which was sworn in at imperial palace.

**Archibald MacLeish and Gen. J. C. Holmes** resigned as assistant secretaries of state.

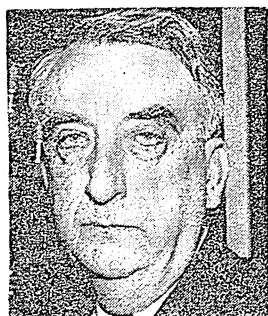
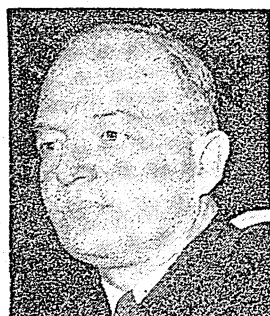
**Travel curbs** on sports events were ended by ODT.

**U.S. air force statistics** said Superfortress squadrons destroyed largest part of industrial capacity of 59 major Japanese cities, flew 32,612 sorties against Japanese and dropped 169,421 tons of bombs in 14 months.

**Gen. de Gaulle** commuted

The pictures on this page are, left to right:

STASSEN.....July 2  
VINSON.....July 23  
BEVIN.....July 27  
FERMI.....Aug. 6  
OPPENHEIMER.....Aug. 6





AUGUST—Continued

death sentence imposed on Marshal Pétain to life imprisonment.

**18 Pres. Truman** vested OPA, WLB and department of agriculture with broad authority to take "vigorous action" to restore maximum production of civilian goods, collective bargaining and free markets.

**19 Gen. Jonathan M. Wainwright** was located by U.S. army parachute squad which landed at Japanese prisoner-of-war camp deep in Manchuria, it was disclosed in Chungking.

**Committee of Economic Development** predicted 54,000,000 civilian jobs would be filled by Sept. 1946, and that production of consumers' goods that year would reach \$80,000,000,000.

**20 Vidkun Quisling**, who went on trial in Oslo court on charges of having betrayed his country, countered with claim that he had been "saviour" of Norway.

**Ernest Bevin**, British foreign secretary, in first speech before commons, said he would oppose any attempts to substitute one form of "totalitarianism" for another in Europe.

**WPB cancelled 210 controls** which had restricted production of certain categories of consumers' goods in wartime.

**21 Adm. Nimitz** announced that all but 55 of Japan's 382 warships were damaged or destroyed by U.S. air and sea power during war.

**Pres. Truman** ordered halt of lend-lease operations to all Allied governments.

**22 Domei dispatch** said atomic bombings killed 70,000 persons, wounded 120,000 others and left 290,000 homeless.

**Agreement to establish pro-**

The pictures on this page are, left to right:

MEITNER.....Aug. 6  
UREY.....Aug. 6  
HIGASHI-KUNI.....Aug. 17  
MacARTHUR.....Aug. 30  
PATTON.....Sept. 22

visional international regime to govern Tangier was announced by U.S., Russian, British and French experts convening in Paris.

**23 Price controls** on mercury, aluminum and magnesium were removed by OPA Administrator Chester A. Bowles, who promised that small quantities of household utensils would be on sale in autumn at 1942 prices.

**United Nations charter** was ratified without dissenting vote by both houses of British parliament.

**Premier Stalin** announced that Red army had won complete victory over Japanese in Manchuria and that fighting in that area had ended.

**British, U.S. and French troops** formally entered Vienna to share in occupation of Austrian capital with soviet armies.

**24 Prime Minister Attlee** told house of commons that abrupt termination of lend-lease left Britain in "very serious financial position"; in Washington, FEA Administrator Leo T. Crowley disclosed six-point program to enable Britain to bridge transition, but asserted British well knew that lend-lease had to end with finish of war.

**WPB removed all controls** on output of passenger motor cars.

**Britain was accused** of denying Australia "equality of footing" in Japanese peace discussions by Herbert Vere Evatt, Australian minister of external affairs.

**25 Nelson Rockefeller** resigned as assistant secretary of state and was replaced by Spruille Braden, U.S. ambassador to Argentina.

**Pres. Truman and Gen. de Gaulle**, in joint statement at White House, asserted their talks showed existing "fundamental harmony" between France and U.S. and agreed to even closer co-operation in future.

**Bulgaria yielded to Allied recommendation** to delay scheduled elections to democratize more thoroughly voting procedure.

**26 Chinese nationalist forces** entered Shanghai and Nanking, Chungking announced.

**27 Congress was urged by Pres. Truman** to continue draft of men between 18 and 25 for military service because of world crisis and to release veteran combat soldiers.

**28 Mao Tse-tung**, Chinese communist leader, arrived in Chungking for conference with Chiang Kai-shek designed to avert civil war.

**Occupation of Japan** was begun by a force of about 150 U.S. soldiers who landed at Atsugi airfield.

**29 Hermann Goering**, Joachim von Ribbentrop, Hjalmar Schacht and 21 other nazi civilian and military leaders were indicted by Allied jurists as war criminals.

**Findings of army and navy inquiry boards** on Pearl Harbor attack were released by Pres. Truman; probes indicated that lack of preparedness, confusion and lack of co-ordination between services combined to cause U.S. defeat in first blow of World War II; criticism of Gen. Marshall in army report was branded as "entirely unjustified" by Sec'y of War Stimson.

**30 Gen. MacArthur** landed in Japan and set up temporary headquarters in Yokohama.

**Government reduced red-point ration value** for meat, cheese and fat. Pres. Truman urged congress to achieve equitable solution of lend-lease debts, asserting that any effort to collect outright \$42,000,000,000 lent Allies would threaten their political stability and sow seeds of new war.

**Pres. Truman** asserted that country itself was just as much to blame as its military leaders for lack of preparedness that resulted in Pearl Harbor disaster.

**31 Office of War Information** was abolished by Pres. Truman who transferred some of its functions to state department.

**Sec'y of State Byrnes** declared assumption that entire lend-lease debt to Allies would be cancelled was unjustified and warned

against "generalizations" in connection with Pres. Truman's earlier lend-lease statement.

SEPTEMBER

**1 Pres. Truman** proclaimed Sept. 2 as V-J day and called on U.S. to strive for world of good will.

**2 World War II** was officially ended as Japanese envoys signed formal surrender documents aboard U.S.S. "Missouri" anchored in Tokyo bay; Foreign Minister Mamoru Shigemitsu signed for Japanese government and Gen. MacArthur, for Allies.

**Premier Stalin** announced that defeat of Japan enabled Russians to regain southern half of Sakhalin Island and Kurile chain, both wrested from Russia in Russo-Japanese War of 1904.

**Japanese garrisons in Palau group**, Truk, Rota and Pagan Islands surrendered to U.S. commanders.

**3 Generalissimo Chiang Kai-shek** declared that political armies would not be tolerated within China's borders.

**Gen. Tomoyuki Yamashita** surrendered remnants of his Japanese army in Philippines to Gen. Jonathan M. Wainwright.

**4 Gen. MacArthur** issued directive instructing Japanese to speed demobilization of their armed forces.

**Japanese garrison on Wake Island** surrendered to U.S. forces.

**Disclosure that U.S.** had given tacit agreement to return of Sakhalin and Kurile Islands to soviet union was made by Sec'y of State Byrnes.

**Emperor Hirohito** personally opened Japanese diet session with appeal to his people to "win confidence of world," and set up peaceful state.

**British dominions office** in London announced that Lt. Gen. Sir Bernard Freyberg had been appointed governor general of New Zealand.

**5 State department report** accused Japanese of massacring, torturing and starving



## SEPTEMBER—Continued

U.S. prisoners and asserted Japanese government virtually ignored 19 U.S. protests against atrocities.

**U.S. navy urged congress** to retain chain of nine bases won in Pacific and to establish six bases in Atlantic.

**Pres. Truman appointed Benjamin V. Cohen** as counselor in state department and Donald S. Russell and William Benton as assistant secretaries of state.

**6 A 21-point legislative program**, designed to achieve "as full peacetime production and employment as possible in most efficient and speedy manner," was contained in Pres. Truman's message to congress.

**Sinclair Oil corporation** announced it had received 50-year concession from Ethiopia to develop country's oil resources.

**Congress was told by OPA Administrator Chester A. Bowles** that he hoped to end all rationing in 1945 but said wage and price controls should continue as long as inflation threat remained.

**Congressional investigation** of Pearl Harbor disaster, endorsed by Pres. Truman, was unanimously voted by senate.

**Paul V. McNutt** was named high commissioner to Philippines.

**8 Sec'y of Navy Forrestal** objected to full disclosure of all Pearl Harbor facts on grounds it would compromise "sources of information" vital to national security.

**9 Gen. MacArthur**, outlining policy for ruling Japan, emphasized that he was over-all authority but that people and emperor would be permitted reasonable self-rule under Allied directives.

**Large contingents of U.S. troops** marched into Tokyo as other U.S. forces landed in Korea and other sections of Japan and Japanese empire.

**Gen. Yasuji Okamura** surrendered 1,000,000 Japanese troops to Gen. Ho Ying-chin, Chinese chief of staff in Nanking ceremony.

**Lt. Gen. John R. Hodge** received formal surrender of Japanese troops in U.S. occupation zone of Korea, and retained Japanese administrators in office to carry out his directives.

**Canada resumed meat rationing** to assure adequate supplies for export to United Kingdom and liberated countries.

**Recommendation** that U.S. share secret of atomic bomb was sent to Pres. Truman by 64 faculty members and research scientists of University of Chicago.

**10 Emperor Hirohito** was ordered by Gen. MacArthur to abolish Japanese imperial general headquarters as of Sept. 12.

**Foreign ministers** of five Allied powers opened conference in London.

**Vidkun Quisling**, Norwegian nazi, was sentenced to death in Oslo court for high treason.

**11 Gen. MacArthur** ordered arrest of 40 prominent Japanese civilians and military leaders on charges of war crimes.

**Lt. Gen. John R. Hodge** was instructed by Gen. MacArthur to replace all Japanese administrators in Korea as rapidly as was consistent with safety.

**Senate resolution** requesting congressional probe of Pearl Harbor disaster was approved in house of representatives without dissenting vote.

**12 Francis Biddle** was appointed U.S. judge on board of international tribunal which was to try axis war criminals; Judge John J. Parker was named as his alternate.

**13 Use of U.S. troops** to occupy major Chinese cities and enforce Chungking's orders until situation was "stabilized" was declared possibility by Lt. Gen. Albert C. Wedemeyer, commander of U.S. troops in China.

**14 Premier Stalin**, in interview with Sen. Pepper, asserted principal objectives of soviet union were to repair war damages, rebuild industrial strength and raise standard of living.

**Ford Motor company** virtually stopped production in all its plants because unauthorized strikes crippled output schedules.

**16 Pres. Philip Murray** of C.I.O. asserted U.S. steel industry amassed \$2,000,000,000 in open and concealed profits during five years of war output.

**17 Josef Kramer** and 44 S.S. aids went on trial in British military court in Lüneburg on charges of conspiracy to commit mass murder in nazi concentration camps at Belsen and Oswiecim.

**18 Henry L. Stimson** resigned as secretary of war and Pres. Truman designated Robert P. Patterson as his successor.

**Sen. Harold H. Burton** of Ohio was named by Pres. Truman to supreme court.

**Pres. Truman** placed War Labor board, U.S. Employment service and War Manpower commission under Sec'y of Labor Schwellenbach; and also merged Office of Emergency Stabilization and Office of War Mobilization and Reconversion with John W. Snyder as over-all head.

**19 Dean G. Acheson**, under-secretary of state, asserted that U.S. government, not Gen. MacArthur's occupation forces, would determine policy on Japan.

**People of India** were promised by Prime Minister Attlee that positive measures would be taken immediately after Indian elections to assure them full self-rule.

**William Joyce**, who worked for nazis as radio broadcaster and was known to British as Lord Haw Haw, was sentenced to be hanged for treason after three-day trial in Old Bailey.

**Eric A. Johnston** succeeded Will H. Hays as president of Motion Picture Producers and Distributors of America, Inc.

**20 State department** disclosed that Arthur B. Emmons, foreign service officer, would be sent to Japan to establish direct liaison with Gen. MacArthur.

**21 Demand that southeast Asia possessions** of European powers be freed from "imperialist domination" was made in Bombay by working committee of All-India Congress party.

**22 Document issued by White House** dated Sept. 9 called for strong political, economic and military curbs to eliminate Japan as menace to world peace.

**Japanese government** was ordered to furnish U.S. authorities with complete data on its banks, insurance companies and imperial household finances.

**Gen. George S. Patton, Jr.**, declared in interview that he had "never seen necessity of denazification program" and compared "this nazi thing" to "Democratic and Republican election fight."

**23 Withdrawal of British troops** and incorporation of Anglo-Egyptian Sudan into Egypt was demanded by cabinet of Premier Mahmoud Nokrashy Pasha.

**24 Strike of elevator operators** of more than 2,000 buildings in Manhattan paralyzed commercial activity in

New York's skyscraper district.

**Anglo-U.S. oil pact** was signed in London by Harold L. Ickes, U.S. petroleum administrator, and Emanuel Shinwell, Britain's fuel minister.

**25 Congress** was asked by Pres. Truman to slash more than \$28,500,000,000 from war department's appropriations.

**Nazi party** was declared illegal and abolition of all German armed forces as well as semi-military organizations was decreed in new Allied proclamation.

**26 State of siege was revived in Argentina** after government initiated wave of arrests in move to quell growing discontent with totalitarian Perón government.

**Letter written by Pres. Roosevelt** March 10 in which he said Spain could expect no help from U.S. as long as totalitarian Franco regime remained in power was made public by state department.

**27 Emperor Hirohito** shattered precedent and paid a visit to Gen. MacArthur.

**Foreign Economic administration** was abolished by Pres. Truman.

**28 War department** announced that Gen. Wainwright had been named commander of east defense command.

**29 Gen. Eisenhower** urged that four Allied occupation powers take steps to prevent economic chaos in reich by bringing that nation to solvency at subsistence level.

**Survey asserting** that U.S. occupation authorities in reich "appeared to be treating Jews as nazis treated them, except that we do not exterminate them," was made public by Pres. Truman; survey was made by Earl G. Harrison, U.S. representative on Inter-Governmental Committee on Refugees, after inspecting camps of displaced persons in Germany. Pres. Truman acting on Harrison report directed Gen. Eisenhower, in letter dated Aug. 31, to alleviate "shocking" treatment of displaced Jews in Germany.

## OCTOBER

**1 All restrictions on fraternizing** between Allied soldiers and Germans, save for certain bans on intermarriage, were relaxed by Allied control council.

**2 Gen. Eisenhower's headquarters** announced removal of Gen. Patton as U.S. 3rd

OCTOBER—Continued

army commander in Bavaria; Patton was replaced by Lt. Gen. Lucian K. Truscott, Jr.

Council of five foreign ministers in London terminated parity with no accord on any major issues.

**3 Prompt creation of atomic energy commission** to regulate all phases of nuclear energy was urged by Pres. Truman in special message to congress.

**Foreign Commissar Vyacheslav Molotov** of U.S.S.R. ascribed stalemate of council of foreign ministers to refusal of other delegates to accept soviet compromise plan to continue discussions.

**U.S. refusal** to associate itself with Argentina because of latter's repudiations of international obligations resulted in postponement of Rio de Janeiro parity for concluding hemispheric military alliances.

**4 Strike-bound properties of 26 oil-producing and refining firms** were taken over by navy on Pres. Truman's orders.

**Batavia dispatches** said Indonesian nationalists had taken over Surabaya and other Javanese cities.

**5 Sec'y of State Byrnes** attributed much of disagreement at council of foreign ministers to Russia's suspicions of western Allies.

**Transcontinental U.S. phone service** was paralyzed for period of four to six hours by strike of Bell system workers demanding higher wages.

**Duke of Windsor** returned to Britain after six years of absence to visit royal family.

**6 Chinese communists** charged Chiang Kai-shek's armies had attacked, with Japanese aid, Chinese communists in territory controlled by latter in central China.

**Baron Kijuro Shidehara** formed new Japanese cabinet and pledged full co-operation with Allied military authorities.

**Sir Walter Citrine** was elected president of World Federation of Trade Unions.

**8 Pres. Truman** declared U.S. had no intention of disclosing to any other nation industrial secrets in manufacturing atomic bomb.

**9 Warning** that U.S. would court "disaster" if it disarmed was sounded by Gen. Marshall in his biennial report.

**Col. Juan Perón** was compelled to resign all of his government posts by uprising of army forces in Argentine military base at Campo de Mayo.

**Pierre Laval** was sentenced to death by Paris high court of justice for plotting against state and for intelligence with enemy.

**10 Detroit Tigers defeated Chicago Cubs** 9 to 3, thus winning baseball's world series by four games to three.

**New constitutional status** for British Malaya, which would merge Malay states and Straits Settlements into a Malayan union and make Singapore independent colony, was announced by British colonial office.

**Tax reduction** of \$5,350,000,000 for 1946 was voted by house of representatives by 343 to 10.

**"Incentive" price increases** were approved by John D. Small, chief of new Civilian Production administration.

**Gen. MacArthur** presented Premier Shidehara with five-point program designed to democratize Japanese institutions.

**12 Gen. Anton Dostler** of German general staff was sentenced to death by U.S. military court in Rome for ordering shooting of 15 U.S. soldiers without trial in March 1944.

**Announcement** that members of nazi party would be deprived of vote was made by Gen. Eisenhower.

**Canadian income tax cut** of 16% was among five important tax reductions announced by Finance Minister J. L. Ilsley.

**13 400 scientists** at Los Alamos government laboratory warned in signed statement that efforts to keep secret of atomic bomb would lead to "unending war more savage than last."

**Indonesian people's army** issued proclamation calling for all-out guerrilla warfare in Batavia area of Java.

**14 Allied armies took over Batavia** and declared looting, sabotage and bearing of arms would be punishable by death.

**15 Pierre Laval** was executed by firing squad after his attempt to cheat executioners by taking poison failed.

**17 Coal strike** was ended at order of John L. Lewis, president of United Mine Workers of America.

**Col. Juan Perón** was released

by army and returned to Argentine political scene in former role as "strong man" of Farrell regime.

**Archbishop Damaskinos** ended prolonged cabinet crisis in Greece by taking over government as provisional president.

**18 Indictment** of 24 nazi war leaders of Hitler's reich on charges of plotting against world peace was presented before international military tribunal.

**Sec'y of State Byrnes** said U.S. would make no final decision affecting Palestine without prior and full consultation with both Arabs and Jews.

**International machinery** to prevent rate wars was set up by 57 world air lines in Montreal conference.

**Port strike in New York** was ended by National Maritime union after 18 days.

**19 R.A.F. Marshal Sir Arthur W. Tedder** was appointed chief of air staff and senior member of air council, succeeding retiring R.A.F. Marshal Lord Portal, British air ministry announced.

**20 General Eisenhower** recommended concrete proposals to prevent I.G. Farbenindustrie from ever again becoming menace to peace; these included dynamiting of arms plants, breaking up of cartels and use of firm's equipment as reparations.

**Chancellor Karl Renner's regime** was recognized as *de facto* provisional government of Austria by Allied control council.

**U.S. and Belgium** arranged interim settlement of lend-lease relations under which U.S. agreed to repay Belgium for \$90,000,000 in reverse lend-lease.

**Achmed Soekarno**, Indonesian leader, called on Pres. Truman to stop Netherlands from using lend-lease equipment to put down Indonesian independence movement.

**21 Revolutionary government** headed by Pres. Romulo Bettancourt won solid control of Venezuela after brief period of civil strife.

**Communists** emerged as strongest single party in French elections with Socialists and Popular Republican movement close behind.

**23 Pres. Truman**, warning that peace must be built on power, recommended to joint congressional session immediate legislation of one year's military training for U.S. youth.

**Promises of substantial reductions** in all categories of taxes were made to British people by Hugh Dalton, chancellor of exchequer, in presenting Labour government's first budget to house of commons.

**24 Recommendation** that legal minimum wage should be raised to 65 cents and ultimately to 75 cents hourly was made to house labour committee by Sec'y of Labor Schwellenbach.

**United Nations World Security organization** came into being when soviet union ratified charter, which with legal majority of 29 ratifications became "law of nations."

**Vidkun Quisling** was executed by Norwegian firing squad.

**25 Employees of General Motors corporation** voted 70,853 to 12,438 in favour of strike if necessary to get wage increase of 30%.

**Sir Alexander Fleming**, Dr. Ernest Boris Chain and Sir Howard W. Florey were awarded 1945 Nobel prize for penicillin research.

**27 Pres. Truman** said U.S. would not recognize government forced upon any nation by foreign power and asserted U.S. held atomic bomb as sacred trust.

**Netherlands government** ordered Dr. Hubertus van Mook, acting governor-general of Netherlands East Indies, to initiate negotiations with Indonesian nationalists.

**29 Trial of Gen. Tomoyuki Yamashita** on charges of being war criminal was opened in Manila before U.S. military court.

**Getulio Vargas** resigned as president of Brazil and José Linhares, chief justice of supreme court, assumed role as interim president until election.

**End of automobile rationing** was announced by OPA and WPB.

**30 Pres. Truman** asserted U.S. industry could afford higher wages without increasing prices, but told labour not to expect as much money as they made during war boom era.

**Shoe rationing** was ended by OPA.

**House of representatives** voted unanimously for peacetime U.S. navy consisting of 6,084 combat and auxiliary ships and 12,000 planes; this force would be larger than fleets of all other nations combined.

**New Venezuelan government**



## OCTOBER—Continued

was recognized by U.S.

**31 Gen. Eisenhower** reported social, political and economic aims of Potsdam declarations were being carried out satisfactorily in U.S. occupation zone of reich.

## NOVEMBER

**1 Plans to nationalize** all British air transport and empire's communications system were announced by British Labour government.

**British intelligence officers** said exhaustive investigation suggested that Adolf Hitler had married Eva Braun April 29 and that both committed suicide the following day in a bunker in Berlin.

**2 Several hundred persons** were hurt in clashes with police as anti-Zionist mob in Cairo set fire to Jewish shops and a synagogue.

**Hungarian provisional government** was recognized by the United States.

**4 Small Landholders party** won decisive majority in national and municipal elections in Hungary.

**5 Pres. Truman opened labour-management conference** in Washington with warning that failure to establish broad and permanent basis for industrial peace would mean legislation by congress.

**Charges that U.S. troops in China** were actively collaborating with Chungking troops in attacks on Chinese communist forces were made by Chinese Communist party organs.

**At least 74 Jews were killed** and 183 others were injured in outbreak of anti-Semitic riots in Tripoli (Tripolitania) and nearby towns.

**6 William O'Dwyer**, Democratic and American Labor party candidate, was elected mayor of New York city.

**Edward J. Jeffries** was re-elected mayor of Detroit, defeating Richard T. Frankenstein, C.I.O. candidate.

**Foreign Commissar Molotov** decried use of atomic energy as instrument of power politics and predicted that Russia would have atomic energy in the future.

**7 World air speed record** of 606 m.p.h. was claimed for British jet-plane which made four runs over 70-mi. course off south coast of England.

**8 Proposal that United Nations** outlaw production or possession of atomic bomb, thus solving Big Three differences over control of weapon, was made by Capt. Harold E. Stassen.

**9 C.I.O. members of Ford Motor company** voted 42,235 for and 3,951 against strike in support of their 30% wage increase demand, NLRB announced.

**10 Sec'y of Labor Schwel-lenbach** urged Pres. Fairless of U.S. Steel Corp. to "reconsider" refusal to continue collective bargaining with C.I.O. United Steelworkers; Fairless had said he would not talk with union unless OPA first acted to increase steel price.

**11 Gen. Henry H. Arnold** warned U.S. must be prepared to strike back against unannounced robot attacks in future war, in final report to war department.

**12 Cordell Hull** was announced as winner of 1945 Nobel peace prize.

**13 Joint session of U.S. congress** heard Prime Minister Attlee warn that world civilization, "in terrible light of atomic bomb," could only survive through strong United Nations organization.

**Sutan Sjahrir** became premier of unrecognized Indonesian republic; Achmed Soekarno remained as president but his powers were greatly reduced.

**Anglo-U.S. agreement** to establish joint committee of inquiry to investigate entire problem of European Jews and Palestine was announced by Foreign Sec'y Ernest Bevin.

**15 Willingness of U.S., Britain and Canada** to share secret of atomic energy with other United Nations as soon as

"effective enforceable safeguards against its use for destructive purposes can be devised," was expressed in joint statement by Pres. Truman, Prime Minister Attlee and Prime Minister Mackenzie King.

**Investigation of Pearl Harbor attack** was opened by joint congressional committee; early disclosures showed that Japanese code fell into U.S. hands as early as Dec. 1940.

**Edwin S. Pauley**, Pres. Truman's special representative, said Japan's resources were so depleted that country could probably pay only "insignificant" reparations.

**Prof. Otto Hahn** of Berlin and Prof. Wolfgang Pauli of Vienna were awarded Nobel prizes for their researches on atomic fission; award for chemistry was given to Prof. Artturi Wirtanen of Helsinki; award for literature went to Gabriela Mistral, Chilean poet.

**16 Denial that any attempt** was being made to use atomic bomb as "diplomatic or military threat against any nation" was issued by Sec'y of State Byrnes.

**Creation of unified command** of U.S. armed forces was advocated by Gen. Eisenhower as essential to U.S. security and preservation of peace.

**At joint meeting** of American Philosophical society and National Academy of Sciences held at University of Pennsylvania, Dr. Irving Langmuir warned that an atomic war would release such tremendous radioactivity in atmosphere that whole world may become uninhabitable; Dr. J. Robert Oppenheimer said atomic bombs in future would be so cheap to produce that in next war they could be made by "thousands or tens of thousands"; Dr. Arthur H. Compton predicted that one-tenth of any country's population would be destroyed in first night of atomic bombing.

**17 Adm. Chester W. Nimitz** opposed unified command of armed forces on ground that such merger might hinder navy and reduce role of sea power in U.S. defenses.

**18 Revolt broke out** in northern Iran where Azerbaijan insurgents demanded broader autonomy for their province within framework of existing government.

**19 Adm. J. O. Richardson**, testifying in Pearl Harbor inquiry, quoted Pres. Roosevelt as saying (Oct. 8, 1940) that Japanese sooner or later "would make a mistake and we would enter the war."

**President Truman** asked congress to give immediate action on health and social welfare program which would include compulsory health insurance system under social security program.

**20 Appointment of Gen. Eisenhower** as U.S. army chief of staff succeeding Gen. George C. Marshall, and Adm. Nimitz as chief of U.S. naval operations succeeding Adm. Ernest J. King was announced by Pres. Truman; Gen. Joseph T. McNarney was appointed to succeed Eisenhower as commanding general of U.S. forces in European theatre, commander in chief of U.S. forces of occupation in Germany and U.S. representative on control council in Germany; Adm. Raymond A. Spruance was named to succeed Nimitz as commander in chief of Pacific fleet and Pacific ocean areas.

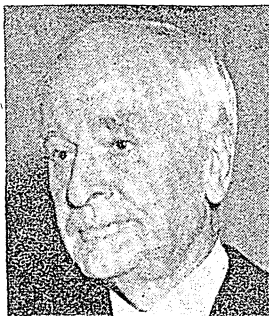
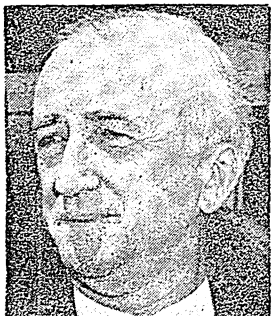
**World's nonstop**, nonrefuelling distance record of 8,198 mi. was achieved by B-29 flying from Guam to Washington, D.C., in 35 hr. 5 min.

**21 United Automobile Workers (C.I.O.)** called scheduled strike halting work in all General Motors Corp. plants throughout the U.S.; U.A.W. officials said walkout was 96% effective.

**Justice Robert H. Jackson**, opening prosecution against 20 top-ranking nazis on trial as war criminals at Nuernberg charged Germany had plotted war against U.S. in 1940.

The pictures on this page are, left to right:

BYRNES.....Oct. 5  
PERÓN.....Oct. 9  
VARGAS.....Oct. 29  
HULL.....Nov. 12  
NIMITZ.....Nov. 17





NOVEMBER—Continued

**Pres. de Gaulle** and communists patched up row as former established national union cabinet which included communist representatives.

**22 Work of U.N.R.R.A.** was praised by Gen. Eisenhower who urged congress to appropriate adequate funds to feed starving people of liberated Europe.

**Japanese troops** under British command battled Indonesian nationalists in Java city of Semarang.

**23 Rationing of meat, butter** and all other red-point foods was ended.

**24 Ferruccio Parri** resigned as Italy's premier, with warning to his successor to "beware of civil war" and recrudescence of fascism.

**25 Conservative People's party** won more than half of 165 seats in Austrian national assembly in first free national election in more than decade.

**26 Proposal that soviet, British and U.S. troops** be withdrawn from Iran by Jan. 1 was announced by U.S. government.

**27 Patrick J. Hurley** resigned as ambassador to China and criticized professional and career diplomats whom he alleged were sabotaging U.S. foreign policy; Pres. Truman appointed Gen. George C. Marshall as special envoy to China with rank of ambassador.

**Uruguayan proposal** for collective hemispheric intervention to prevent establishment of oppressive regimes was given "unqualified adherence" by U.S. government, Sec'y of State Byrnes announced.

**Cordell Hull** branded as false

The pictures on this page are, left to right:

MARSHALL.....Nov. 20  
De GASPERI.....Nov. 30  
MURRAY.....Dec. 4  
ROOSEVELT.....Dec. 19  
MOLOTOV.....Dec. 27

and "infamous" army report on Pearl Harbor that said he had "touched the button that started the war" with Japan.

**28 Ford Motor company** asked United Automobile Workers (C.I.O.) to agree to pay \$5 a day for each employee who took part in an illegal strike.

**John Amery** pleaded guilty to high treason and was sentenced to death at opening session of his trial in London.

**29 Constituent assembly** proclaimed Yugoslavia a republic and abolished monarchy.

**30 Labour-management conference** closed without making any signal accomplishments.

**Verbal bombshell** was thrown into Nuernberg war criminals trial by Rudolf Hess, who dramatically confessed that he had been shamming amnesia and insanity for "tactical" reasons.

**Alcide de Gasperi** was named premier of Italy.

DECEMBER

**1 United Auto Workers (C.I.O.)** agreed to General Motors Corp. suggestion that company open its auto parts plants to supply needs of other motor car manufacturers.

**Scores of German industrialists** who aided Hitler's climb to power were arrested by British authorities in Ruhr area.

**2 Nationalization of Bank of France** and four other private banks was approved in French National Constituent assembly by vote of 521 to 35.

**Allied headquarters** ordered Tokyo government to arrest 59 high-ranking Japanese on suspicion of being war criminals.

**3 Pres. Truman** asked congress to enact legislation similar to the Railway Labor act for solution of labour disputes; he also announced he would establish fact-finding boards to make recommendations for ending General Motors strike.

**State department** said U.S.

proposal for withdrawal of soviet, British and U.S. troops from Iran by Jan. 1 was rejected by soviet union.

**4 Pres. Philip Murray** of C.I.O. denounced Pres. Truman's proposal for new labour law and charged that Truman administration had yielded in "abject cowardice" to industry's refusal to "engage in collective bargaining."

**Sir Hartley Shawcross**, British prosecutor at Nuernberg trial, demanded that 20 nazis charged with war crimes be punished as object lesson for would-be war makers of future.

**Senate** voted 65 to 7 legislation permitting U.S. to participate fully and actively in United Nations organization.

**5 Lt. Gen. Leonard T. Gerow** told congressional Pearl Harbor inquiry board that he accepted responsibility for not demanding that Gen. Walter C. Short bolster defense measures at Pearl Harbor before Japanese attack.

**OPA Chief Chester A. Bowles** warned that public faced repetition of 1929 economic crash if it followed advice of "business pressure groups" trying to end price and rent controls.

**Destruction of Japan's cyclotrons** by U.S. army was branded an "act of utter stupidity" by Dr. Karl T. Compton in letter to Sec'y of War Patterson.

**Cost of living increase** from Jan. 1941 was formally set at 33% by Office of Stabilization Administration, which ruled that manufacturers could base request for higher prices to offset wage increases up to that level.

**6 General Motors offer** of 10% wage increase was rejected by striking United Automobile Workers (C.I.O.) which insisted on original demand for 30% increase.

**Gen. Marshall** admitted to Pearl Harbor inquiry board that he did not expect Japanese to attack Pearl Harbor because of great risk involved.

**Anglo-U.S. financial pact** under which U.S. agreed to advance Great Britain \$4,400,000,000 to expedite early resumption

of world trade was signed by Sec'y of State Byrnes, Sec'y of Treasury Vinson and Lord Halifax, British ambassador to U.S.

**Adm. William Halsey** denounced proposals for merging armed forces under single command as "wildcat scheme" which was "un-American, undemocratic and damn dangerous."

**Prediction that development** of stationary atomic power plants, said to be technically possible, could compete with \$15-a-ton coal in anywhere from 3 to 25 years was voiced by scientific experts at N.A.M. conference in New York.

**7 Gen. Marshall testified** at Pearl Harbor inquiry that Gov. Dewey had complied with Marshall's request not to make public during 1944 presidential campaign knowledge that U.S. had broken Japanese secret code.

**Recommendations** that Japan be stripped of virtually all steel, chemical and shipbuilding capacity, half its electric power and tool industries as well as all foreign assets were made by Edwin W. Pauley, U.S. reparations commissioner.

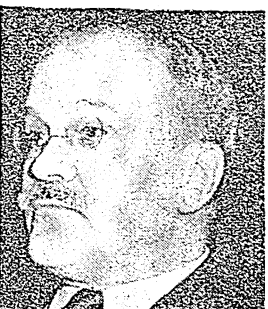
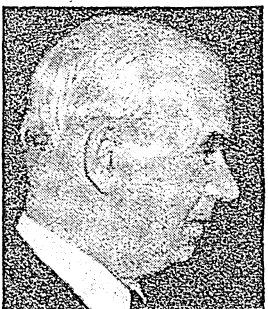
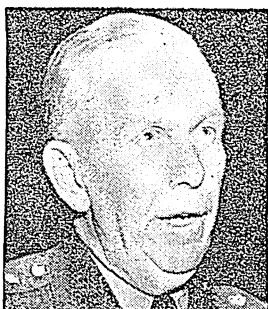
**Sec'y of State Byrnes** declared Hurley's accusations that state department officials had sabotaged U.S. policy in China were not backed up by specific evidence.

**State department** disclosed that about 1,750,000 Germans in Czechoslovakia and up to 500,000 in Hungary would be moved to U.S. occupation zone in reich.

**8 Leaders of United Automobile Workers (C.I.O.)** voted unanimously to reject President Truman's request to promptly settle General Motors strike and condemned his plan to use fact-finding boards to avert major walkouts.

**10 Japanese government** was ordered by Allied headquarters to abolish feudal system of land tenure.

**Undersec'y of State Dean Acheson** termed "utterly fantastic" Patrick Hurley's charges that Acheson "sabotaged U.S. policy in Iran."



## DECEMBER—Continued

**Judge Joseph C. Hutcheson** of Texas was named chairman of six-man delegation to represent U.S. on Anglo-U.S. committee of inquiry on Palestine question.

**United Automobile Workers (C.I.O.)** told Ford Motor Co. that they would penalize "wild-cat strikers" \$3 daily for first offense and \$5 for second offense provided company itself would accept penalties for company-provoked stoppages of production.

**Allied bombings** killed about 500,000 German civilians, injured 700,000 others and made 7,800,000 homeless, according to report by medical branch of U.S. Strategic Bombing survey.

**Senate Foreign Relations committee** dropped probe of charges by Maj. Gen. Hurley that career diplomats undermined his China policy.

**Pres. Truman** ignored opposition of organized labour and announced appointment of fact-finding board to recommend settlement of General Motors strike.

**Agreement for joint withdrawal** of troops from Syria and Lebanon and for mutual consultations on all middle eastern questions was basic feature of Anglo-French pact signed in Paris.

**British-U.S. loan agreement** was approved in commons by 345 to 98 vote; Bretton Woods agreement was also endorsed 314 to 50.

**14 nations** were invited by U.S. to attend preparatory session for International Trade conference and to negotiate agreements with U.S. for mutual lowering of tariffs.

**Dr. Karl Kobelt** was elected president of Swiss federal council for 1946.

**William D. Mitchell** disclosed he and his staff would resign as counsels to congressional Pearl Harbor committee because prolonged examination of witnesses had held up "much pertinent evidence."

**Josef Kramer, Irma Grese** and nine others convicted for crimes committed at Belsen and Oswiecim concentration camps were hanged in Hameln.

**Permanent site for United Nations organization** in United States was voted by U.N.O.'s preparatory commission by 30 to 14.

**Directive** ordering end of Shinto as state religion of Japan was

issued by Gen. MacArthur.

**16 Sinclair Oil corporation** ended long wage dispute by granting 18% pay increase and 40-hr. week to Oil Workers International union.

**17 Resolution urging U.S. aid** in establishment of Jewish commonwealth in Palestine and to permit free entry of Jews there was adopted by overwhelming voice vote in U.S. senate.

**U.S. supreme court** granted stay of execution to Gen. Tomoyuki Yamashita in order to examine petitions submitted by Yamashita's counsels for review of his trial.

**Second U.S. contribution** of \$1,350,000,000 to U.N.R.R.A. fund to relieve distressed areas abroad was voted by U.S. senate.

**18 Ford Motor company's** offer of pay increase of 15 cents an hour was rejected by United Automobile Workers (C.I.O.).

**House of lords** criticized "harsh" terms of U.S. loan to Britain, but ratified British-U.S. loan accord 90 to 8; about 100 conservative peers abstained from voting and some 600 others were absent.

**19 Pres. Truman** nominated Mrs. Eleanor Roosevelt, Edward R. Stettinius, Jr., and Senators Tom Connally and Arthur H. Vandenberg as U.S. delegates to United Nations organization; Stettinius was designated chief delegate.

**Congress** was asked by Pres. Truman to combine army and navy into single department of national defense under single cabinet officer.

**Pres. Truman's request** that Second War Powers act be continued to 1947 was rejected by 31 to 30 vote in senate, which instead limited act to June 30, 1946.

**Capt. Charles B. McVay III** was acquitted by navy court-martial on charge of neglecting to give prompt "abandon ship" orders when cruiser "Indiana-polis" was struck by Japanese torpedoes; court stated no finding on charge that McVay risked ship and crew by failing to follow zig-zag course.

**General Motors** announced it would refuse to submit its case to Pres. Truman's fact-finding board if the board demanded that the corporation open its books to disclose prices and profits.

**U.S. state department** urged both Dutch and Indonesian

nationalists in Netherlands Indies to seek peaceful solution of their conflict.

**British demands** that Siam supply between 1,000,000 and 1,500,000 tons of rice to other southeast Asia countries as war reparations were disclosed by Undersec'y of State Dean Acheson, who said U.S. was intervening in British-Siamese talks.

**20 Pres. Truman** authorized fact-finding boards to examine company books in wage disputes, ruling that "ability to pay" was always relevant to issue of wage increases.

**OPA ordered** end of tire rationing as of Jan. 1, 1946.

**Letters from two soviet scientists** demanding that Turkey cede 180-mi. stretch of Black sea coast to soviet union were published in leading Russian newspapers.

**Dr. Karl Renner** was elected president of 2nd Austrian republic.

**21 Sen. Kilgore** charged U.S. military government and state department had "signally failed" to carry out Potsdam terms in reich.

**22 U.S. and Britain** announced recognition of Yugoslav government of Marshal Josip Broz (Tito):

**Director Herbert H. Lehman** disclosed Ukrainian and White Russian republics signed agreement for U.N.R.R.A. aid.

**Pres. Truman** ordered that European refugees and displaced persons be permitted entry into U.S. up to limit permitted by immigration laws.

**23 Pope Pius XII** designated 32 prelates from 19 countries for elevation to rank of cardinal; among U.S. cardinal designates were Archbishops Francis J. Spellman of New York, Edward Mooney of Detroit, Samuel A. Stritch of Chicago and John J. Glennon of St. Louis.

**Pres. Truman** vetoed bill calling for cancellation of \$51,000,000,000, in war appropriations and contracts because he disapproved rider that would shift U.S. Employment service to state governments within 100 days.

**24 Sec'y Byrnes, Foreign** Sec'y Bevin and Foreign Commissar Molotov agreed at Moscow conference to resume drafting of peace treaties with Italy, Rumania, Bulgaria, Hungary and Finland.

**25 French finance ministry** announced franc would be

devalued to rate of 119.107 to dollar and 480 to pound.

**26 Pres. Truman** named Fio-  
rello H. La Guardia his personal representative to attend inauguration of Gen. Eurico Gaspar Dutra as president of Brazil.

**27 Wide agreement on control of atomic energy,** formula for drafting of European peace pacts, participation of soviet union in rule of Japan, creation of Big Four trusteeship for five-year rule of Korea, withdrawal of U.S. and soviet troops from China and measures to democratize Rumanian and Bulgarian governments were reached at Moscow conference by Sec'y of State Byrnes, Foreign Commissar Molotov and Foreign Sec'y Bevin.

**Bretton Woods accord,** franc devaluation and agreement for purchase credit with U.S. Export-Import bank were approved by French Constituent assembly.

**International Monetary fund** and Bank for Reconstruction and Development was formally established after representatives of 28 nations ratified Bretton Woods documents at Washington.

**28 General Motors** representatives quit Pres. Truman's fact-finding board declaring they were unable to co-operate as long as "ability to pay" was issue for investigation.

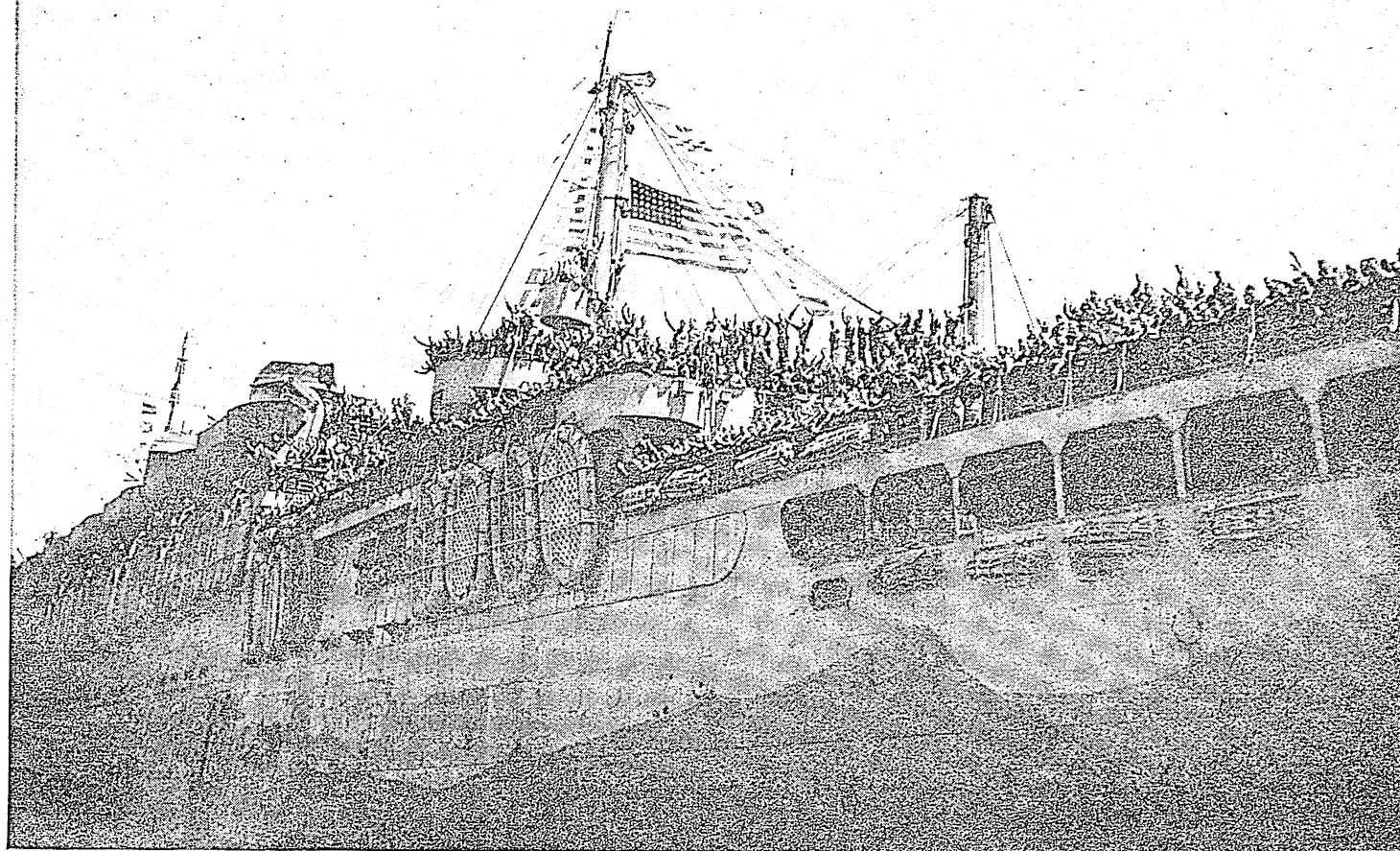
**1,500 persons** were arrested in Palestine by British authorities following terrorist outbreak, climaxed by bombing of police station in Jerusalem.

**29 Hitler's private will,** dated April 29, 1945, discovered by U.S. intelligence officers, said fuhrer married Eva Braun, his mistress, and then said both would commit suicide to escape "disgrace" of surrender.

**30 Hitler's political testament** disclosed that before his death he had expelled Hermann Goering and Heinrich Himmler from nazi party and government posts for "disloyalty," for secret negotiating with Allies and for "illegally" attempting to seize control of reich government.

**31 Sec'y of State Byrnes** said Gen. MacArthur's authority as supreme Allied commander would be preserved under four-power Allied control plan for Japan.

**National War Labor board** was terminated by Pres. Truman and supplanted by National Wage Stabilization board.



## BOOK OF THE YEAR

**Abrasives.** **United States.**—The salient production data on abrasives in the United States are presented in the accompanying table, supplemented by brief notes on general conditions with respect to the various commodities.

United States Production of Abrasives  
(In short tons, or as indicated)

	1941	1942	1943	1944
<b>Aluminous Abrasives</b>				
Corundum* . . . . .	5,765	?	?	?
Emery . . . . .	4,876	5,277	6,666	6,940
<b>Carbon Abrasives</b>				
Industrial diamonds, carats* . .	6,882,248	11,203,704	12,084,133	12,614,507
<b>Silica Abrasives</b>				
Quartz . . . . .	41,685	65,878	99,445	82,379
Sand (abrasive) . . . . .	1,001,814	806,878	837,662	897,983
Sand and sandstone (ground). .	487,665	527,886	541,350	558,606
Tripoli . . . . .	29,301	17,536	14,912	18,425
<b>Silica Stone Abrasives</b>				
Grindstones . . . . .	13,573	12,763	10,732	9,373
Millstones (value) . . . . .	\$15,579	\$10,391	\$9,240	\$9,700
Pulpstones . . . . .	1,963	1,918	1,891	?
Tube mill liners . . . . .	3,411	2,576	2,585	2,063
Grinding pebbles . . . . .	13,561	15,487	9,924	8,012
<b>Silicate Abrasives</b>				
Garnet . . . . .	5,501	4,357	5,935	?
Pumice . . . . .	117,310	126,522	85,150	88,757
<b>Artificial Abrasives</b>				
Silicon carbide† . . . . .	44,962	61,681	69,706	56,291
Aluminum oxide† . . . . .	147,759	183,633	217,425	185,573
Metallic abrasives† . . . . .	86,309	106,442	124,954	144,550

\*Imports; no domestic production. †Includes Canada also.

**Corundum.**—There was a small experimental output in North Carolina and Montana in 1943 and 1944, but no commercial output. The U.S. supply is imported from South Africa, but no

data were released after 1941. Demand for use in heavy grinding wheels and in optical lens grinding kept the supply short.

**Emery.**—Production in the Peekskill, N.Y., area increased to a new record high in 1944.

**Garnet.**—Figures for 1944 were not available for publication.

**Tripoli.**—Production increased sharply in 1944, both in quantity and value, with Illinois as the chief producer.

**Sand Abrasives.**—Ground sand and abrasive sand both increased in quantity and value in 1944, but crushed quartz declined.

**Stone Abrasives.**—Grindstones, pulpstones, grinding pebbles and tube mill liners all decreased in output in 1944, while millstones and sharpening stones increased.

**Artificial Abrasives.**—The 1944 outputs of silicon carbide and fused aluminum oxide declined, but that of metallic abrasives increased materially in 1944.

**Canada.**—There was only a minor production of abrasives in Canada, except for the various forms of silica. Quartz and silica sand declined from 1,776,749 short tons in 1943 to 1,740,262 tons in 1944. Other output included a few tons of garnet concentrate, 5 carloads of corundum concentrate, and 225 tons of grindstones.  
(G. A. Ro.)

**Abyssinia:** see ETHIOPIA.

**Academic Freedom:** see EDUCATION.



**Academy of Arts and Letters, American:** *see* SOCIETIES AND ASSOCIATIONS.

**Academy of Arts and Sciences, American:** *see* SOCIETIES AND ASSOCIATIONS.

**Academy of Political and Social Science, American:** *see* SOCIETIES AND ASSOCIATIONS.

**Accident Insurance:** *see* INSURANCE.

**Accidents.** Accidental deaths in the United States based on figures for the first nine months of 1945, totalled 69,200. It was thought that if the trend for the last three months of the year would maintain the September average, the 1945 death toll would be at least as large as the 1944 total.

The nine-month motor vehicle accidental death total was 18,450, or a 9% increase over 1944.

Occupational accidental deaths through September totalled 12,600, or 700 below 1944.

Public nonmotor vehicle accidents accounted for 11,400 deaths during the first nine months of 1945, which was only 100 less than 1944's nine-month total.

Home accidents were responsible for 23,300 deaths during the nine-month period, or only 1% above the 1944 total.

Safety work throughout the nation in 1945 topped even the record expansion of the last full war year of 1944. Activities of the National Safety council and its affiliated state and community organizations continued to expand, along with the accident prevention efforts of industry, schools and government and private agencies of many kinds.

The 1945 National Safety congress, which is the focal point of annual national organized safety work, was cancelled because of wartime meeting and travel restrictions. Normally the congress attracts more than 10,000 delegates who represent every phase of the safety movement in all parts of the country.

AN EVACUATOR for emergency rescues, being demonstrated by firemen in Gary, Ind., in 1945. A seven-floor descent in the canvas chute averaged four seconds compared with two minutes by ladder

To offset the cancellation of the congress, the National Safety council distributed special newsletters containing summaries of materials which would have been presented at the congress, special reports, high lights of council activities and various educational materials. (*See also* DEATH STATISTICS; INDUSTRIAL HEALTH.) (R. L. Fo.)

**Traffic Accidents.**—As in virtually every phase of national life, 1945 was a critical year in the field of traffic accidents. The year began with the traffic system battered and war-weary. Cars and highways were run-down. Drivers, chafing under restrictions, were eager to go—when they could get enough gasoline.

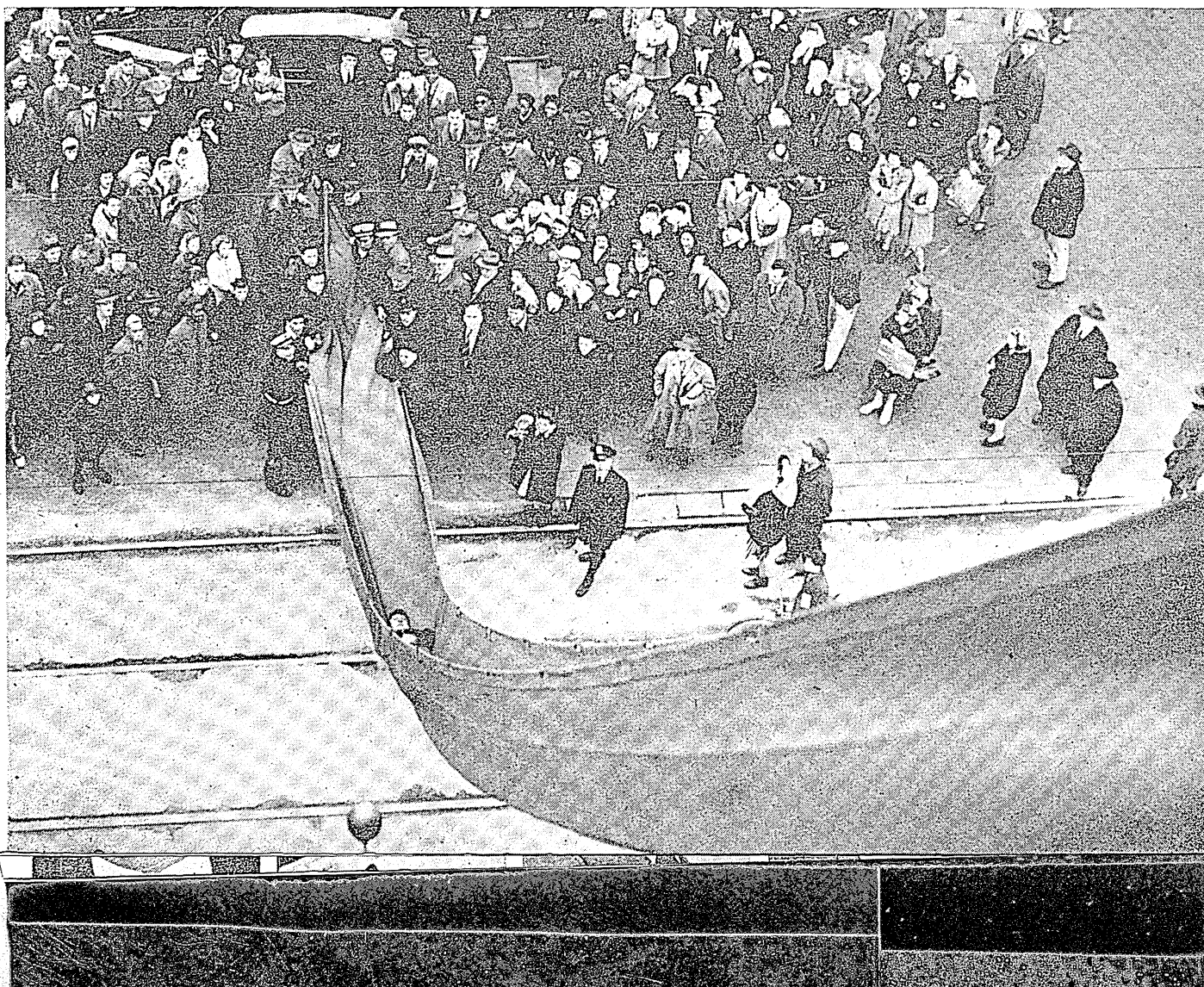
January and February death figures were 14% and 8%, respectively, below those of the corresponding months in 1944. March showed a 2% increase, April and May 3% rises. In June, with victory over Germany a reality and the prospect of an increase in gasoline rations, the toll mounted 14% above that for the same month in 1944.

July recorded 15% more deaths than July 1944, and in August—the month of the atom bomb and Japanese capitulation—the toll jumped 30%. The September toll was up 40%, October 53% and November 40%.

At the end of 11 months, 25,200 persons were killed in street and highway accidents, an 18% increase over the same period in 1944.

The year's traffic toll was 28,500 deaths and approximately 1,000,000 nonfatal injuries, of which about 80,000 left some permanent impairment. The direct economic losses resulting from 1945 traffic accidents were estimated at \$1,450,000,000. This includes wage losses, medical expenses, overhead costs of insurance and motor vehicle property damage. The 1945 motor vehicle death toll of 28,500 was 17% greater than the total of 24,282 in 1944.

An outstanding effort to hold the traffic toll to a minimum, in spite of adverse factors, was the nationwide brake emphasis





program, conducted April 15 to June 1, 1945, by the International Association of Chiefs of Police. In the six-week period, the brakes of more than 1,880,000 motor vehicles were checked by police officers in the United States and Canada. In approximately one out of every seven cases, the vehicle's brakes were found to be defective.

With millions of decrepit vehicles still in use and only a trickle of new cars coming off assembly lines, with all restrictions off, 1946 traffic accident prospects were grim indeed.

Grand prize winners in the National Traffic Safety contest for 1944, conducted by the National Safety council, were Lansing, Mich., in the intercity section and Connecticut in the state section. Cities winning first place in their respective population groups were: Detroit (500,000 and more); Portland, Ore. (250,000 to 500,000); Ft. Wayne, Ind. (100,000 to 250,000); Lansing, Mich. (50,000 to 100,000); Greenwich, Conn. (25,000 to 50,000); and Stillwater, Okla. (10,000 to 25,000). A special award of merit was made to Milwaukee, Wis., for conspicuously low traffic death rates in 1944 and for sustained excellence in maintaining low death rates in previous years.

A special honour roll listed 158 cities with populations between 5,000 and 10,000 which went through 1944 without a traffic death. Forty-eight states and 1,350 cities were enrolled in the contest. Cities competing in the contest represented more than 90% of the urban population of the U.S.

The National Committee for Traffic Safety, formed in the fall of 1944 as an outgrowth of the National Safety Council's committee on Postwar Traffic Safety Planning, functioned in 1945 as a clearinghouse and co-ordinating agency for the 48 national organizations participating. Its primary purposes are to supplement and support the efforts of public officials and their associations, and to sponsor and conduct such projects as lend themselves to co-operative action.

The Public Education committee of the National Safety council traffic section produced three one-minute film trailers on pedestrian safety and one on winter driving hazards for showing in motion-picture theatres.

Police officers received training in traffic control and accident prevention in 1945 at the Northwestern University Traffic institute and the National Police academy of the Federal Bureau of Investigation. The Traffic institute annually conducts two four-and-one-half-month courses in traffic police administration and two three-week traffic officer training courses. The Police academy gives two weeks of traffic policing as a part of its 14-week course.

The National Institute for Traffic Training, conducted annually for seven years at universities and colleges in various parts of the country, was not held in 1945 because of travel restrictions. One-week training courses for motor vehicle fleet supervisors were given at the Northwestern University Traffic institute and at 16 other colleges and universities.

The extensive traffic police training activities of the safety division of the International Association of Chiefs of Police continued in cities where traffic survey and reorganization work was done. Surveys were made in Winnipeg, Manitoba, and Stockton, Calif. Follow-up work, a continuation of service where full-scale traffic program installations were made, was conducted in San Francisco, Indianapolis, Los Angeles, Oakland, Sacramento, Seattle, Portland, Ore., Minneapolis and Norfolk.

The traffic court program, sponsored jointly by the American Bar association and the National Safety council, held traffic court conferences throughout the country to promote better understanding between the traffic police and the judiciary. Driver training in high schools was stepped-up during 1945, as was motor vehicle inspection in cities and states.

The postwar federal-aid highway program, to provide \$1,500,-

000,000 in construction funds for state and local use during the first three postwar years, was made effective on Oct. 2 by congress, with the program made retroactive to the previous July 1. A quarter of the total must be spent in cities with more than 5,000 population, 30% on farm-to-market roads and the remaining 45% on federal-aid routes, rural or urban.

State highway departments reported some \$700,000,000 in completed project plans and nearly \$3,000,000,000 in plans under way by the year's end—not including an estimated 33% additional amount of local projects outside state-federal jurisdictions. Outstanding urban express highway projects, expected to get under construction in 1946, were reported in a number of large cities. New York City had fiscal and engineering preparations virtually completed for a \$285,000,000 five-year road program; Los Angeles, Chicago, Detroit, Pittsburgh and a number of cities in Texas and other southern states had similar major projects under construction or near the contract letting stage.

All state highway departments submitted official proposals for designation of their actions of the 40,000-mile National System of Interstate Highways as provided for in the postwar federal-aid road law, and the proposals were being reviewed by the Public Roads administration, with final action due early in 1946. This highway system was to pass through all cities of 300,000 or more population and through more than half of all cities with more than 10,000 population.

The joint committee on Traffic Engineering Functions and Administration, composed of representatives of the American Association of State Highway Officials, Institute of Traffic Engineers and American Public Works association, completed a guidebook on traffic engineering functions, stressing measures for efficient use of existing roads and streets, operating design features for new facilities and organization and administration of traffic engineering in city and state governments.

The Joint Committee on Revision of the Manual on Uniform Traffic Control Devices, representing the American Association of State Highway Officials, Institute of Traffic Engineers and the National Conference on Street and Highway Safety, completed its revision of the devices manual, which was to be used by the states in enforcing a provision of the new federal-aid road act requiring uniformity of traffic controls on routes receiving federal-aid funds.

Such wide public attention to traffic dangers resulted from the brake check program of 1945 that the International Association of Chiefs of Police decided late in the year to conduct an even more extensive program in the spring of 1946. This was to be known as the Police Traffic Safety Check. Every time a traffic officer stops a motorist for a moving violation, he will, in co-operation with the driver, check the vehicle's brakes, horn, windshield wiper, lights, tires and any other parts of the car with obvious defects, as a means of focusing attention on the need for car and driving care.

Executive cognizance of the rising traffic accident toll was taken in December when Pres. Truman called a national traffic safety conference for the spring of 1946. (See also DISASTERS.)

FILMS.—*First Aid; Safety in the Home* (Encyclopædia Britannica Films Inc.). (R. E. RH.)

**Acheson, Dean Gooderham** (1893- ), U.S. government official, was born April 11, in Middletown, Conn. He graduated from Yale university, 1915, and received a law degree from Harvard three years later. He served as a naval ensign in World War I, and later became private secretary to Louis D. Brandeis, associate justice of the U.S. supreme court. He practised law from 1921 to May 1933, when he was appointed undersecretary of the treasury, a post which he resigned later that year to return to

his law practice. In Feb. 1941 he was appointed assistant secretary of state, and with the formation of the United Nations Relief and Rehabilitation administration in 1943, Acheson became the U.S. member of its council. After the resignation of Joseph C. Grew, Acheson was named (Aug. 16, 1945) to succeed him as undersecretary of state. On Sept. 19, Acheson obliquely criticized Gen. MacArthur, by stating that the U.S. government, not the occupation force, would determine policy in Japan. This statement caused a minor furore among some MacArthur supporters in the senate and touched off sharp debating. Acheson, however, was confirmed as undersecretary, Sept. 24, by the senate, 69 votes to 1.

**Act of Chapultepec:** see INTER-AMERICAN CONFERENCE ON PROBLEMS OF WAR AND PEACE; PAN AMERICAN UNION.  
**Actors and Acting:** see THEATRE.

**Adams, Herbert** (1858-1945), U.S. sculptor, was born Jan. 28 at West Concord, Vt. For his earlier career see *Encyclopædia Britannica*. He is noted especially for his portrait busts of women; he also executed a number of public commissions, including statues and bronze doors for the Library of Congress in Washington. He died in New York city, May 21.

**Aden.** Aden is a British colony, seaport and territory in southwest Arabia, 12° 47' N. and 45° 10' E., including Perim Island, in the strait of Bab-el-Mandeb between Africa and Arabia; area 80 sq.mi.; pop. (est. 1939) 65,000. Aden protectorate, including Socotra in the Indian ocean, 112,000 sq.mi.; pop. (est.) 600,000. Governor (1945): R. S. Champion. Language: English and Arabic; religion: predominantly Mohammedan.

In Feb. 1945, Alan Logan Kirkbride was appointed chief-secretary, in succession to R. S. Champion, who became governor of Aden. The Colonial Development and Welfare act, 1945, allocated £800,000 to Aden until 1955.

**Finance.**—Revenue (est. 1945-46) \$2,801,800; expenditure (est. 1945-46) \$2,265,900; currency, legal tender rupee (Rs. 1) = 1s. 6d. = 30.12 cents U.S. in 1944.

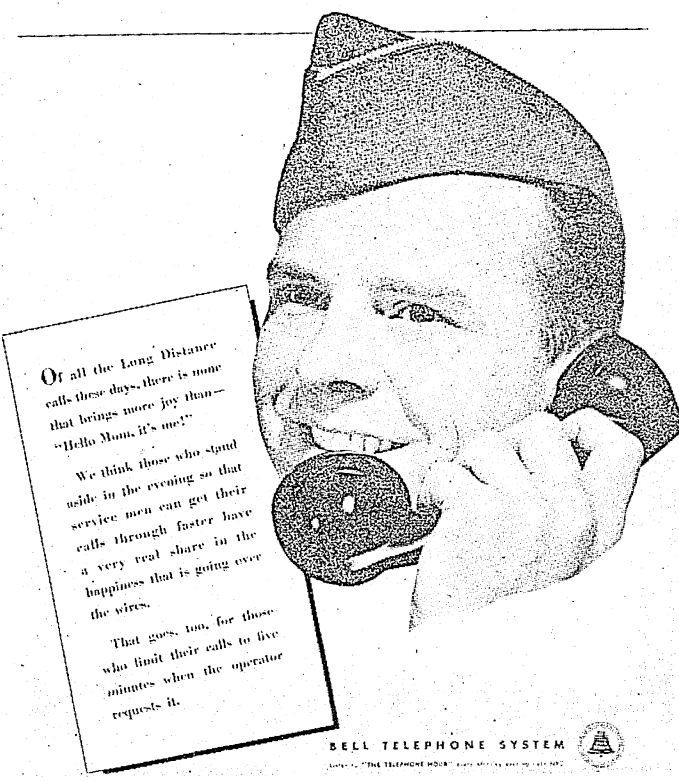
**Trade and Communication.**—External trade 1939 (merchandise and treasure on private account): imports, by sea \$17,357,100; by land \$682,800; exports, by sea \$10,131,600; by land \$663,600; (treasure) imports \$810,300; exports \$606,900. Communications: shipping (1939) 2,004 merchant vessels (1,300 British) entered, total tonnage 8,005,763 net tons; motor vehicles registered (Sept. 30, 1939) 733 cars and taxis, 207 commercial vehicles.

**Production.**—In 1938-39, tobacco (approximate value of crop) \$165,000; salt (export) 273,622 short tons; coffee (export 1939-40) 6,160 short tons.

**Adjusted Compensation:** see VETERANS' ADMINISTRATION.  
**Adult Education:** see EDUCATION.

**Advertising.** United States.—With the end of World War II in both the European and Pacific theatres during 1945, advertisers made plans to forge ahead in every direction. Huge postwar budgets were appropriated, groundwork was laid for numerous research studies and general expansion programs were voted as a key to prosperity for U.S. business. Many industries emerged from reconversion with practical advertising campaigns in full swing. With the transition from war themes to selling copy, advertising expenditures materially increased, limited only by space and network time available. Many new magazines appeared during the latter part of 1945,

"Hello Mom, It's Me!"



AMONG THE 100 advertisements adjudged to have contributed most to the war effort in 1945 was this advertisement prepared for the Bell Telephone system. Awards, made on Nov. 1, 1945, replaced for the duration of the war the former choice of a "best" advertisement for the year

and plans were laid for additional publications within the first few months of 1946. In general, the War Production board released more paper for magazines, newspapers and direct mail.

Total advertising expenditures were approximately \$2,400,000,000 as compared with \$2,270,000,000 in 1944, about 1.5% of national income. During the 1920s it was 3% and in the '30s, between 2% and 3%.

The year was marked by substantial increases in magazine and outdoor advertising and moderate increases in newspaper and farm paper volume. In the first nine months of 1945, as compared with the corresponding 1944 period, business paper advertising gained 13.4%, industrial magazines, 11%, trade publications, 25.5% and the export group, 18.7%. Radio retained about the same volume as in 1944 due to long-term contracts for preferred listening hours on principal networks.

Although government restrictions on use of paper were removed, lack of paper, printing equipment and personnel held down the volume of publication advertising. Heavy institutional and industrial advertising continued during the year, with a generous contribution of space going to government activities.

American business contributed to the war effort more than \$1,000,000,000 of advertising space and time in three-and-a-half years. It participated in more than 100 home-front campaigns in co-operation with 27 government departments and agencies, informing the nation about war bonds, armed forces, V-mail, merchant marine, civilian nurses, food rationing, salvage and civilian services. Business contributed an estimated \$350,000,000 in advertising space and time in support of war bond promotion alone.

The army recruiting service launched a \$4,000,000 national advertising campaign with copy stressing re-enlistment to retain existing grades. All leading media were used. Sales of surplus property also were widely advertised.

Increased use of shopping newspapers by advertisers was apparent during 1945. Many new classes of products were introduced, such as automotive, motion pictures, fuel oil, banks, paints and hardware. Dominant classifications were groceries, drugs and wearing apparel.

Conscious of postwar competition for industries and tourist trade, 32 states appropriated \$5,177,054 for advertising during 1945 and 1946. Media included magazines, newspapers, mailing booklets, motion pictures and radio. Florida and Kansas voted the largest budgets, amounting to around \$1,000,000 each. Privately owned utilities also stressed in advertising merits of individual cities as industrial and trading areas. Banks likewise employed community promotion themes.

Approximately 1,000 banks co-operated with household appliance manufacturers in financing retail sales of products. With the end of war and victory loan drives, bank advertising shifted appeals to specific services and consumer credit.

Due to the war's end, steamship companies resumed national advertising. Skywriting as an advertising medium was resumed. Contracts were signed with leading advertisers and plans made for skywriting in colours and luminous inscriptions for after-dark writing. Arrangements to extend services to Canada and Latin America were undertaken.

The National Safety council and Advertising council arranged for a major campaign with themes stressing industrial, home and farm safety. This had the fullest co-operation and sponsorship of advertisers and media.

To stimulate interest in advertising, 59 advertising clubs sponsored advertising courses. Half of these clubs co-operated with educational institutions and many offered scholarships.

Strikes in industry near the end of 1945 resulted in cancellation by several leading manufacturers of all cancellable advertising originally scheduled for the remainder of 1945 and early part of 1946.

After V-J day, the War Advertising council changed its name to the Advertising council and continued its efforts in peacetime programs by taking over the administration of pooled media facilities formerly handled by the Office of War Information. All branches of advertising continued financial support to the council.

**Copy and Layout.**—The end of rationing and restrictions provided opportunities for more campaigns by manufacturers previously limited by shortages of materials. Institutional copy was replaced by straight selling themes in most instances.

Some experimenting was done in the use of comic copy in standard publications. Fewer sidewise advertisements appeared. In general, practically no departure from usual copy or layout treatment was noticeable.

**Magazines.**—Although operating under the same paper restrictions as in 1944, magazine advertising increased during 1945 to more than \$300,000,000, as compared with \$271,000,000 for 1944. An outstanding accomplishment was the promotion of Seventh War Bond sales through more than 3,000 cover displays and full-page advertisements donated by magazines and advertisers. Magazines continued to co-operate with the government on all war effort and peacetime programs including the Economic Stabilization campaign.

A number of new magazines appeared during the year in various fields, such as foods, drugs, radio and travel, as well as publications with appeal to the younger generation. Plans were laid for publishing many others during 1946.

**Newspapers.**—Newsprint continued scarce in 1945, with consumption controlled by government order. Some newspapers rationed circulation and advertising to keep within supply. Threats that newspapers might be forced to suspend publication were overcome through co-operating with regional, state and

city newspaper associations. Restricted consumption of newsprint, however, was revoked on Dec. 31, 1945, but the Civilian Production administration continued control of newsprint inventories. Circulation rose to an all-time high during 1945. Prices were also advanced in some cases.

Continued efforts to conserve newsprint were realized by streamlining Saturday editions to six or eight pages, reducing margins, restricting circulation, eliminating less essential features, drastically cutting size of display and classified advertisements, putting pressure on advertisers for optional insertion dates and publishing fewer editions. In spite of wartime restrictions, newspapers continued to provide comprehensive coverage of international, national and local news. Little reduction was made in news content, publishers preferring to omit advertising when necessary to provide space for news coverage.

Newspapers continued to support more than 50 government war and reconversion projects through editorial columns and advertising. From Aug. 1943 through July 1945, war effort advertising in U.S. daily and Sunday newspapers totalled \$98,813,358, averaging more than \$4,000,000 a month. Top four projects were war bonds, \$42,597,445; Red Cross, \$6,252,678; armed forces recruiting (sponsored) \$5,133,385; waste paper and salvage, \$4,453,725. Total paid advertising, with exception of war bonds, was \$51,874,543; donated by newspapers, \$4,341,370.

There was an increased use of classified advertising by veterans seeking jobs and living quarters, newspapers making special efforts to highlight this advertising for reader attention.

Newspapers formed an organization composed of representative daily and Sunday papers throughout the United States to promote greater use of newspapers generally in competition with other national media. National advertisers were offered the advantage of group rates for market coverage by regions

ADVERTISEMENT prepared for Carstairs Bros. Distilling Co., Inc., received an award on Nov. 1, 1945, as one of the 100 most outstanding wartime advertisements of the year. The appeal was for employment of returning veterans

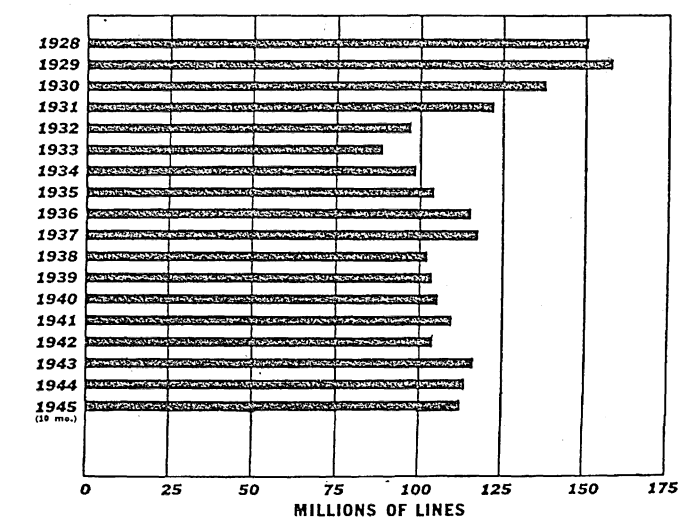
## Have you any use for a hero?

He's won. He's safe. And now he's coming home.  
Yesterday came the order: "Come home." The war was ended.  
He couldn't believe, for a while, that that was really it.  
Then he felt a wild elation that somehow attended the  
hump in his throat unmaned by a sudden homesickness  
... for Main Street, kind with Saturday shoppers.  
For Mom.  
And Pop, and the bathroom shower at home that always  
dropped a bit. Funny, what little things get you sometimes—  
a tough soldier like him!  
Sure, he was tough. He'd looked inside the doors of Hell  
plenty times—and kept coming.  
He'd taken everything these Krauts and Japs could dish out—  
and there back too for one small day cracked  
But now the gun in his hands feels strange.  
All of a sudden, it doesn't seem natural.  
Like a former holding an anchor.  
And that same gun had been like his right hand  
up to that last wonderful command.  
But now he's going home, too?  
Home?  
A girl's no good there.  
A witch, a sow, a plover—they're good.  
Because that born stuff is going to fade.  
A fellow's got other things to face  
besides death.  
Like buying food and clothes.  
And getting married, or living the mortgage.  
That doesn't take a gun.  
It takes a job.  
It kind of scares him to think maybe there won't be  
a job. Maybe he's outgrown his pro war role  
with Old Man Jones—or maybe Jones & Co.'s  
business will be shut  
and they can't use him.  
Then what?  
After the Victory parades and the speeches,  
he'll be just another guy in civvie.  
But where'll he wind up without a job?  
Yeah, you know. On the town.  
Say, could that be it? That bloody business has been carrying  
him? Is that all he's going to put out of three years in hell?  
Wasn't a minute? Take it easy.  
The kids back home said they knew he was fighting  
for them, trying his life on the line to let them live  
the way Americans have to live.  
They swore they were grateful.  
Do they really mean it?  
On they understand his job is done,  
that now it's their turn?  
Are they going to fight for him now?  
Are they really thinking and planning and acting  
on ways to let him make a living when he gets back?  
He hopes so.  
Oh, how he hopes so!



CARSTAIRS BROS. DISTILLING CO., INC.  
405 Lexington Ave., New York 17, N.Y.





NEWSPAPER ADVERTISING (total linage in 52 cities of the United States): average per month. Compiled by Media Records, Inc.

or the entire U.S., selling each group of newspapers as a single unit. Likewise, in a bid for a larger share of advertising, the Weekly Newspaper bureau of the National Editorial association was created to improve weekly newspapers through better business practices involving advertising problems. (See also **NEWSPAPERS AND MAGAZINES**.)

**Radio.**—For the first eight months of 1945, estimated combined gross time sales of the four coast-to-coast networks gained only a fraction of 1% over the corresponding period of 1944—\$124,499,904 as compared with \$123,922,092—due to carry over of long-term contracts from the preceding year for best day and evening hours. The Advertising council continued, on a revised basis, the radio network allocations set up during war years. (See also **RADIO**.)

**Direct Mail.**—Because of restrictions, direct mail selling volume shrank during the early part of 1945. Near the end of the year, however, printers were jammed with work covering new catalogues and printed promotion of all kinds.

A two-year study of direct mail pieces, catalogues and technical books showed that illustrations, layout, copy and physical size of mailing pieces influence the reading by recipients and indicate that the effectiveness of direct mail is strictly up to advertisers. Among executives, 63% preferred small mailing pieces while 95% of the purchasing agents interviewed liked uniformity of size in catalogues.

At the close of the year, the Graphic Arts Victory committee ceased to function, having successfully completed its purpose of putting printing, lithography and all devices of the graphic arts to the job of helping the war effort. Millions of printed promotion pieces devoted to war and victory campaigns proved their usefulness in the war program.

**Point of Purchase.**—More importance was given this medium during 1945 than formerly, occasioning decided gains. Certain classes of advertisers tremendously increased their point of purchase and display advertising, ranging from 3% to 6% for some types of business to 17% and 18% for others. Many advertisers recognized the value of the medium, including it as a definite part of their advertising budget. Some of the largest advertisers used display as a leadoff in introducing national campaigns. Exhaustive research studies were started to bring about improvements in the medium.

**Transportation.**—Volume of transportation advertising was around \$16,500,000 in 1945, a substantial gain over the 1944 figure. Transit riding reached an all-time high, exceeding 23,000,000,000 passengers. The first ten months of the year showed an increase of 1.91%, but dropped 2% to 4% during the last two months, due to suspension of wartime gas restrictions.

Because of the end of World War II, the Transportation Advertising War Campaigns pool was discontinued, but 50,000 car card spaces per month were given to the Advertising council for peacetime public service campaigns.

**Outdoor.**—Lifting of dim-out regulations and the end of gasoline rationing stimulated renewed interest in this medium, resulting in an increase of 40% in national advertising volume in 1945 over 1944. A greater part of this growth came from automotive and accessories fields.

A shift from wartime institutional copy and colours was noticeable toward the end of the year. Advertisements dealt directly with products giving brand names more prominence.

According to the Traffic Audit bureau figures released in the fall of 1945, effective circulation of outdoor advertising in 206 cities was 23% greater than at the time of last previous audits during 1938 to 1942. Wide variation existed, however, within geographical sections due to sudden contract cancellations, layoffs, migration of workers and resumption of heavy traffic on through highways resulting from the end of war.

**Retail.**—During the first nine months of 1945, advertising volume for food chains showed a slight downward trend; drug chains remained practically the same, while variety and miscellaneous chains were up 4.3%. Mail-order houses were slightly ahead of 1944 despite catalogue and other troubles.

Although inventories were low, war-prosperity buying pushed department store sales to peak levels. Much retail advertising space was devoted to converted surplus government merchandise, including wearing apparel as well as household and sports items.

A survey conducted by *Television* magazine found that 49% of department stores endorsed television as an effective advertising medium, while 14% did not, and 32% were awaiting future developments. Among customers, 82% were able to name merchandise shown in television demonstrations.

**Consumer.**—Numerous studies were made during 1945 to test consumer reactions. One conducted by the Committee on Consumer Relations in Advertising, Inc., showed that all media of advertising materially increased their informational content to consumers on the proper use of products. This was the result of demands made by the public for reliable and adequate information. In surveys made for Brand Names Research foundation, it was overwhelmingly shown that consumers prefer to buy by brands. Indifference to brand names averaged 26.6% for men as compared with 19.1% for women. Items covered were foods, wearing apparel, toilet goods, hardware and personal articles.

A study of sales influences of endorsements and stamps of approval as an advertising device, showed that 62.4% of the women favoured these endorsements.

With the relaxing of controls on DDT distribution, some misleading advertising of products containing the chemical occurred. The department of agriculture curbed this practice and printed its own report on tested DDT insecticides for agriculture and the home and their proper use.

By unanimity reached among both canners and distributors on descriptive labelling techniques, additional product information was to be given on food labels. New U.S. Food and Drug administration labelling regulations went into effect, relating to packaged medicines safe for self-medication, and those unsafe without a doctor's supervision.



**Research.**—Increasing numbers of studies were made by research organizations, manufacturers, publishers and advertising agencies in the various fields of marketing and advertising, including studies on use of products in selected areas, panels of users and observation and reading of advertising. The obtaining of factual information was expanded materially during 1945 and business operations were increasingly determined in the light of research results.

The Pacific Advertising association sponsored a program covering fundamental economic conditions which provided a post-war outlook for marketing and a background for market planning in the west.

**Foreign.**—The general over-all world picture presented unprecedented demands for advertising space which was not available because of paper shortages. British newsprint remained tight, newspapers using 290,000 tons during the year, compared with 1,100,000 before the war. Magazines used 25,000 tons whereas formerly it ran to around 78,000. London newspapers were on a four-page daily and eight-page Sunday basis while Paris dailies had two pages with greatly restricted advertising space.

Insertions in British magazines were rarely larger than one-quarter page and colour had disappeared completely. Direct mail was drastically cut; no catalogues or brochures of any type could be sent out without specific permission. Due to lack of other media, outdoor advertising boomed.

Up to June 30, 1945, 20 large Australian metropolitan newspapers had gained 26.2% in advertising lineage over a corresponding period in 1944. Newsprint was still scarce although a slight easing occurred toward the end of the year in some states. Maximum amount of space that could be purchased by advertisers in metropolitan dailies was 8 in. x 2 columns, and in most instances it was 5½ in. x 2 columns. Classified and retail advertising headed the list in metropolitan dailies, classified totalling 1,261,869 in. in 1945 as compared with 1,029,966 in. in 1944. Retail in 1945 was 499,410 in. against 378,966 in. in 1944.

Canadian advertising volume remained about the same because of the paper situation, while Latin American volume increased greatly in spite of paper difficulties. The foreign editions of *Readers' Digest* had moderate advertising volume increases. Although demands were great, space was limited.

Because of world-wide paper shortages, use of motion pictures as an advertising medium increased enormously. This was found to be the case in foreign countries by an even greater extent than in the U.S.

**BIBLIOGRAPHY.**—Mark Wiseman, *The Anatomy of Advertising* (revised); N. H. Borden, *Advertising in Our Economy*; Aesop Glim, *How Advertising is Written and Why*. (D. St.)

**Aerial Photography:** see PHOTOGRAPHY.

**Aeronautics:** see AVIATION, CIVIL; AVIATION, MILITARY.

**Afghanistan.** A Moslem kingdom lying between India and Iran; area 250,000 sq.mi.; pop. (est. 1940) 10,000,000; chief towns: Kabul (cap., 80,000), Kandahar (60,000), Herat (50,000), Mazar-i-Sharif (30,000). Ruler: Mohammed Zaher Shah; languages: Persian, Pushtu, and some Turki in the north; religion: Mohammedan.

**History.**—There was little change in internal affairs during 1945, the 26th year of Afghanistan independence. Shah Zaher continued a peaceful rule and the end of World War II saw an unbroken record of neutrality for the country. The Red Crescent Society of Afghanistan donated £5,000 in July to the fund opened by the International Red Cross at Geneva as a token of its sympathy with the fate of European peoples. During the year, Eli E. Palmer, formerly with the foreign service at the Australian embassy, succeeded Cornelius Van H. Engbert as

U.S. minister at Kabul.

**Education.**—Confined chiefly to Kabul. Elementary schools exist throughout the country, but secondary schools exist only in Kabul and provincial capitals. Both are free. There were, in 1940, 130 primary schools and 1 normal school for teachers in Kabul. In addition there were 4 secondary schools and 13 military schools. Technical, art, commercial and medical schools exist for higher education. The Kabul university was established in 1932; only a medical faculty existed in 1940.

**Defense.**—Army, compulsory service; peace strength 90,000.

**Finance.**—Revenue and expenditure about \$45,000,000; currency: Rs.3.95 (Afghan)=Rs.1 (Indian)=30.12 cents U.S. (July 1943).

**Trade and Communication.**—(1939-40) Exports to India: Afghan merchandise \$1,195,000; treasure \$5,020; non-Afghan merchandise \$605. Imports: Indian produce \$2,188,000; other produce (imported through India and in transit) \$5,910,000. Persian lambskin is one of the most important exports. Other exports are carpets, fruit, wool and cotton. Roads: trade routes, Kabul to Peshawar (India) 210 mi.; and Kandahar to Chaman, 70 mi.; there were about 2,265 mi. of unmetalled roads connecting the chief towns. At the beginning of 1941 there were five wireless stations in the country.

**Agriculture.**—Wheat, rice, millet, maize, sheep, Persian lambskin, wool (1938) 7,480 short tons.

**BIBLIOGRAPHY.**—Sir Percy Sykes, *A History of Afghanistan*, 2 vols. (1940).

**A. F. of L.:** see AMERICAN FEDERATION OF LABOR.

**Africa, British East:** see BRITISH EAST AFRICA.

**Africa, British South:** see BRITISH SOUTH AFRICAN PROTECTORATES.

**Africa, British West:** see BRITISH WEST AFRICA.

**Africa, French Equatorial:** see FRENCH COLONIAL EMPIRE.

**Africa, French North:** see FRENCH COLONIAL EMPIRE.

**Africa, French West:** see FRENCH COLONIAL EMPIRE.

**Africa, Italian East:** see ITALIAN COLONIAL EMPIRE.

**Africa, Portuguese East and West:** see PORTUGUESE COLONIAL EMPIRE.

**Africa, South-West:** see MANDATES; SOUTH AFRICA, THE UNION OF.

**Africa, Spanish West:** see SPANISH COLONIAL EMPIRE.

**Africa, Union of South:** see SOUTH AFRICA, THE UNION OF.

**Agagianian, Gregorio Pietro XV** (1895— ) Patriarch of Cilicia of the Armenians was born at Akhaltsikh, Caucasian Armenia, on Sept. 15. He studied and taught at the Propaganda Fide in Rome. He was ordained in 1917. Appointed vice-rector of the Armenian college at Rome in 1921, he was named rector in 1925 and titular bishop of Comana in 1935. He was elevated to patriarch of Cilicia in Armenia in 1937.

He was the highest ecclesiastical dignitary among the 32 the Holy Father named for elevation to the Sacred College of Cardinals.

Many members of the U.S. clergy, some of whom were elevated to the episcopate, studied under the patriarch at the Propaganda Fide. He was a former classmate of Cardinal-designate Francis J. Spellman in Rome. Pope Pius X once said to the patriarch in his pre-seminary days: "You will be a priest, a bishop and a patriarch." He was created and proclaimed a cardinal at consistory on Feb. 18, 1946.

**Agricultural and Industrial Chemistry, Bureau of:** see AGRICULTURAL RESEARCH ADMINISTRATION.

**Agricultural Machinery:** see AGRICULTURE.

## Agricultural Research Administration.

An agency of the United States department of agriculture established in 1941 to direct and co-ordinate research in the department, the ARA comprises seven bureaus whose functions are for the most part the conduct of research. These are: bureau of agricultural and industrial chemistry, bureau of animal industry, bureau of dairy industry, bureau of entomology and plant quarantine, office of experiment stations, bureau of human nutrition and home economics and bureau of plant industry, soils, and agricultural engineering.

Experiments with DDT in 1945 indicated it would be useful on the farm and in the orchard as well as around the home and barn. Tests showed that it gives satisfactory control of Japanese beetles, Colorado potato beetles, potato leaf hoppers, tomato fruit worms, pea weevils and certain other crop insects. It did not give satisfactory control for Mexican bean beetles, several aphids and common red spiders. It gives satisfactory control for squash bugs and other insect enemies of squash but is harmful to the plants. Experiments were to continue in 1946 and definite recommendations were to be available for using DDT against a particular pest of field and garden crops as soon as the results warranted. In making recommendations, due consideration would be given to poisonous residues that might remain on the food of man or animals.

Entomological research in 1945 also developed valuable new information on the application of insecticides. Formerly, the use of liquid insecticides required the distribution of large quantities of water which merely served as a carrier for the active ingredients. With the advent of DDT new types of distributors which break up the spray into very fine droplets were developed for the dispersion of this insecticide in solutions or emulsions. Entomologists found that these give good coverage on certain types of foliage with as little as .1 gal. of spray per acre. This new equipment made it practical to apply insecticides in liquid form from aeroplanes, a practice which had not formerly been used to any extent because of the large amount of water required in the spray.

Aeroplanes for applying insecticides had been in use for many years principally for dusting cotton in the delta region and in the southwest, where fields are large. Further work in 1945 pointed to other possible uses in Washington and Oregon of aerial applications of dusting mixtures containing DDT or rotenone that gave good control of weevils on peas. In Arizona, satisfactory results were recorded in using aeroplanes to apply dusts containing DDT for the control of *Lygus* plant bugs and beet leaf hoppers on sugar beets grown for seed. In North Carolina, aeroplane application of cryolite dust mixtures controlled hornworms and flea beetles on tobacco. Preliminary tests in which both DDT and rotenone were used indicated that effective insecticidal control of the European corn borer could be obtained with aerial equipment.

Marked progress was made in the development of equipment and formulas for dispersing insecticides in the form of fogs or aerosols. The aerosol bomb, which disperses the insecticide by the pressure of liquefied gas, was extensively used during World War II to protect troops from disease-carrying insects. This device promised to be a popular method of combating mosquitoes, flies and other free-flying insects in buildings.

Entomologists and plant breeders had been working jointly for several years to develop strains of commonly grown field crops that were resistant to insect attacks. Additional lines of corn resistant to the European corn borer were discovered in 1945, and those previously found were being utilized as breeding material by state and federal plant breeders. A strain of dent corn known as R-30, resistant to earworms, was being used

in commercial crosses, and a strain of sweet corn also showed resistance to this pest. In California, two strains of wheat resistant to hessian flies were being increased for release to growers. Considerable progress was also made in breeding cotton resistant to aphids, without lowering yield or quality of lint. Plant breeders also developed many new varieties more resistant to diseases or otherwise superior. Those made available to farmers in 1945 included barley, cantaloupes, corn, crimson clover, lettuce, millet, oats, onions, potatoes, tomatoes and vetch. (See also ENTOMOLOGY.)

New varieties of oats developed co-operatively by the department of agriculture and several state experiment stations had practically replaced older varieties in the north central states. A still newer variety, Clinton, that outyielded all others in 1945 was to be available for planting in the spring of 1946. It is resistant to rusts and smuts and has a very stiff straw, an advantage in harvesting.

Experiments with growth-promoting chemicals at the plant industry station in 1945 resulted in a discovery of great importance in weed control. One of these chemicals, 2,4-dichlorophenoxyacetic acid, was found to be deadly to certain plants when applied to the foliage as a spray solution in the very low concentration of one-tenth of 1%. If preliminary results were confirmed in larger scale tests, weeds that could be destroyed only at great expense might be eradicated at a mere fraction of former cost in terms of labour and money. Tests had already shown conclusively that 2,4-D would control some of the common lawn weeds without injury to Kentucky blue grass. A single spray with 2,4-D at a cost of less than \$5 per acre destroyed nearly 100% of dandelion, buckhorn, wall pennywort and other broad-leaved weeds. Much more information was necessary, and thousands of experiments were in progress throughout the United States.

The light sandy soils commonly found in the southeastern states and along the Atlantic seaboard usually respond quickly to applications of nitrogen fertilizers. As a result, it has been common practice to apply fertilizers containing nitrogen in this region. Tests during 1944-45 with corn in North Carolina showed that much larger applications of nitrogen might be profitable to farmers. By adding 120 lb. of nitrogen per acre, in addition to the fertilizers customarily used, the yield of corn on one farm was increased from 19 bu. per acre to 107 bu. per acre. This increase of 88 bu. of corn was obtained at a cost of approximately \$12 for the extra nitrogen used. Soils specialists of the department and the North Carolina agricultural experiment station believed that these experiments pointed the way to doubling corn yield in the southeast, which averaged about 20 bu. per acre. Another factor which was expected to aid in reaching this goal was the progress in development of hybrid corn adapted to the south.

Consumers prefer fresh eggs with a high percentage of thick white, because such eggs stand up well and do not have a watery appearance. Research in the department showed that it was possible to develop by breeding a strain of chickens that produced eggs with a higher percentage of thick white. It was also found possible to develop strains that laid eggs with stronger shells. Such eggs keep better under poor storage conditions and lose less weight under good storage conditions. Also, fewer eggs are broken by handling. It was also possible to reduce the number and size of blood spots in eggs by selection and breeding.

Tests to determine the effectiveness of penicillin against animal diseases were encouraging. The drug was fairly effective in controlling the principal organisms causing mastitis in cattle. Further investigations were under way in 1945, and it was thought possible that penicillin might be found useful against

other infective diseases of animals, though it would not, of course, eliminate the necessity for sanitary precautions.

Feeding dairy cows a larger proportion of their total grain ration during the first third of the lactation period increased milk yield by 10% in experiments at three stations of the bureau of dairy industry. The control groups received grain at a uniform rate throughout the lactation period. The greatest difference in yields was during the first part of the period, when milk production is normally greatest. An increase in milk production with the same amount of feed would obviously be profitable to dairymen.

A dried meal made from vegetable wastes that accumulate in large quantities at processing plants showed considerable promise as a poultry feed. Leaf meal made from broccoli compared favourably with alfalfa meal in a test by the Delaware agricultural experiment station.

Studies by the bureau of human nutrition and home economics, supplementing earlier work on soybeans, peanuts and cottonseed, showed that wheat germ and corn germ rank first and second, respectively, among plant sources of nutritionally efficient protein. Moreover, they could probably be made available in large quantities in a form suitable for human consumption. It was estimated that 55,000,000 lb. of wheat germ alone were being produced every year in the United States and Canada. Specially processed and defatted wheat and corn germs that had excellent keeping quality were being prepared commercially for human use in 1945.

Notable improvement in the flavour of canned orange and grapefruit juice was expected to result from work at the U.S. department of agriculture Citrus Products laboratory at Winter Haven, Fla. Canned citrus juice tends to have a cooked taste. It was found that a product with improved flavour that more nearly resembled the fresh product could be made by improving the method of pasteurization and by canning the juice under a vacuum. Storage tests were in progress to determine how long the canned juice could be stored without loss in quality.

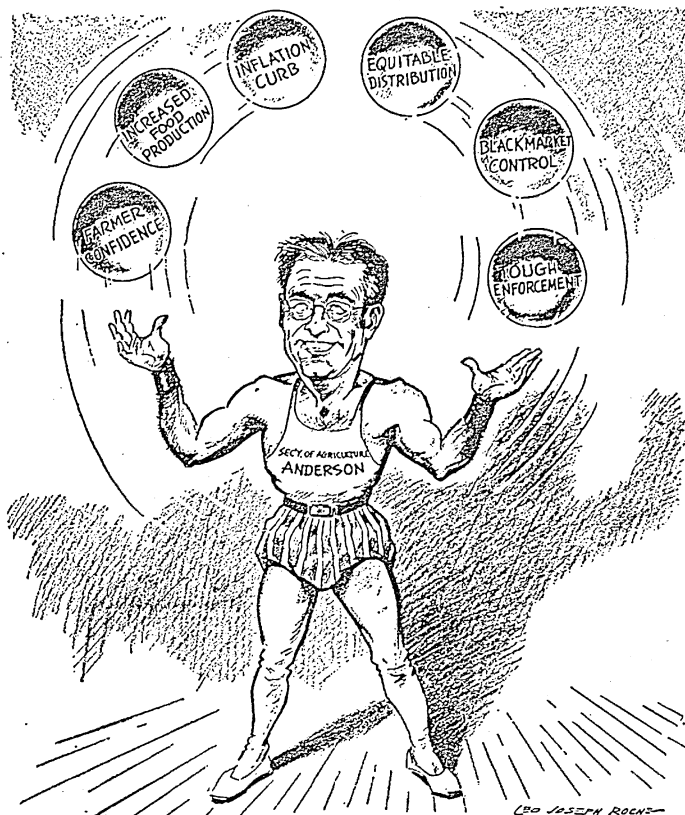
(P. V. C.)

**Agriculture.** Another year of high total agricultural production was recorded for the United States in 1945. While the total volume did not quite equal the all-time high record of 1944 it was above all other previous years. The index of total production in 1945 was estimated by the U.S. department of agriculture to be 130 (1935-39=100) compared with 133 for 1944, 129 for 1943, 125 for 1942, 113 for 1941 and 110 for 1940. Crop production in 1945 was the third largest on record, being 2% less than the high total of 1942 and 4% below that of 1944. Livestock production registered the principal decline after passing the peak in 1944. Breeding hogs declined 28% in 1944, and the pig crop of 1945 was not sufficient to make up the difference. While the output of milk reached a new record in 1945, it was not sufficient to offset the decline in other lines.

Table I.—Index Numbers of the Volume of Agricultural Production through Two War Periods\* (1935-39=100)

	1915	1920	1925	1930	1935	1940	1942	1943	1944	1945
<b>Crops</b>										
Food grains . . . . .	147	126	95	109	81	110	139	114	153	155
Feed grains and hay . . . . .	126	149	128	83	91	114	141	128	139	134
Cotton . . . . .	86	100	122	105	81	95	99	87	93	70
Tobacco . . . . .	80	104	95	113	89	101	97	96	125	141
<b>Truck crops</b>										
(vegetables) . . . . .	35	51	74	91	92	110	127	121	139	143
Fruits and nuts . . . . .	73	76	74	89	95	110	115	106	114	115
Sugar crops . . . . .	73	98	73	85	89	104	110	80	84	92
Total crops . . . . .	95	102	99	96	89	107	123	114	125	121
<b>Livestock</b>										
Meat animals . . . . .	92	99	107	100	90	118	133	151	152	141
Poultry and eggs . . . . .	78	78	93	106	92	109	131	152	150	153
Dairy products . . . . .	70	72	85	94	98	105	114	113	113	120
Total livestock . . . . .	81	85	96	99	93	112	126	138	138	136
Grand total . . . . .	86	92	97	98	91	110	125	129	133	130

\*From estimates by the bureau of agricultural economics, U.S. department of agriculture.



"NEAT TRICK IF HE DOES IT" commented L. J. Roche of the *Buffalo Courier-Express* on the task facing Clinton P. Anderson when he was appointed U.S. secretary of agriculture on May 23, 1945

This was the eighth successive year of agricultural production accompanied by relatively favourable weather. There was no general drought, flood or other crop disaster to reduce the output. This remarkable period of years of bountiful crops coincided with the period of the greatest war need to the benefit of the U.S. and other nations. Had average weather of the previous three decades been experienced the record would have been far less impressive.

**Crop Production.**—Total 1945 crop production proved to be the third largest on record, although several crops surpassed previous high totals. The record-breaking crops in 1945 were: wheat, oats, tobacco, rice, popcorn, hops, peaches, pears, grapefruit, almonds and truck crops for the fresh market. Other crops that were very near the high record were: hay, soybeans, flaxseed, potatoes, sugar cane, oranges, grapes and pecans. Of the major crops that were near to the top, corn and peanuts were important. The only severe declines to be recorded were apples, cherries, maple, beans and sweet potatoes. The cotton crop was the smallest after 1896 except for 1921.

The acreage of 52 crops harvested in 1945 was 346,900,000 ac., only about 4,000,000 less than the total of 1944. This acreage was not a record since in the 1928-32 period the farmed area reached from 351,000,000 to 362,000,000 ac. The reduction occurred in the Atlantic and south central states where the reduction was 15% from the high peak of 1931. This total was increased in the north central and western states. A much larger acreage would have been planted had the wet spring not intervened. There was some shift from row crops to grains due to the shortage of labour and the desire to make the best use of tractor machinery. The total acreage losses due to floods, droughts and frosts for 16 crops amounted to only about 10,000,000 ac. which was the smallest loss in any year after 1930. The worst loss was that of apples and sour cherries caused by the frosts in late spring. Crop yields were generally high in 1945, only 2% below 1944 and 4% below the record of



1942. Composite yields were 30% above the 1923-32 period and several crops made new high records.

Food grain production was the highest on record including wheat, rice, corn and oats. The feed grains total was also almost up to the record. Sugar production from cane and beets was estimated to be about 23% above 1944. Oilseeds as a whole yielded a large total, although the cottonseed output was small. Fruits were less abundant but vegetables and truck crops made new high records and victory and other home gardens gave excellent returns where they were well cared for.

Table II.—Production Figures of Selected U.S. Crops, 1933-45

(000s omitted)								
Year	Corn bu.	Oats bu.	Wheat bu.	Cotton bales	Timothy tons	Rice bu.	Tobacco lb.	Potatoes bu.
1933	2,399,632	733,166	551,683	13,049	66,530	37,651	1,371,131	342,306
1934	1,461,123	542,306	526,393	9,636	55,270	39,047	1,081,629	406,105
1935	2,303,747	1,194,902	626,344	10,638	78,138	38,784	1,297,155	386,380
1936	1,507,089	785,506	626,766	12,399	63,536	49,002	1,154,131	331,918
1937	2,644,995	1,146,258	873,766	18,946	73,785	53,364	1,553,405	393,289
1938	2,542,238	1,053,839	930,801	11,943	80,299	52,303	1,378,534	371,617
1939	2,619,137	937,215	754,971	11,817	75,726	52,306	1,848,654	364,016
1940	2,449,200	1,235,628	816,698	12,566	86,312	52,754	1,451,966	397,722
1941	2,672,541	1,176,107	945,937	10,744	82,358	54,028	1,261,364	357,783
1942	3,175,154	1,358,730	981,327	12,824	92,245	66,363	1,412,437	371,150
1943	3,034,354	1,137,504	841,023	11,427	87,244	64,843	1,402,988	464,999
1944	3,203,310	1,154,666	1,072,177	12,230	84,076	68,161	1,956,022	383,134
1945	3,018,410	1,547,663	1,123,143	9,195	91,573	70,161	2,041,811	425,131

The corn crop of 1945 was the third 3,000,000,000 bu. production in succession, only about 180,000,000 bu. less than was produced in 1944. The harvested acreage was about 5% less than in 1944 and the average yield slightly larger. The season was favourable for vigorous growth but early frosts in the fall caused a large loss, about 12%, from "soft" corn. The increasing use of hybrid seed produced high yields in Indiana, Illinois and Ohio, leading corn-producing states. Production in Iowa declined because of lower yields. Wheat production made another high record exceeding the record of 1944 by 6% or 51,000,000 bu. The increase of 10% in acreage more than offset the lower average yield. This increase was all in winter wheat amounting to more than 6,000,000 ac. and the yield on this class of wheat was almost up to that of the previous year. The surplus of wheat, so large in 1942 and 1943, was reduced to more than normal relations to demand, and the big crop was needed for relief purposes. Grains other than wheat and corn returned a big harvest in 1945. Oats made a new record, nearly 50% above the prewar average. Rye production was above that of 1944 although much below the prewar level.

FRESH TOBACCO from the 1945 crop in Georgia being strung before curing



Barley was below the average and a little below 1944. Rice made another new high record in 1945 over that of 1944.

Tobacco production reached a new all-time record in 1945. More than 2,041,811,000 lb. of all types were harvested due chiefly to favourable harvesting weather. The acreage was increased 4% and yields were above average. Flue-cured and burley were the types that made the great increase.

The cotton crop of 9,195,000 bales of 500 lb. from 18,000,000 ac. was 18% smaller than that of 1944. The yield was off 9% and the acreage 12% less. For the fifth year U.S. farmers produced a cotton crop which returned in the market more than \$1,000,000,000. The return in 1945 was smaller than any of the past three seasons but larger than in 23 of the past 36 years.

Potato production in 1945 was larger than in 1944 and above the average. The good crop was due to a new record yield of 150.6 bu. per acre compared with the previous record of 139.6 bu. per acre. Dry beans returned the smallest crop after 1936 due to the unfavourable season. Soybeans yielded the third largest crop on record. Peaches made a new all-time record, 6% above 1944 and 50% above the ten-year average. One of the few crop failures was maple products which suffered from the unseasonably warm weather early in the year followed by cold which prevented sap gathering.

Pastures and hay meadows gave an abundant supply of live-stock feed through 1945. Hay production was almost equal to the record crop of 1942. Total fruit production was above average though about 4% below 1944. Apples were short in the eastern areas. Commercial truck crops returned a record tonnage.

**Livestock Production.**—The decline in total numbers of live-stock on U.S. farms which began in 1944 continued through 1945 at an increasing rate. In terms of animal units of comparative size the total number had declined 6% by Jan. 1, 1946 from a year earlier but was still larger than any other of the last 20 years except 1943. The total value also was about 7% below 1944 and 8% less than the record of 1943. Cattle numbers, including cows, kept for milk, declined more than 1,000,000 head up to Jan. 1, 1945, but the rate of decline was checked during the year and the number on Jan. 1, 1946, was not expected to show much decrease from a year earlier. Milk cow numbers increased to a new high record by Jan. 1, 1945, but showed a decline of about 2% by June. Further declines in numbers were indicated for the late months of the year following the end of World War II.

Hog production, which dropped sharply in 1944, was shown by an estimate of only 60,600,000 head on farms on Jan. 1, 1945, compared with 83,852,000 head a year earlier. The pig crop of 1945 was about the same as the 87,000,000 crop of 1944. A gain of about 4,000,000 head in the fall crop offset the decline in the spring crop. The government's goal of 90,000,000 pigs for 1945 was almost attained because of the heavy weights to which hogs were fed because of the large crop of corn. The decline in sheep numbers continued through 1944 and on Jan. 1, 1945, had dropped 7% from a year earlier and down to the level of 1928. The low returns from lambs, the surplus of wool and the labour shortage were the principal factors producing the changes.

Total meat supplies of all sorts in 1945 were only slightly less than the record production of 1944. Consumers' reductions were due to the large proportion that was being used by the military services. The total requirements for the military forces and for export were about 6,000,000,000 lb. The domestic consumption was at the rate of 130 lb. per capita compared with 150 lb. in 1944 and an average of 126 lb. 1935-39. Meat production was high in 1918 following World War I, about 160 lb. per capita, then declined steadily to about 115 lb. in 1935

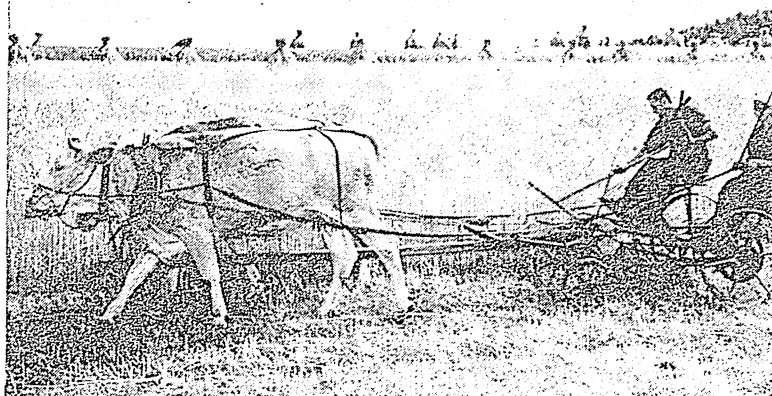


after which time it increased to the record of 1944, more than 175 lb. per capita. The war demand absorbed the part in excess of the domestic consumption of 130 lb. per capita.

Dairy production reached a new high record in 1945. The number of milk cows and heifers increased slightly during 1944 and continued to increase in 1945. The excellent pastures and large feed supplies helped the yield per cow which made a new record of nearly 4,800 lb. of milk in 1945. The total milk output was estimated at 123,000,000,000 lb., 3% above the previous record of 1942. More milk was allowed to go to civilian use as whole milk and consumption increased to 803 lb. per capita over 788 lb. in 1944 and a prewar average of 801 lb. 1935-39. Restrictions on the use of cream for butter making resulted in creamery butter production declining to the lowest point in two decades or 11 lb. per capita compared with 17 lb. in prewar. Cheese production continued at a record level, most of it being set aside for government purchase until Oct. 1945. The production of dried and canned milk continued high to provide for relief purposes, fully 25% being taken for noncivilian uses.

Poultry production in 1945 recovered most of the previous year's losses although the number of chickens on farms Jan. 1, 1945, was 11% less than a year earlier. A larger crop of chicks was hatched and raised which brought the total production of poultry meat to 3,575,000,000 lb. an amount only exceeded by the record production of 1943 when 3,800,000,000 lb. was produced. The crop of commercial broilers was larger, accounting for 23% of the total. Egg production in 1945 failed to reach the record of 1944 but was 5,050,000,000 doz. compared with a prewar output of 3,335,000,000, 1935-39. Producers' prices for eggs ranged higher through 1945 than in previous years and were above 90% of parity until late in the year. While lower prices were expected with the end of meat rationing the government was committed to support prices during 1946 and 1947. A continued demand for dried eggs for export to Europe was expected. Stocks at the beginning of 1945 were large but were expected to be greatly reduced by the end of the year. Civilian consumption was estimated to be about 390 eggs per capita in 1945 compared with 351 eggs in 1944 and a prewar average of 298 eggs 1935-39. Turkey meat production was favoured by the ample feed supplies in 1945 and good returns to growers. The growing popularity of turkey meat was expected to continue as military requirements were reduced and more of the meat was released for civilian uses. The 1945 crop of 44,200,000 birds compared with 20,800,000 in 1935. Turkeys return about 10% of the total receipts from poultry products. Production of other fowl—ducks, geese, etc.—showed little change during World War II. A generally increased consumption of poultry meat was expected in the post-war period as compared with the prewar period due to the generally higher consumers' incomes. New methods of preparing poultry for market, i.e. cleaned, cut, canned and pre-frozen, were being introduced as rapidly as possible in 1945. Most of the canned and boned chicken meat was set aside for military uses during 1943 and 1944 but was released late in 1945.

The general civilian food supply throughout 1945 was slightly lower than in 1944 as estimated by the U.S. department of agriculture. The meat supplies were short mostly in pork, beef production being 10% above 1944. Until the end of World War II the civilian supply of meats was tight since military purchases took 20% and relief needs another 5% of the total available supply. With the end of the war the government reservations were removed, and ration point values reduced. Government purchases for relief were resumed in October, however, but only on lower grades of beef and veal.



AT HONAD, GERMANY, a farmer and his wife harvest wheat with a pair of oxen in 1945. Lacking adequate machinery and horses, German farmers were obliged to employ backward methods in producing their crops

Poultry and eggs were scarce early in 1945 but became more plentiful after government purchases were reduced. Civilian egg consumption reached a new record of 390 eggs per capita because of the scarcity of meat. About one-tenth of the chicken meat supply was taken for army needs. Turkey production reached a new high record of about 4.5 lb. per capita civilian consumption which is nearly twice that of prewar. The fluid milk and cream supply reached 438 lb. per capita, almost 30% above the prewar average. Butter was scarce because of restricted manufacture. In August government butter purchases ceased and nearly 100,000,000 lb. were turned back for civilian use by the army and other agencies. Cheese was also short until late in the year. Total fruit supplies were about the same in 1945 as a year earlier, canned fruits consumption being only about 40% of prewar since military needs took about three-fourths of the 1944-45 pack; rationing ended on Aug. 15. Vegetable production was at a high level, but the military forces took one-fourth of the canned supply. Potatoes were plentiful and the government had to buy several million bushels to support prices to producers as guaranteed. Rationing of food, except sugar, was discontinued by Nov. 15.

**Stocks and Carry-Over.**—The stored stocks, surpluses and amounts carried over from one season to the next were generally reduced in 1945 by World War II demands notwithstanding the high level of production during 1941-45. The large surpluses of wheat, cotton, corn, etc., of the late '30s were less alarming in size.

The cotton surplus was the largest in relation to the usual market consumption. On Aug. 1, 1945, the total carryover of cotton was 11,040,000 bales which was more than any year after 1941. At the same time there was reported to be 1,364,000 bales of U.S. cotton in foreign countries making a total of 12,404,000 bales world carry-over. Consumption in the U.S. was estimated to be about 9,000,000 bales which was less than the crop of the year 1945. The prospect of reducing the surplus was not bright since only about 3,000,000 bales were exported with a subsidy of 4 cents per pound in effect and stronger competition with export cotton of other countries in prospect.

The carry-over of wheat on July 1, 1945, was 281,000,000 bu. which was the smallest after 1941 and much below the high record of 622,000,000 bu. in 1942. Stocks of wheat were smaller in all surplus wheat producing countries, the total for the U.S., Canada, Argentina and Australia being 826,000,000 bu. compared with 1,168,000,000 bu. in 1944.

Stocks of meat were lower than average in 1945 because of

the active demand, but the end of World War II released some stored goods which were quickly absorbed when rationing was ended. Butter stocks were lower at the end of 1945 due to the continued restriction of creamery butter manufacture and strong consumer demand. Egg supplies in storage were at a high record at the beginning of 1945 but ranged below 1944 and below the average through the years. Poultry meat supplies were also below the level of 1944 throughout the year. The continued high rate of consumption within the U.S. tended to absorb the relatively small excess that was released when the government reduced the volume of buying for military needs. The demands by the relief agencies were a factor until the last two months of the year when the delay in securing funds by United Nations Relief and Rehabilitation administration brought its buying activities almost to a standstill.

Transportation difficulties were slightly reduced by the end of World War II since a smaller tonnage of army supplies was handled. Another relief was the reduced shipment of raw materials for war contracts. The supply of box cars for grain was still short although by July 1, 1945, an increase of 1,500 box cars was reported by class I railroads. This was more than offset by a decline of 11,700 refrigerator and tank cars. These shortages were expected to continue well into 1946 or until new cars could be built. The heavy traffic of the war put a heavy strain on locomotives and on July 1, 1945, there were only 37 more in service than a year earlier. The cancellation of war contracts was expected to enable locomotive builders to fill larger orders for new equipment.

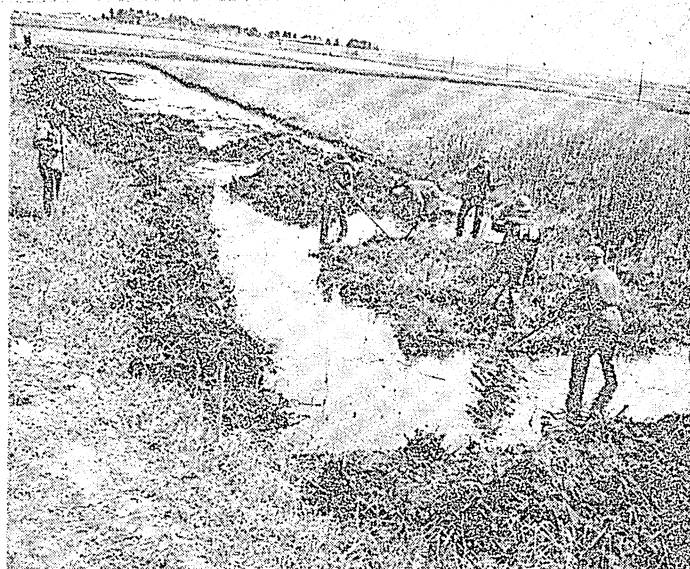
The motor truck situation improved quickly with the end of hostilities. Since truck manufacturers were making trucks for military uses they did not have to reconvert their machines to make trucks for civilian use. Some surplus army trucks became available. The tire shortage shifted from large to medium or small-size such as are used on general purpose trucks. The end of gasoline rationing tended to improve the service of privately owned trucks.

The decision of the Interstate Commerce commission to reduce class freight rates in the south and west and to increase them in the east had little significance to agriculture. Most farm products are shipped on commodity rates rather than class rates and these were not affected by the decision.

Corporations engaged in marketing farm products received net profits in 1945 at about the same rate as in 1944. Operating profits less taxes in 1944 ranged as interest or investment from 6.8% for 12 meat packers to 11.1% for 10 grain mills. Four large tobacco companies made 8.8% in 1944 which was the lowest profit shown after 1935. The number of business failures was less, not counting the number of voluntary terminations. Labour costs averaged about 50% of the total cost for concerns distributing or processing farm products.

The first cost of food products, or what is usually called the farmer's share of the consumer's dollar, was stabilized at a level of about 54% of the retail price through 1945. This was only slightly higher than the average of 1944 and compares with 40% for 1935-39. The range of these percentages with different products was from butter 84%; beef 80%; poultry meat 72%; eggs 71%; milk 62%; fruits and vegetables from 60% to 25%; flour 48% down to bakery products that averaged less than 20% as the cost of the raw material. The higher return to farmers of beef and dairy products was made possible by government payments to processors.

**Lend-Lease Agricultural Products.**—The four years, March 1941 to March 1945, witnessed a constantly increasing flow of agricultural products under the Lend-Lease act. Foodstuffs and other agricultural products accounted for 14% of the total of lend-lease aid and in 1944 represented 6% of the record food



GERMAN PRISONERS of war from Ft. Sheridan, Ill., working on a new cranberry bed at Wisconsin Rapids, Wis. They are arranging the marshy ground into dikes which, when flooded, form a pond that freezes in winter and is covered with sand. In the spring thaw, the sand settles to form a bed for vine planting

supply. U.S. civilians consumed 80%; armed forces 13%; commercial exports 1%; and lend-lease 6%. The total value of agricultural products taken for lend-lease from March 1941 to April 1, 1945, was \$5,426,000,000 out of a total of \$38,971,000,000 or 14%. The proportion of other goods was: munitions 50%; oil 5%; industrial products 20%; shipping and other services 11%. During 1945 the proportion of various foods exported under lend-lease was: meats 7%; eggs 6%; edible fats 17%; dry whole milk 16%; dry skim milk 8%; condensed milk 11%; cheese 8%; butter 2%; canned fish 9%; dried fruits 25%; beans 14%; peas 12%. During 1944 the British received about 3% of the total U.S. food supply which amounted to 10% of their requirements. The U.S.S.R. received 2% of the supply in 1944 and got about 30% of the total shipments. The amounts shipped to Africa, middle east and other Mediterranean areas were relatively small and the shipments to China, India and other countries still less.

Reverse lend-lease supplies received from foreign countries in the form of supplies and services included some considerable amounts of foodstuffs. Up to Jan. 1, 1945, Australia had supplied \$172,375,000 worth of foodstuffs, New Zealand \$80,401,000 and India \$30,986,000, which were used by U.S. military forces in the Pacific and far eastern areas. The total value of lend-lease supplies received up to Jan. 1, 1945, was nearly \$5,000,000,000 compared with a total of about \$30,000,000,000 exports to all countries.

**Prices of Farm Products.**—Prices received by farmers in 1945 were higher than in 1944 and reached a high peak in June and July. While there was some decline in the late months of the year, the average was eight points above 1944. The annual index compared with the base (1910-14=100) was 203. The comparable index for 1944 was 195; 1943, 192; 1942, 159 and 1941, 124. All livestock and dairy products ranged steadily higher than all crops but did not reach such a high point in

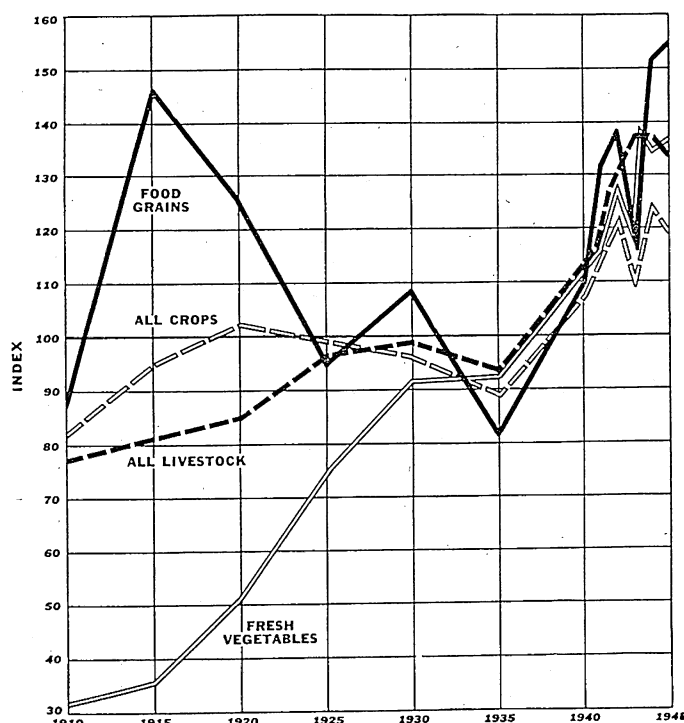
Table III.—Farmers' Average Prices, Certain U.S. Crops, on Selected Dates (in cents per unit)

	Wheat per bu.	Corn per bu.	Oats per bu.	Barley per bu.	Rye per bu.	Buck- wheat per bu.	Pota- toes per bu.	Eggs per doz.	Cot- ton per lb.
Oct. average, 1909-13	88.1	64.8	38.4	60.5	72.0	71.1	65.0	23.8	12.10
Oct. 15, 1936	106.8	97.9	43.1	84.2	80.4	78.3	97.9	27.6	12.23
Oct. 15, 1937	88.7	58.9	28.8	52.0	63.8	62.4	48.5	25.2	8.10
Oct. 15, 1938	52.2	41.9	22.1	36.1	32.9	54.5	51.0	27.1	8.53
Oct. 15, 1939	70.3	47.6	30.3	42.2	45.1	62.7	66.4	22.9	8.73
Oct. 15, 1940	68.2	59.4	28.3	38.2	40.5	54.4	52.0	23.7	9.35
Oct. 15, 1941	91.0	64.9	38.9	49.1	51.3	64.3	67.2	31.8	16.55
Oct. 15, 1942	103.5	77.5	43.2	57.6	52.9	77.0	102.5	37.4	18.87
Oct. 15, 1943	135.0	107.0	77.4	103.0	101.0	110.0	128.0	45.2	20.28
Oct. 15, 1944	142.0	113.0	65.9	95.4	108.0	102.0	142.0	38.8	21.25
Oct. 15, 1945	151.0	113.0	62.8	101.0	138.0	106.0	126.0	42.6	22.30

June, when the livestock index was 202 and crops 210. Ceilings and price supporting measures tended to stabilize prices but even these measures did not prevent some wide variations in the percentages of increase. These are shown by the following comparison of indexes for the first and last war years. Dairy products prices were at 139 in 1941 and 198 in 1944; poultry 121 in 1941 and 200 in 1945; meat animals 146 in 1941 and 210 in 1945. Changes in crops were similar. Food grains stood at 97 in 1941 and 170 in 1945; feeds 89 in 1941 and 163 in 1944; cotton 107 in 1941 and 170 in 1944; fruits 85 in 1941 and 220 in 1944 and truck crops 129 in 1941 and 225 in 1944. These indexes for the whole U.S. do not reflect the local and seasonal changes that occurred in many localities due to transportation and other difficulties. On the whole farm prices reflected the general price rise and were remarkably strong in the face of the large total output of the farms as a whole. The constant demand for increased civilian consumption, military and relief needs provided the market to absorb the increased production.

The price support program of the government was continued through 1945 about as in 1944. This plan was provided in the Agricultural Adjustment act of 1938 amended in 1941 and 1942. This legislation provides that basic crops—corn, cotton, wheat, rice, tobacco and peanuts—be supported in the market to return 90% of parity (except 92½% in the case of cotton). Other crops and livestock also designated to be supported were hogs, eggs, chickens, turkeys, milk and butterfat, peas, beans, soybeans for oil, flaxseed for oil, peanuts for oil, potatoes and sweet potatoes. The strong demand kept prices of many products above support levels.

Prices paid by farmers for commodities were higher in 1945 than a year earlier, the index for 1945 being 180 compared with 176 in 1944. The increase in outlay when interest and taxes were added was from 170 in 1944 to 174 in 1945. Farm wages advanced from 315 in 1944 to 355 in 1945. The ratio of prices received to prices paid by farmers reflected the general farm condition as being somewhat better in 1945 than in 1944, the index for 1945 being 117 compared with 115 in 1944.



INDEX NUMBERS of U.S. production of food grains, all crops, all livestock and fresh vegetables through World Wars I and II. Food grains and vegetables increased slightly during 1945 while livestock made a small decline; all classifications, however, maintained the high production level of the World War II period

Consumer income increased much faster than the cost of food during the World War II period. Food expenditures increased, but at a slower rate than income, although larger quantities of food per capita were purchased. In 1945 with the end of a large volume of war work a decline in food purchases set in. The farmer's share of the consumer's dollar spent for all farm products was 54 cents in Aug. 1945 compared with 55 cents, the high record reached in Jan. 1945. The costs of marketing remained relatively stable after 1943. Government payments to farmers operated both to encourage larger production by farmers and also to provide the consumer with food at a lower price. For instance the farmer's share of the consumer's price for butter was more than 80% until the removal of the subsidy to butter factories when the farm price declined at once. Retail prices of food products advanced slowly from 102 in 1941 to 120 in 1942, 135 in 1943, 132 in 1944 and 134 in 1945 (1935=100). The primary factor in the food supply was the large production in all lines, which resulted chiefly from eight favourable seasons.

Farm Income.—A gross total farm income of \$24,200,000,000 was estimated by the U.S. department of agriculture for 1945 compared with

Table IV.—U.S. Farm Income from Cash Sales, 1945 and 1944

	Jan.-Dec. 1945	Jan.-Dec. 1944
All crops . . . . .	\$9,854,000,000	\$8,801,000,000
Food grains . . . . .	1,493,000,000	1,228,000,000
Feed grains and hay . . . . .	1,520,000,000	1,131,000,000
Cotton and cottonseed . . . . .	1,440,000,000	1,499,000,000
Oil-bearing crops . . . . .	850,000,000	558,000,000
Tobacco . . . . .	955,000,000	755,000,000
Vegetables . . . . .	2,200,000,000	1,564,000,000
Fruits and nuts . . . . .	1,475,000,000	1,444,000,000
All livestock . . . . .	11,520,000,000	11,589,000,000
Meat animals . . . . .	6,320,000,000	6,251,000,000
Dairy products . . . . .	2,940,000,000	2,857,000,000
Poultry and eggs . . . . .	2,510,000,000	2,267,000,000
Government payments . . . . .	850,000,000	817,000,000
Total . . . . .	\$21,374,000,000	\$21,207,000,000

\$23,446,000,000 in 1944, \$22,775,000,000 in 1943 and \$18,399,000,000 in 1942. From 1936 to 1940 this total ranged around \$10,500,000,000 and did not begin to increase rapidly until 1941 when it reached \$13,800,000,000. The expenses of production by farmers—labour, fertilizers, machinery and services increased rapidly and acted as a check on net income. In 1945 the total production expenses were estimated at \$11,200,000,000 leaving a net income of \$13,000,000,000. When this is divided among the persons engaged in agriculture it amounts to \$1,545 per capita in 1945 compared with \$1,465 in 1944, \$1,388 in 1943 and about \$550 in prewar 1936-41. The slower rate of increase in 1945 was due to the fact that production had been pushed to the maximum limit of economy with the labour and facilities available. These national totals and averages do not fairly represent conditions in many parts of the U.S. Cash receipts were about \$3,800 per farm as a whole yet four states averaged more than \$7,500 and nine states under \$2,000, and the inequality among the farmers of many states was very wide.

The income of farmers from nonfarm sources, estimated at about \$3,000,000,000 a year, probably declined during 1945 due to the fact that farm labour was reduced to the minimum. Part-time work in war industries continued during the first half of the year but fell off rapidly after the surrender of Germany since the small industries reduced operations.

Land Values and Debt.—With the increase in farm income and other factors stimulating a demand for land as an investment, values continued to advance rapidly. Surveys for 1944 showed a gain of 15% in the previous year and preliminary figures for 1945 indicated that the rate had increased by at least a fourth. By Nov. 1944 the index of land values was 44% above the prewar base of 100 for 1935-39. The land boom of 1919-20 was being repeated as in one-fourth of the states, values in 1944 were above 1919 levels and for the U.S. as a whole were 20% above the 1912-14 level. While farmers were the buyers in about two-thirds of the sales, nonfarmers bought the other third. About half of the sales were for cash, reflecting the large backlog of purchasing funds. Despite the high proportion of cash sales more people went into debt to buy land in 1943 than in any year after 1920, which offset some of the debt reduction. An increasing demand for farms by returning veterans of World War II led the agricultural leaders and educational agencies to issue warnings cautioning these men against buying at values that might be above earning capacity. All agencies dealing with the returning soldiers were setting up committees to advise with prospective purchasers. The warnings were directed particularly to those without experience or training in farming. A large part of the buying came from those who wished to invest in land as a safeguard against inflation. Some purchases in the vicinity of cities was the result of the desire to avoid congested city life with a belief that modern transportation would make more distant areas easily accessible for those employed in industrial centres.

The total of farm mortgage debt of the U.S. was reduced steadily after 1916 and was only a little more than half the high total of 1923. From a record total of \$10,780,000,000 in 1923 the total of mortgages declined to \$5,634,000,000 in 1944 the last year of estimates. While a rapid increase was recorded after the current boom started, the use of the increased income to reduce indebtedness more than offset the recent increase. In 1944 the ratio of farm mortgages to values was one to



eight as the total value of farm real estate in 1944 was estimated at \$45,592,000,000. Educational agencies were advising farmers with high debt ratios to reduce their indebtedness while farm income was high to avoid a slump such as occurred after World War I when prices of farm products declined.

The national balance sheet of agriculture was estimated in 1945 to be as follows: assets: real estate \$50,225,000,000; other assets—live-stock, machinery, money, etc. \$40,477,000,000. Liabilities: mortgages \$5,271,000,000, other obligations \$8,952,000,000; proprietors' equities \$81,820,000,000. In a five year period the latter increased from about \$44,000,000,000 to nearly \$82,000,000,000.

**Farm Population and Labour.**—The farm population of the U.S. declined further in 1944 and on Jan. 1, 1945, reached the lowest number in the 35 years of record, a total of 25,190,000 persons. This was a net loss of 331,000 or 1.3% from the total of 25,521,000 on Jan. 1, 1944. The larger decreases during 1941-42 and 1943 had brought the total down from 30,269,000 in 1940, a loss of 16.8%. The downward change in numbers was not universal over the country, however, since in four of the nine divisions of the U.S. there was a slight gain in 1944. This was in the New England and Atlantic states in the east and on the Pacific coast. While estimates for 1945 were not available at the close of the year the trend appeared to be a return to farms. The heavy losses in the early war years were due to high wages in war industries, the draft and the employment of farm women in war industries. The return to the farms was stimulated by the reverse action of these same factors. Of the total of 5,079,000 persons making up the net loss of farm population 1940-45, 1,850,000 were taken by the military forces, but were more than offset by 1,907,000 excess of births over deaths in the U.S.

The heaviest loss of population during World War II was in the west south central states where the loss was 25% in the five years 1940-45. The east south central loss was 20% in the same period. These losses were attributed to the building of large war industries in these areas, although the farm increases in the eastern areas was thought to be due to the use of farm dwellings by war workers because of the shortage of housing near new war industries.

The changes in 1944 were estimated to be as follows: births 591,000, deaths 246,000, movement to farms 817,000, movement away from farms 1,293,000, to armed forces 300,000. These estimates were made by the U.S. department of agriculture and the census bureau from the results of the ten-year census and annual reports from about 12,000 farmer reporters.

Table V.—U.S. Production and Yield per Acre for 1945 and 1944 Crops

Crop	1945 yield* per acre	1945 pro- duction	1944 yield* per acre	1944 pro- duction
<b>Field crops</b>				
Corn, bu. . . . .	33.1	3,018,410,000	33.2	3,228,361,000
Wheat, bu. . . . .	17.3	1,123,143,000	18.2	1,078,647,000
Oats, bu. . . . .	37.3	1,547,663,000	29.9	1,166,392,000
Barley, bu. . . . .	25.9	263,961,000	23.	284,426,000
Rye, bu. . . . .	13.3	26,354,000	11.5	25,872,000
Flaxseed, bu. . . . .	9.9	36,688,000	8.4	23,527,000
Rice, bu. . . . .	46.6	70,160,000	46.3	68,161,000
Hay, all tame, short tons . . . . .	1.41	104,951,000	1.41	97,980,000
Beans, dry edible, bags . . . . .	8.64	13,573,000	7.84	16,128,000
Soybeans, bu. . . . .	17.6	191,722,000	18.4	192,863,000
Peanuts, lb. . . . .	658.0	2,079,600,000	678	2,177,670,000
Potatoes, bu. . . . .	150.6	425,131,000	130.4	379,436,000
Sweet potatoes, bu. . . . .	94.3	66,836,000	92.9	71,651,000
Tobacco, lb. . . . .	1106.	2,041,811,000	1072.	1,835,371,000
Sugar beets, short tons . . . . .	12.	8,638,000	12.2	6,821,000
Cotton, bales . . . . .	249.6†	9,195,000	295.3	12,359,000
<b>Fruit crops</b>				
Apples, bu. . . . .	...	64,400,000	...	124,212,000
Peaches, bu. . . . .	...	81,578,000	...	75,008,000
Pears, bu. . . . .	...	33,574,000	...	30,821,000
Grapes, tons . . . . .	...	2,804,000	...	2,580,000

\*Estimated by the United States dept. of agriculture. †Pounds.

The farm labour force in 1945 was shrinking steadily until the end of the year notwithstanding the end of hostilities. On Dec. 1, 1945, the total number of family and hired workers was estimated by the U.S. department of agriculture to be 9,245,000 compared with 9,337,000 a year earlier. The average for the year 1945 was 9,843,000 compared with 10,037,000 a year earlier. During the year the number rose from 8,005,000 on Jan. 1 to a peak of 11,100,000 in July and then declined. Of the total labour force 7,726,000 were family workers and 2,118,000 hired men and women. Emergency workers were employed in 1945, as in earlier war years, but these were generally unskilled and had no great effect on production except in some fruit and truck areas. The use of machines increased as rapidly as they could be obtained. Corn pickers were used on 50% of the acreage in the corn belt of Indiana, Illinois, Iowa and Minnesota. The average hours worked per day were about 11 hours for farm operators and 9 hours for hired help. This varied from nearly 12 hours in the New England and Atlantic states for operators to 10 hours in the west. Farm wage rates continued to advance and in Oct. 1945 were \$88 per month compared with \$80 a year earlier. The range was from a low of \$41.30 per month in South Carolina to \$165 in Washington. The higher wages paid expert fruit pickers in the north-west and California accounted for the high averages in those regions. The index of farm wages for the U.S. as a whole in Oct. 1945 was 355 (1910-14=100) compared with 325 in 1944 and 154 in 1941. The returning soldiers came too late in the season to give any material relief.

**Crop Insurance.**—Congress voted to liquidate crop insurance in 1943 and 1944 but reversed this action in Dec. 1944 to provide for the insurance of wheat, cotton and flax crops planted in 1945. In addition it provided for trial insurance on other crops to determine the most practical terms for each. Insurance policies were written to cover 199,300 farms in 1944 including 113,183 cotton, 23,394 spring wheat, 38,072 flax, 12,363 corn and 12,288 tobacco. It was estimated that in 1946 at least 500,000 farms would be covered as in 1943. From 1939 through 1943 the Federal Crop Insurance corporation insured about 1,200,000 ac. of wheat in Oregon for a production of nearly 15,000,000 bu. Premiums amounted to 850,000

bu. and 2,761 losses were paid with 513,000 bu. leaving a reserve of 337,000 bu. The insurance on crops is against unavoidable losses of yield. The coverage may be either for 75% or 50% of the long time average of the farm. If the yield is less than the coverage the loss is computed in bushels and paid in cash. Another plan covering 75% of the total is to protect the farmer from loss of investment. The Federal Crop Insurance corporation has three sources of funds: (1) premiums to cover average losses; (2) capital provided by the government; and (3) an annual appropriation to cover the costs of administration. Participation by farmers is voluntary but insurance cannot be provided in a county unless at least 50 farms or one-third of the farms growing the crop to be insured agree to participate. The corporation may also refuse or limit insurance on those farms or areas where the risk is extremely large. The Agricultural Adjustment administration performs the services of determining yield rates and premiums but in 1945 the commission employed agents to sell the insurance on a commission basis of payment. Adjustments were made by special employees of the corporation.

**Fertilizers.**—The use of commercial fertilizers continued to increase in 1945 and exceeded the output of 12,000,000 short tons used in 1944. The increase was at the rate of about 10% in each of the war years. With the end of World War II the supply of nitrates was expected to increase rapidly. There were in 1945 ample supplies of potash under way of development and the U.S. can produce all the phosphates it needs. Prices of fertilizers continued stable under the ceilings and made the smallest advance of anything that farmers buy in quantity. More and more commercial fertilizer was used at the recommendation of the educational agencies to aid in soil rebuilding after the heavy cropping of the war period. (J. C. Ms.)

**Great Britain.**—While 1944 witnessed the peak of the wartime drive for increased production of priority foods from British farms, 1945 heralded a tentative return toward peacetime levels. Thus the 1945 total grain acreage was less than in 1944 or 1943, although it was still 3,000,000 ac. above the 1939 total. The official June returns for England and Wales showed a drop of more than 1,000,000 ac. in the acreage of wheat from the highest wartime figure of 3,280,000 ac. in 1943. But the acreages of barley and oats showed slight increases over those of 1944. Crops other than grain remained almost constant. Potatoes, roots and sugar beets all showed small declines, but beans dropped substantially. On the other hand there was a big increase in vegetables for human consumption. During the year a total of 177,000 ac. was returned to permanent grass.

The statistics of the livestock population showed that the dairy herd was still expanding and the cattle population increased by 130,000. A start was also made to make good the loss of nearly 6,500,000 sheep during World War II, and the total number was increased by 265,000. Pigs increased by 224,000, but there were still fewer than half the pigs recorded in 1939. Similarly the increase of 6,484,000 head of poultry brought the total up to only two-thirds of the prewar level. Horses continued to decrease and there was a drop of 26,000 between 1914 and 1945.

Farm prices in 1945 also reflected the beginning of a shift of emphasis from arable production toward livestock. For the first time prices of major products were fixed under the new arrangement whereby the government reviewed, in consultation with the National Farmers' union, essential products and the prices necessary to encourage their production. A first announcement was made in March 1945 when relatively better prices for livestock were allowed, while compulsory cropping directions for wheat were discontinued. The hope was also expressed that it might be possible to allow an appreciable relaxation in compulsory directions to grow potatoes and sugar beets. But the deterioration in the world food situation which subsequently set in made it necessary to issue a second announcement in July. This instructed agricultural executive committees that it would be necessary to obtain in 1946 approximately the 1945 acreages of potatoes and sugar beets, and, if necessary, this should be done by the service and enforcement of directions. The increases in price of 10s. per ton for potatoes and 5s. per ton for sugar beets were to be maintained. A target of 2,500,000 ac. for wheat in 1946 was also set, but since cropping directions were not to be issued for wheat the reduction in the acreage payment from £4 to £2 per acre was to continue. It remained to be seen how far this announcement would retard the shift back to normal production. The termination of lend-lease in August did not help the general situation. The county war agricultural executive committees continued to function as hitherto and up to Sept. 1945 there was no announcement about their future position. Preliminary steps were taken to set up the new national advisory service, but the full launching of the service was still to come.

The official June 1945 returns showed the labour force available to farmers as the largest for many years. Total male workers, including casual workers, increased the number in 1944 by 19,400. There was a slight decrease in the number of women employed. Prisoners of war numbered 54,500, but after June many thousands more German prisoners of war were made available for work on the land. These were of valuable assistance in coping with the lifting of the potatoes and sugar beets in the autumn, crops which in 1944, were too big for the labour force then available in many districts. In April the Agricultural Wages board issued an order increasing the minimum wage for all adult male workers in England and Wales by 5s. per week and the overtime rates by 1d. per hour. The national minimum wage was thus increased to 70s. a week as compared with an average wage of 33s. in 1939.

On the whole the climate in 1945 was favourable for planting and growth. Harvest weather, on the other hand, varied considerably in different parts of Great Britain. In western England and Wales weather conditions protracted hay making, but in the north and northwest conditions were more favourable and the bulk of the hay crop was secured in a satisfactory condition. The yield of both seeds hay and meadow hay was well above the ten-year average. The cereal harvest in early September was not yet finished. In 1945 it was the south and midlands of England which had bad weather, while in the north and northwest there was an unusually favourable harvesting season. The yield of wheat was forecast to be about the ten-year average, and the grain was of good quality generally. Heavy yields of barley were obtained in many areas and the county average was above the ten-year level. The yield of oats was also



somewhat higher. The prospects for main crop potatoes were promising. This was also the case for sugar beets, the yield of which was expected to be above average, although sunshine was needed to improve the sugar content. It was a good year for pastures, and the prospects for the autumn were favourable. (E. Ts.)

**North, Central and South America.**—The total output of food products in North America was about 5% less in 1945 than the record production of 1944 but about one-third larger than the prewar average. The decline in production this year was due chiefly to less wheat and pork in Canada, less sugar in Cuba and smaller crops in Mexico.

Canadian wheat production was about 335,000,000 bu. in 1945 compared with 436,000,000 bu. in 1944 and the ten-year average of 363,000,000 bu. 1934-43. The acreage was about the same as a year earlier but below the average, with yields lower. About 350,000,000 bu. of wheat were exported in the year ending July 1, 1945, but a smaller amount was available for export in 1945-46. Feed grains, oats, rye and barley were all less productive which reduced the output of meat. Hog slaughter declined from the high total of 8,750,000 head in 1944 to about 6,000,000 head in 1945. The pig crop was smaller. In order to ship as much meat as possible to England, two meatless days were ordered and meat rationing was resumed in Sept. 1945, after the end of hostilities, to meet the requirements for export. Dairy production was higher, cheese production 10% larger, dried milk 14% and canned milk 10% more. Egg production was larger and about 90,000,000 doz. were shipped to the United Kingdom.

Mexico suffered from drought in 1945 and crop production was 10% less than in 1944. The corn crop amounted to only 80,000,000 bu., compared with 96,000,000 bu. harvested in 1944, which was insufficient for domestic needs and several million bushels were imported. The wheat crop of 14,000,000 bu. was only half of domestic requirements. Bean production was low but the stocks carried over were large and the supply was about equal to requirements. Vegetable production, particularly tomatoes, was about equal to 1944 when more than 9,000 cars were exported, of which 7,800 were tomatoes. All of Central America suffered from drought in 1944 and surpluses for export were reduced. This area had increased crop production during World War II, but two dry years reduced stocks and shortages were acute in many regions. As a whole the area was barely self-sufficient since banana exports were restricted by reduced shipping facilities.

Cuba had the worst drought in 86 years with rainfall only 40% of normal in 1945. Foodstuff production was reduced severely and livestock suffered. The sugar crop was reduced to 3,925,000 short tons which was 1,700,000 short tons below the production of 1944. All of this crop except 284,000 tons for domestic consumption was for export to the United Nations under contract. Rice production was low and imports amounted to nearly 400,000,000 lb., mostly from the U.S.

South America as a whole suffered from drought in 1945 and both cereals and livestock were injured. Exports of Argentina beef were only 55% as large as in 1944 and Brazil and other countries had about 10% less rice for export. Argentina expected only 96% of the prewar average output of food products. The 1944-45 corn crop of 117,000,000 bu. was only one-third as large as that of 1944 and 60% smaller than the prewar average. Wheat production was also off 40% from 1944 amounting to only 150,000,000 bu. Both beef and pork production declined with the reduction of feed crops and poor pastures. Brazil's food production was reduced to about 12% below 1944 and only 16% above prewar although food production had been greatly expanded during World War II. The surplus of coffee was as large as usual and continued to be the main item for export. An effort by the government to get farmers to plant less cotton and more rice, beans, corn and peanuts was reported to have been fairly successful. In Bolivia the increase in mining drew labour from the farms and made that country more dependent on imported foodstuffs. Chile, on the other hand, was about self-sufficient, lacking only sugar which came from Peru. A surplus of 300,000 short tons of sugar was produced in Peru which is less than the 1944 crop of 397,000 tons. Paraguay and Uruguay both suffered from the general drought and produced smaller crops in 1945. Venezuela increased food production but was still upon an import basis. Colombia had nearly its domestic requirements of grains and was expecting to rapidly increase banana exports as shipping became available.

Australia's severe drought experience in 1944, the worst in its history, was partly recovered in 1945 but not sufficiently to bring total production back to prewar average. A wheat crop of 135,000,000 bu. was estimated compared with an average of 170,000,000 bu. 1935-39. Rice was less than a half crop. Butter production was 10% below the previous year, apples and other fruits were about 40% off from 1944. Meat production was estimated at 1,000,000 short tons compared with 1,160,000 short tons in 1944. Lamb and mutton showed the greatest decline with 19%. The sugar producing areas were outside the drought belt and a larger crop of about 720,000 short tons was expected for 1945-46. The full recovery of agriculture was expected to require two full years, or until 1947.

New Zealand's agricultural production showed further gains in 1945 over the low period of 1942-44. Butter production increased 12%, cheese 9% and meat production 4% over 1943. Wheat production was down to prewar levels and below requirements. Because of the drought in Australia, wheat was imported from Canada. Onions produced a high record harvest, and potatoes were about at prewar levels. Meats and dairy products continued to be rationed in order to provide supplies for the armies in the Pacific and exports to England. Labour and fertilizer shortages were the limiting factors in New Zealand food production. The Union of South Africa also felt the drought that spread over the southern hemisphere in 1944. Wheat returned 7% less than the prewar average, corn 18% less and other crops and fruits about the same. Potatoes and sugar cane yielded above prewar levels and livestock products were 29% above the prewar average.

**Continental Europe.**—The closing campaigns of World War II and unfavourable weather combined to reduce the agriculture of Europe in 1945 to the lowest output of the six years of hostilities. This area as a whole had a prewar deficit of 10% and regions that then produced surpluses were unable to support themselves with a minimum of requirements in 1945. A severe winter was followed by an extreme drought, particularly in southern Europe, with the result that yields were low,

harvest incomplete and the quality of produce very poor. Scarcity of seeds, fertilizers, farm animal and motor power and skilled labour also were extreme handicaps. The breakdown of governmental statistical services and dislocated trade and transportation made it extremely difficult to accurately estimate the situation. Experienced observers estimated that the total farm output was about 25% below the prewar level. The very critical shortages in cities and devastated areas and the destruction of market and storage facilities tended to emphasize needs in these areas and to encourage underestimates of the quantities produced on the farms. The most accurate appraisals were made by the authorities of each country as civilian governments were restored after hostilities ended. As each of the countries occupied by the enemy was liberated the true situation was more accurately measured.

French agriculture failed to make any substantial recovery in 1945. Total production was probably the lowest in five years. Cold, wet weather in the fall of 1944 delayed wheat seeding and in the spring a drought spread over southern France. The wheat crop of 1945 was the smallest after 1940. Potatoes and sugar beets declined from 1944 but feeds and pastures were about the same. The supplies on farms were fairly adequate for the rural population but the cities suffered severe shortages. A freeze in May damaged fruit trees and vines but stocks of wine were found to be considerable when the country was liberated.

Belgian crop conditions were less favourable in 1945 than for several years. Total crop production was 15% to 20% below prewar levels while livestock production was only 50% of prewar. Potatoes and sugar beets were poorer than average due to lack of sufficient fertilizers as well as the bad weather. Livestock made small gains in numbers due to the shortage of feed since all possible use as human food was made of crop production.

The Netherlands harvested food crops in 1945 about 20% below the average prewar levels although production had been expanded to much higher levels during World War II. Livestock production declined to less than 50% of prewar levels. The reduction of acreage due to flooding was estimated to be 9% for crops and 7% for grasslands. Yields in 1945 were very low due to lack of fertilizers and insecticides and to bad weather. Feedstuffs were so scarce that milk production was only 60% of prewar levels and was being used as fluid milk instead of for cheese and butter. Imports of grain, sugar and fats were increased to maintain minimum diets of the urban population.

Denmark presented a surprising contrast to the other Low Countries by the fact that during World War II it maintained an adequate diet for its people and also provided some food products for export. The crop year 1945 was good and bread grain production was equal to domestic needs. The war changed Danish agriculture relatively little and the number of livestock on July 1, 1945, 3,200,000 head, was larger than the 1933-37 average and almost up to the 1939 figure. Milk yields per cow were maintained, largely upon domestic feeds and a surplus of about 65,000 short tons of butter was produced. The livestock surplus was exported to Germany up to 1944 in which year 40,000 short tons of beef were shipped. The Danes consumed more food per capita than any other Europeans during the late years of the war period. Norway started to recover its prewar crop production which was only 50% of domestic needs. Fairly good crops were harvested in 1945 in spite of fertilizer shortage. Livestock numbers were greatly below prewar levels except for horses and sheep. Dairy cows numbered 14% less than in 1939; hogs 50% less and poultry two-thirds smaller. Sweden continued to be self-sufficient in foodstuffs. Small exports were made to Finland and Norway during 1944-45 by reducing stocks and rationing. Crops in 1945 were generally above prewar totals and potatoes returned 40% more than the short crop of 1944. Cattle and hog numbers were maintained. Finland had a difficult year due to the loss to the U.S.S.R. of 10% of her small crop area without a corresponding loss of population. Total domestic agricultural production was estimated at more than a fifth below prewar. To meet this change a larger proportion of crop production was devoted to human needs and livestock products reduced in proportion. Meat supplies were estimated at less than two-thirds the 1933-37 average.

Spain and Portugal, which are similar agricultural regions, suffered from a very severe drought in 1945. The Spanish wheat crop was estimated to be smaller than in 1940 when it was estimated at half the 1931-35 average. Rice was short due to the lack of water for irrigation. Olive oil output was low and there was expected to be little or none for export. Livestock numbers were much below average after the Spanish Civil War and feed shortage in 1945 led to excess slaughter and heavy losses from disease. Portugal reported food production at the lowest level after 1929 and only about 70% of the prewar consumption. The drought was the principal cause of this decline since fertilizers and labour were not scarce. Switzerland had an unfavourable crop year and grains and pastures were inadequate. Production of bread grains was increased more than 50% during World War II while the output of livestock products declined. Total requirements were about double domestic production and urban communities were depending on imports.

Italy suffered from the drought of 1945 as well as from the disorders following the end of World War II. The 1945 wheat crop was the smallest after 1920; rice the smallest from 1899 and sugar one-tenth of normal. Olives harvested were the smallest crop in 20 years. Livestock and animal products were estimated at only 60% of prewar totals. The situation improved little after early 1944 and the distribution agencies were particularly deficient. While more than 5,000,000 short tons of grain were available, less than a third of it was expected to reach the urban consumers, outside of the black market. A large part of the population was almost wholly dependent upon imported relief supplies at the beginning of winter of 1945. The lack of government organization was the cause of the disorder in the opinion of competent observers.

Southeastern Europe, comprising the Danube basin, formerly known as the "breadbasket of Europe," suffered greatly in the final days of World War II. Changes in governments, land reforms and the loss of livestock, particularly work animals, all operated to reduce agricultural production. In 1945 the severe drought swept this region and reduced the output of the reduced acreage of crops. Breaking up estates did not improve production. In the four nations—Hungary, Rumania, Yugoslavia and Bulgaria—the grain acreage was estimated to be only 75% of prewar, which with small yields in 1945, produced only 60% of the prewar output. Of

this reduced supply a part was to be supplied to the Russian forces which would leave none for export, and might result in a deficit of large proportions. The disturbed peasants were hoarding and the urban centres were suffering from the lack of supplies. Greek grain production was down to about 50% of prewar levels due to the drought and reduced acreage. Potatoes were the one crop that showed an increase over recent years. The total of 1945 crops was, however, larger than under German occupation. Livestock was reduced to about 50% of the prewar numbers, while sheep, goats and donkeys declined only 25%. Without continued large relief imports the suffering of the Greek people was expected to be extreme during the winter of 1945-46. Albania also had a poor year and faced extreme sacrifices.

East central Europe, comprising Poland, Austria and Czechoslovakia, had generally reduced food production in 1945. While the season was not unfavourable in Poland, the disturbed conditions—lack of work animals, seeds, fertilizers and machinery—so reduced plantings that no adequate food supply could be expected. The peasants were living on a subsistence basis and the greatly reduced city populations were near the lower margin of existence. Adequate or reliable statistics were not available in 1945 due to the unorganized local governments and the continued restrictions upon travel by foreigners. Czechoslovakia was reported to be much better supplied than Poland. Grain production was reported to be only 8% below prewar when the country was almost self-supporting in foodstuffs. The potato crop was reported only 15% below prewar and the beet sugar crop was near to domestic needs. Livestock numbers were still reduced from the losses to the invading armies. In general, Czechoslovakia maintained her agriculture through World War II better than other invaded countries. Austria, always with a food deficit of about 25%, was hard hit by the invasion and also during the last months of the war. Crop production was reported to have declined about one-third compared with prewar which made the deficit almost 50% of prewar.

German agriculture reached the low point in the century in 1945. The final days of World War II created such disorder that reports were conflicting and unreliable; to distinguish between fact and propaganda was difficult. Even the staffs of the occupation armies and U.N.R.R.A. were unable to agree. Agricultural observers generally agreed that the German people who were not in the battle areas managed to harvest their grain and to plant and harvest a considerable crop of potatoes. The total acreage was estimated at 10% to 15% below prewar. Yields were believed to be 15% to 20% below prewar. The great loss and deficiency was in the use and in the destruction of stocks and reserves by bombing which left the demolished cities of large population almost entirely without supplies. The loss of transportation facilities and food collection agencies made the outlook for the winter 1945-46 particularly dark. The situation in the zone of Russian occupation was not revealed up to the end of 1945. Such reports as were available indicated that production during the summer of 1945 was much below the prewar level due to the movements of population, loss of seeds, stocks, animals, etc. The breaking up of landed estates in East Prussia had not proceeded to an extent that would do otherwise than reduce the total production. The generally high state to which German agriculture was raised in 1939 appeared to have been largely lost.

The Soviet Union as a whole had a 1945 plan in the spring for an expansion of all crops by 20,000,000 ac. compared with an increase of 30,000,000 ac. in 1944. Reports on the harvest were limited but indicated that total production probably increased since allotment of rationed foods was improved. In June 1945 it was reported that 26,200,000 ac. more of spring crops had been planted than in the preceding year. Acreage was believed to be below prewar in areas that were devastated by war. In the Ukraine the 1945 acreage on collective farms was reported to be 18% above 1944 yet 22% below 1940. Sugar beets acreage was reported about four-fifths of prewar. The weather was reported to be generally favourable in both European and eastern Russia. Larger numbers of livestock were available for slaughter and the production of dairy products was improved by better feed supplies.

**Africa and Asia.**—North African production was severely reduced by the drought of 1945. The loss changed the region from an export to an import area. The combined production of wheat and barley in French North Africa was officially estimated to be only one-fourth of the prewar average. The output of olive oil was also below average. The drought forced the slaughter of livestock which increased the supply of meat and reduced livestock numbers from the high levels of the war years. Turkey was also adversely affected by the drought and output was less than the two previous years but equal to that of prewar. Large stocks of grains were reported on hand. Egypt produced food crops about equal to 1944. Cotton was restricted in acreage to allow for more food crops. Corn production was good in 1945 and assured an ample supply of the principal food of the natives.

In the middle east the 1945 food production appeared to be sufficient to meet domestic needs until the next harvest. Iran had a good grain crop. While some areas suffered from the drought, there were other areas in which production was sufficient to take care of the deficits.

India's total food production in 1945 was up to the average, rice and wheat somewhat higher. The output of rice and wheat was not sufficient to meet average requirements and about 1,000,000 short tons each of rice and wheat imports would be needed before the next harvest. While local shortages were reported from some areas there was no general alarm over famine such as occurred in 1942 and 1943.

In China the year 1945 was one of great improvement in the food situation. Rice production was about 10% below the prewar average and wheat nearly a third larger than prewar. Some areas in occupied China were very short of stocks due to enemy action. In a few areas droughts reduced yields and imports would be needed. The departure of the Japanese who had lived off the land for many years was expected to release considerable food for the Chinese. Shipments to Japan would also come to an end unless there were surpluses to be sold.

Japan faced a reorganization of her agriculture with the surrender. The loss of colonies and occupied territories cut off import sources. Japan was importing about 15% of its total needs before World War II. Rice imports amounted to 20% of the total consumption. Only 30% of the soybean requirements were grown and three-fourths of the sugar used came from Formosa. Fish took the place of meats at the rate of 95 lb. per capita before the war. During the period 1937-41 Japan had access to abundant

food supplies but in 1942 the war imposed new burdens on her food resources. Efforts were made to increase domestic food production but with little success. After the surrender Japan began to reorganize and intensify agriculture. Some land reforms were proposed by the Allies but such changes did not give immediate benefits. The restoration of the fishing industry was to be the main relief and imports of rice, soybeans and sugar were being arranged by the Allied control agencies before the end of 1945.

Throughout the rice area of southeastern Asia the food supply situation was confused and unsettled through 1945. In most areas the native production was adequate to support the scattered population living in villages and on the land. The larger cities were without large reserves due to the disrupted transportation and trade facilities. The rice crop of world area was estimated to be about the same in 1945 as in 1944 or about 90% of the prewar production. Burma, the Philippines, Siam and Indo-China all had less than average crops and normal production was not expected to be restored until 1946 or 1947.

**Role of Food and Agriculture in World War II.**—The slogan "Food will win the war, and write the peace," directed attention to the importance of U.S. agriculture in World War II. While the second part of this dual objective was only partly accomplished at the end of 1945, the record on farm production as a whole was sufficiently advanced to be subject to analysis.

The stupendous accomplishment of U.S. farms during World War II is more evident when the record of the prewar period 1930-40 is reviewed. In 1935 production was only 11% above that of pre-World War I, 1910-14. Farm output increased to 33% above the base in 1939 but prices paid to farmers were only 95% of the pre-World War I level. Farm income was low and there was widespread complaint among producers. Large stocks were on hand and the outlook for agriculture was generally gloomy. With the outbreak of World War II the situation changed rapidly. Lend-lease began early in 1941 and it soon became evident that the U.S. would be called upon for a much larger supply than normal production would provide. A "Food for Defense" project was started in 1940 but did not get into action until 1941. The total volume of agricultural output in 1940 was only 4% larger than in 1939. It was not until farm prices began to rise rapidly in 1941 that the big advance started. Prices went up to 24% above the base in 1940, then to 59% and on to the top of 200% in 1945. At the same time the volume of production increased from 36% above the base in 1941 to 58% in 1945.

Pearl Harbor marked the beginning of the rapidly increasing need for more farm products. Full employment increased consumers' requirements; the military agencies began to buy heavily for immediate use and to build up reserves, and lend-lease requirements expanded. U.S. and Canadian agricultural production became vitally essential to the Allies since normal prewar trade was seriously disturbed by the conflict. Great Britain, usually dependent on imports for 60% of her food and raw materials, was cut off from her normal sources of supply. The German invasion of Russia suddenly destroyed the self-sufficiency of that nation. At the same time the Japanese movement to the South Pacific blocked off the usual sources of many essential foods like rice and vegetable oils. This combination of circumstances was quite different from that of World War I when the submarine blockade was the principal problem before the Allies.

**Food for the Allies.**—The changes in exports of food products during World War II showed how the U.S. and Canada became the great reservoir of food supply for the Allies. Before the war, in 1935-39, the exporting countries stood in the following order in value of food exports: Argentina \$548,000,000; Australia \$272,000,000; New Zealand \$242,000,000; Brazil \$230,000,000; Canada \$217,000,000; and the United States \$212,000,000. Compared with the foregoing the situation in 1944 was as follows: United States \$931,000,000 in exports; Canada \$529,000,000; and Argentina \$490,000,000. Argentina dropped from first to third place as a food exporter. The change was even more startling in the percentages of the total amount of food exported by all the countries accessible to the Allies. The U.S. provided 33% of total food exports; Canada 16.2%; and Argentina 17.4%. Australia and New Zealand dropped to about 9% each. The U.S. with its large total production, nearly all of which is usually consumed domestically, was able to produce a much larger volume for export than Australia or New Zealand which usually export all the surplus they are able to produce and have a population of only a few million people compared with the 135,000,000 in the U.S. The U.S. and Canadian supplies were also so much nearer Great Britain that shipping time and space were conserved by using their supplies rather than those of far-away Australia, New Zealand or Argentina.

The U.S. contribution to the food supplies of the Allies is also shown by the percentage of U.S. production that was exported. The shipments for the three years 1942, 1943 and 1944 were similar. The following percentages of each food group were exported in 1943: meats 8.9%; eggs 15.4%; cheese 15.8%; condensed milk 18.1%; dried milk 42.1%; fats and oils 13.5%; wheat and flour 5.2%; and butter 5%.

Lend-lease shipments made up about 90% of total food exports during 1942-44. More than 61% of these food products were sent to Great Britain; 29% to U.S.S.R.; 6% to the African-Mediterranean area; and 3.2% to China and the far east. Shipments to Great Britain represented about 3% of U.S. total supply but 10% of the British requirements. These supplies were required to bring up the daily consumption of civilian war workers. Even with these supplies the civilian of Great Britain received on the average 2,900 calories per day compared with 3,400 calories for a U.S. civilian. U.S. military services were also much better fed than any other armies in the world. The U.S.S.R. in 1944 received 2% of the total U.S. food supply, which permitted the nation to improve the very limited rations of war workers and armies. Food was a vital need to the U.S.S.R. after Germany invaded the fertile Ukraine.

In values, total lend-lease agricultural products for the period March 1941, to April 1945, amounted to \$5,425,819,000 or 13.9% of the total value of lend-lease aid. The total to the termination of lend-lease activities late in 1945 probably amounted to about \$500,000,000 more. At the same time there were considerable commercial exports to many countries, not including U.N.R.R.A. shipments. The food received by reverse lend-lease from other countries was not imported into the U.S. but used by U.S. military forces. This supply relieved the national stocks of considerable drain, however, amounting Jan. 1, 1945, to a considerable total not reported in detail at the close of the year.

**World Wars I and II.**—A comparison of agricultural production in

World Wars I and II shows that while production increased much more in World War II the volume of exports was about the same, although civilians consumed more in World War II. Total food production was 15% higher at the end of World War I than at the beginning, while in 1944 it was about 35% higher. In World War I food grains and sugar were emphasized whereas in World War II the emphasis was upon oil crops and livestock. The result was that the output of meats and poultry products in World War II was almost four times as great as it was in World War I, reaching 40% above prewar. Oil crops increased most of any group of crops.

If allowance is made for increase in population, domestic food supplies increased about 20% during World War II. The shortages that were the cause of complaints over rationing were the result of reduction of imports of some products which shifted consumption to other foods. Sugar was diverted to the manufacture of alcohol and in some cases food grains were used for feed for animals. The principal reason for some shortages was the greatly increased consumption by civilians due to the higher purchasing power from high war industry wages. Another difference between World Wars I and II was the fact that in World War I most of the products exported were in the raw, unprocessed form while in World War II dried egg and milk, dehydrated vegetables, etc., were shipped in large volume. Cereals such as wheat were the principal items exported in 1918 while in World War II wheat shipments were smaller than in prewar.

Production of food increased in most of the Allied countries during the four years 1942 to 1945 inclusive. Final statistics on 1945 were not available by the end of the year but in most countries it was a year of high production. The greatest percentage increase was made by Great Britain whose index, compared with the prewar base 1935-39, was 158 in 1942, 172 in 1943 and 168 in 1944. The U.S. made the greatest volume gain and the index was 133 for 1942, 132 for 1943 and 142 for 1944. This index includes only food products and does not cover such crops as tobacco and cotton. Great Britain increased the acreage of crops by about 50% and converted a large part of the acreage into food crops, restricting the output of meat and eggs.

**How U.S. Agriculture Expanded.**—The gain in agricultural production during World War II came from four sources: (1) expansion of acreage; (2) high record yields; (3) the use of more machinery; and (4) over-all favourable weather in that there were no major crop disasters such as the long drought in the early '30s.

The cultivated acreage reached the high point of 351,000,000 ac. in 1944 and declined about 4,000,000 ac. in 1945. This was 30,000,000 ac. more than was cultivated in 1939, but not up to the level of 1932 when 361,000,000 ac. were farmed. The area cultivated in the Atlantic and south central states was the lowest in 17 years, reflecting the decline in cotton growing. Another favourable factor was the small acreage losses of crops planted and not harvested. An average of only 11,500,000 ac. was abandoned during the period 1942-45 compared with 39,000,000 ac. lost in the four years 1933-36, and 46,000,000 ac. lost in the single year 1936. Had the period of World War II not been favourable for crops the final results would have been much smaller.

Record yields of nearly all crops and increased output from dairy cows, meat animals and poultry, were the next important contributing factors in providing the abundant food production. Crop yields per acre averaged about 30% above the predrought period 1923-32 and 16% above 1939. The entire war period was one of steadily increasing yields and the 10% increase in acreage could not have brought the great total increase of output without the accompanying increase in yields.

The number of all-time production records made during 1942-45 exceeded that of any previous similar period in the history of the country. Outstanding among these were those for wheat, corn, oats, rice, hay, tobacco, peanuts, potatoes, fruits, vegetables, milk, eggs and meat. When World War II began there was some doubt among agricultural authorities whether an increase of more than 20% could be obtained in view of the loss of fertility of many areas, the shrinking labour supply on farms, limited machinery and other handicaps to agriculture. In contrast to this view the attainment of a 30% increase was even more remarkable.

**The Farm Labour Shortage.**—The farm population of the U.S. declined steadily both in actual numbers and in percentage of the total population of the country during World War II. After 1940 the total decreased 16.8%. The loss was only 1.3% during 1944 for the country as a whole and some regions reported a gain. The farm labour force lost almost 2,000,000 to the armed forces and a larger number to nonfarm work which were replaced by older men and women and younger boys and girls taking up regular farm work. The use of modern tractor machines favoured this since young women made useful tractor drivers. The reported farm employment including both family workers and hired workers averaged 11,300,000 persons in 1935-39 and 10,700,000 in Nov. 1945. The number of family workers declined more than the number of hired workers, supporting the general reports that farm owners and their families worked much longer hours than the hired labourers. While the use of imported labour and prisoners of war helped in many areas where a large amount of labour was needed for short periods, it was not important from a national standpoint since the total in any one year was only about 175,000 men. The seasonal help by school children and others in fruit harvest was likewise only of local importance. The fact that the greatly increased production was achieved with the limited labour is only explained by the use of labour-saving machinery which was adopted after 1935.

The mechanization of farming, next to the eight years of favourable weather, was an important factor in reaching the large production record. About 1,500,000 tractors and 1,000,000 trucks were reported on U.S. farms when World War II started in 1939. This represented motorized equipment on a majority of the larger farms that produced 80% of the marketable supply of farm products. Since the tractor enables a farmer to handle about three times more land than with horsepower, the manpower shortage was made up by machines. Early in World War II the manufacture of farm machinery was restricted to 23% of the 1940 output but this was later raised to 80% when the need for it became evident to the government. Power machinery was not so important in World War I since draught horses were still being used and farm labour was more plentiful. The better results secured with machines led to a strong postwar demand for power machinery.

Science contributed no small part to the expansion of food production. New varieties of crop gave increased yields; better cultural methods and the use of soil improvement practices also were favourable. The corn crop record was largely due to the high yields secured from hybrid seed which was used in about 80% of the corn area in the corn belt. In Iowa where 99% of the acreage is planted with hybrid seed the yield was 46.5 bu. per acre compared with 32 bu. per acre in 1935. Similar increased yields were recorded for other crops which together make up an estimated 20% of the gain in crop production.

**Agriculture's Financial Reserves.**—The large volume of production, high prices and unlimited demand resulted in the largest gross and net income in the record of U.S. agriculture. While high prices were not offered as an incentive to production in World War II as in World War I, the guarantee of parity prices, special subsidies, etc., served to give farmers assurance of certain returns. Gross farm income increased by large steps from \$10,000,000,000 to \$13,800,000,000 in 1941, \$18,399,000,000 in 1942, \$22,775,000,000 in 1943, \$23,446,000,000 in 1944 and \$24,200,000,000 in 1945. After deducting the costs of production, changes in inventories and other deductions, the net return for labour and investment was estimated to be about 70% of the gross income. Out of this income farmers had paid off mortgage indebtedness by 1944 to reduce the total to 12.4% of the value of farm real estate covered compared with 20% in 1939. In four years farmers' equities in nonreal estate holdings had increased from \$16,000,000,000 to \$33,000,000,000 while their equities in real estate had increased from \$25,000,000,000 to \$40,000,000,000. Agriculture as a whole had become an \$80,000,000,000 industry.

Summarizing the role that agricultural production played in World War II the following definite conclusions are outstanding: American agriculture provided the vital supplies of food and materials to supply the Allies with quantities to maintain their armies and civilians in vigorous action to win the conflict. The output of food and other products was expanded to exceed all previous records. The shortage of labour was made up by the use of power machines accumulated over a decade. New varieties of crops, better methods with livestock and other new applications of scientific knowledge attained record yields. The larger income enabled agriculture to reduce a large part of its indebtedness and to accumulate capital reserves for future improvements.

**Food and Agriculture Organization (F.A.O.).**—This section of the United Nations organization was started at the Conference on Food and Agriculture held at Hot Springs, Va., May 18-June 3, 1943, convened by an invitation of the U.S. government. The purpose was to consider freedom from want in relation to food and agriculture. After a discussion of the current and prospective food situation and the general needs of world agriculture, the conference agreed upon these general objectives for each member nation: (1) to raise the levels of nutrition and standard of living of all people; (2) to improve the efficiency of agricultural production and distribution; (3) to co-operate with other nations to achieve these ends; and (4) to report periodically on action taken and progress achieved. The conference recommended that the governments and authorities represented establish a permanent organization in the field of food and agriculture. An interim commission, including one member of each of the 44 governments, was set up to prepare a plan and constitution for the permanent organization. This commission worked in Washington, D.C., from July 1943 to Oct. 1945. On Aug. 1, 1944, it proposed the constitution which was circulated to the various governments for ratification. It became effective when ratified by 20 countries by the middle of 1945 and plans were made for the first meeting of F.A.O. at Quebec, Canada, Oct. 16-29, 1945.

At this first conference the constitution was formally signed by the following countries: Australia, Belgium, Bolivia, Brazil, Canada, China, Colombia, Cuba, Czechoslovakia, Denmark, Dominican Republic, Ecuador, Egypt, France, Greece, Guatemala, Haiti, Honduras, Iceland, India, Iraq, Liberia, Luxembourg, Mexico, the Netherlands, New Zealand, Nicaragua, Norway, Panama, Peru, Philippines, Poland, Union of South Africa, United Kingdom, United States of America, Uruguay and Venezuela. Other nations indicated their intention to sign in 1946.

Delegates of 40 nations were present with staffs of advisors representing all branches of agriculture including forestry, fisheries and nutrition. A program of work and a general plan of organization were prepared in general terms for the permanent organization. An executive committee of 15 members was elected. Sir John Orr of Scotland, eminent nutritionist and member of parliament from Aberdeen university, was chosen to be the first director general. The interim committee was terminated by the Quebec conference and part of its staff taken over by the new officers to begin organization work. Offices were opened at Washington, D.C. to be used until the seat of the United Nations organization should be decreed, since the F.A.O. would locate at the same place. (See also AGRICULTURAL RESEARCH ADMINISTRATION; CENSUS DATA, 1945; CHEMURGY; FAMINES; FERTILIZERS; FOREIGN ECONOMIC ADMINISTRATION; HORTICULTURE; IRRIGATION; LAW; LIVESTOCK; METEOROLOGY; PRICE ADMINISTRATION, OFFICE OF; PRICES; SOIL EROSION AND SOIL CONSERVATION; UNITED NATIONS RELIEF AND REHABILITATION ADMINISTRATION; VEGETABLES; WAR FOOD ADMINISTRATION; etc.; also under principal crops.)

**FILMS.**—*Conservation of Resources; Farm Animals; Irrigation Farming; Science and Agriculture; Truck Farmer; Wheat Farmer* (Encyclopædia Britannica Films Inc.). (J. C. Ms.)

**Agriculture, U.S. Department of:** see GOVERNMENT DEPARTMENTS AND BUREAUS.

**Air Conditioning.** The principal limitation orders affecting the manufacture and sale of air conditioning equipment in the United States during wartime continued in effect for the first four months of 1945. The termination of World War II permitted the removal of most of the remaining orders, including the Controlled Materials plan, by October. However, the scarcity of critical materials and labour made it



## 34 AIRCRAFT CARRIERS—AIRPORTS AND FLYING FIELDS

difficult to resume production on items that were previously prohibited by the War Production board, such as room air conditioners.

Statistics on the number and horsepower of air conditioning installations in the U.S. published through 1941 by the Edison Electric institute were not maintained from 1942 through 1945 because of the small volume of residential and commercial installations and the difficulty of maintaining such statistics in wartime.

Statistics on shipments of commercial refrigeration and air conditioning equipment for the years 1940 and 1944 were released by the U.S. bureau of the census in co-operation with the War Production board. Since refrigeration machinery can be used both in refrigeration and air conditioning applications, it was impossible to determine accurately the relative production of air conditioning equipment without the aid of installations statistics such as those previously maintained by Edison Electric institute. However, some deductions can be made from the following facts.

The dollar value of air conditioning and commercial refrigeration unitary equipment shipped during 1944, including special military items, approximated \$53,000,000 as contrasted with \$75,000,000 in 1940.

The number and value of commercial type self-contained air conditioning units, which comprise only a portion of all air conditioning units, were 4,468 in 1944 as contrasted with 5,880 in 1940; the dollar values were \$3,614,646 and \$4,466,926, respectively.

In 1940 the number of self-contained air conditioning systems represented approximately 25% of an estimated number of installations of 24,000 in the U.S. However, on the average, the self-contained units were smaller in capacity so that they represented only 13% of the installed horsepower; self-contained units amounting to 28,000 out of 223,000 total horsepower installed in 1940.

Statistics for 1945 were not available, but there was good evidence that these quantities and values would be substantially higher than in 1944. Sales of commercial type self-contained air conditioners might double 1940 sales. Offsetting this was the fact that practically no room air conditioners were manufactured.

The installations of air conditioning equipment in the first half of 1945 were principally for military and industrial applications. By contrast, the industrial applications of air conditioning in 1940 amounted to only 6% in number and 9% in horsepower of total installations. (See also METALLURGY; PUBLIC HEALTH ENGINEERING.)

(F. H. F.)

**Aircraft Carriers:** see AVIATION, MILITARY; NAVIES OF THE WORLD.

**Air Forces of the World:** see AVIATION, MILITARY.

**Air Mail:** see POST OFFICE.

**Airports and Flying Fields.** The general transition in the United States from war to peace during the latter part of 1945 was well illustrated by the large increase in the total number of smaller airports in existence toward the end of the year.

The Civil Aeronautics administration classifies airports, for planning and statistical purposes, according to the effective length of the area available for take-off or landing. Class 1 airports must have, at sea level, a usable landing strip of from 1,800 ft. to 2,499 ft. in length; class 2 from 2,500 ft. to 3,499 ft.; class 3 from 3,500 ft. to 4,499 ft.; and class 4 from 4,500 ft. upwards. The existence or absence of other facilities, such as paved runways, night lights, radio, hangars, and fuelling equipment does not affect the classification. There follows a com-

parison of the number of airports in the U.S. by classification for the periods indicated:

	Dec. 1, 1942	Dec. 1, 1943	Dec. 1, 1944	Dec. 1, 1945
Class 1 . . . . .	1,593	923	1,170	1,550
Class 2 . . . . .	688	786	917	1,054
Class 3 . . . . .	306	418	463	479
Class 4 . . . . .	199	561	799	834
Total . . . . .	2,786	2,688	3,349	3,917

Airports are also grouped under types of ownership or control and the ratios for the various groups are as follows:

	Dec. 1, 1943	Dec. 1, 1944	Dec. 1, 1945
Municipal, commercial and private . .	66.6%	62.1%	68.6%
Armed services . . . . .	22.3	29.8	23.6
Other federal . . . . .	11.1	8.1	7.8
	100.0%	100.0%	100.0%

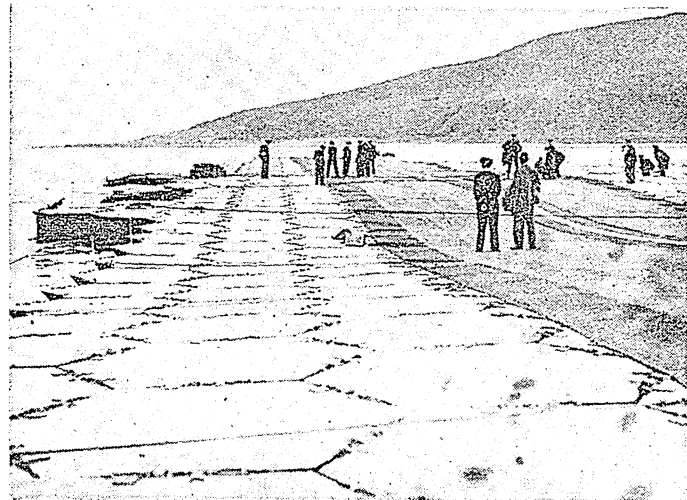
Federal interest in the continued development of airports of all types was shown by the action of the U.S. senate and house of representatives in passing bills authorizing federal assistance to states and municipalities for the construction or improvement of public airports. These bills, in general, follow the recommendations for assistance which the Civil Aeronautics administration made in a report to the congress in 1944. At the end of 1945 the senate and house bills were being brought into agreement through congressional legislative conference action.

The movement, started in 1944 by groups in the aviation industry to promote the establishment of many small airports for personal plane use, was continued throughout the year, and there developed a growing awareness among the progressive municipal officials of the problem which would face them in the future if airports were not included in the general community plan. Several large urban regions prepared and released during the year specific studies of their airport requirements and plans for fulfilling these needs as the demand develops.

In 1944 the Andrew J. Haire award for outstanding developments in the field of airports was established. This award, which consists of three major prizes and ten smaller ones, is judged by a committee of the National Aeronautic association. One of the principal Haire awards in 1945 was given for the development of a regional airport plan for the Detroit area. The other two principal awards were made for efficient airport operation and maintenance and for an effective promotional campaign for financing public airport construction.

The lifting of censorship restrictions on radar development during the war permitted the release of information on a great variety of equipment which had good possibilities of solving the problem of maintaining a volume of plane movements in and out of airports under instrument flying conditions comparable to

THE "LILY," portable seadrome released from the British secret list in 1945, was invented by R. M. Hamilton. Buoyancy cans, hexagonal at the surface, are so linked that they can give with the sea's motion and also receive the weight of heavy aircraft



the rate handled in contact flying weather.

Many airports built for war purposes were declared surplus during the latter part of the year and others would enter this category in 1946. The disposal of surplus airports was the responsibility of the Surplus Property administration in accordance with the provisions of the legislation creating that office. The Civil Aeronautics administration acts in an advisory capacity to the Surplus Property administration in connection with the disposition of surplus property on or adjacent to airports, as well as surplus airports themselves.

While the greatest increase in the number of airports took place in the smaller airports, the rapid growth in volume of air transport activities at the designated air carrier airports brought to the attention of many air travellers the deficiencies in airport terminal buildings, which had been apparent to the industry for some time. During the war a large number of the airports used in air transport operations were improved in order to accommodate military and naval aircraft. However, these improvement projects were, for the most part, limited to the actual landing facilities such as longer and heavier runways, wider taxiways, larger aprons, better lighting, improved drainage and new radio aids. Very little was done to improve the airport terminal buildings, with the result that in general the airport operating capacities were increased except for the bottleneck of the airport terminal buildings. (See also AVIATION, CIVIL; AVIATION, MILITARY.) (J. B. Bd.)

**Air Transport Command.** During the first six months, 1945, ATC, a major command unit of the U.S. army air forces, attained its peak war-time operations, carrying high priority matériel and personnel over a world-wide network of 188,000 route miles. Utilizing mass air transport techniques developed after ATC's inception on May 29, 1941, its record during that half-year period signaled a new aviation era.

ATC planes, principally C-54s, C-87s, C-47s and C-46s, flew 2,000,000 mi. every 24 hours, mostly over foreign lands. They carried during this six-months' interval, 1,141,700 passengers more than 2,240,880,000 passenger miles. Freight hauled over 788,212,000 ton miles included 438,300 tons of war matériel, 37,500 tons of government and troop mail, and 223½ tons of whole blood plasma. Peak haulage over the treacherous India-China hump for the month of July alone totalled 71,000 tons. Additionally, ATC had ferried a grand total of 50,000 combat aircraft abroad by June 1945; and had made more than 200,000 domestic deliveries.

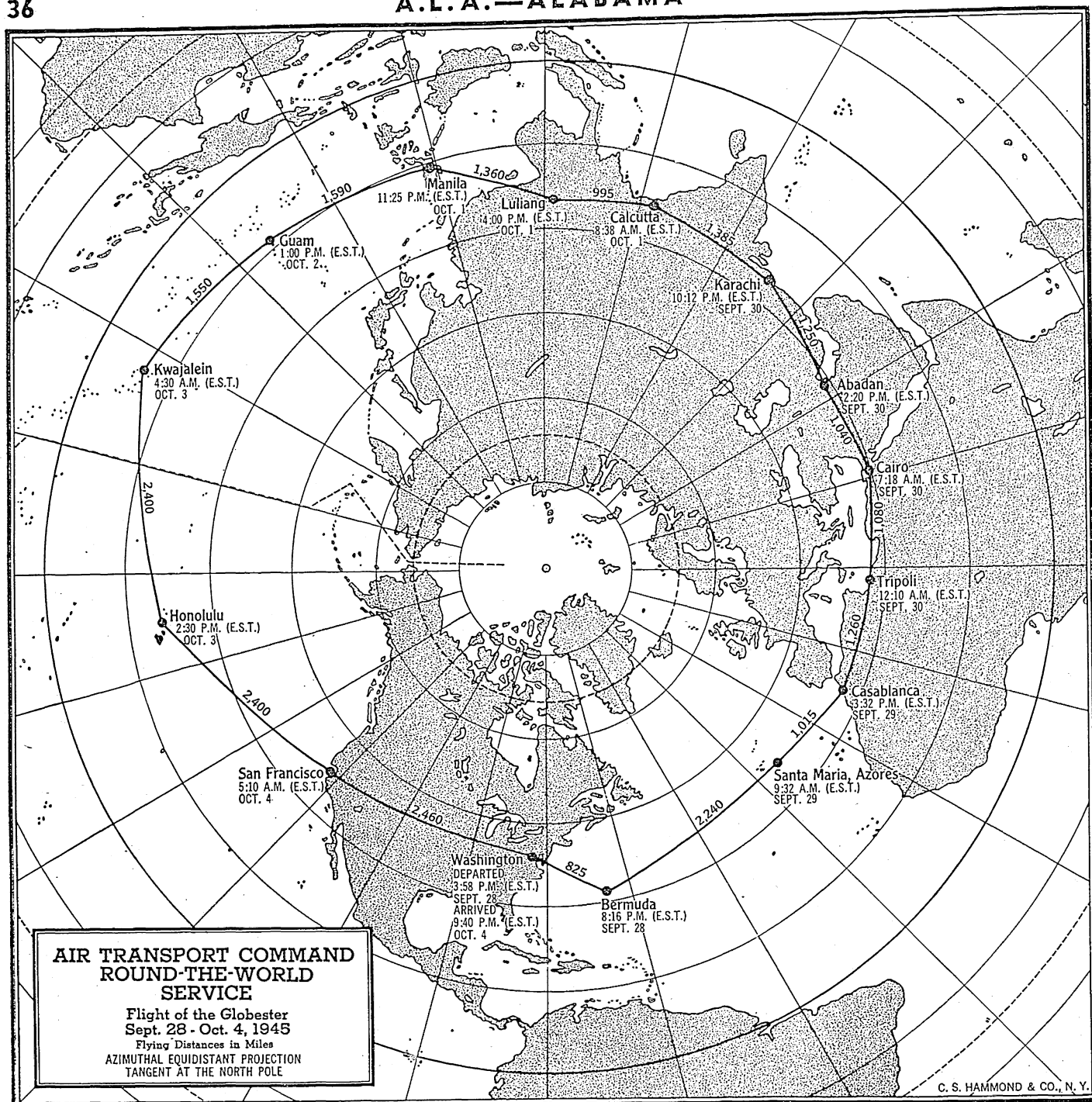


NORTHWEST FIELD, giant base on Guam for B-29 Superfortresses, was put in operation June 1, 1945. From here the big planes took off to bomb Japan. The 8,500-ft. runway and the more than 200 hardstands are of asphaltic concrete. Ten battalions of Aviation Engineers and Seabees built the field in three months.

Air evacuation of sick and wounded and redeployment of tactical aircraft and troops were major 1945 operations. During the first six months of 1945, ATC flew 133,400 air evacuees a total of 393,567,000 patient miles, including 39,000 between foreign points, 50,400 returned to the U.S., and 44,000 in domestic movements. During the two and one-half months following V-E day, ATC also had flown 67,200 redeploying troops from the European and Mediterranean theatres and supervised return flights of 3,425 heavy bombers with 58,170 crew members and passengers. During June, ATC planes crossed the Atlantic one every eight minutes.

As World War II ended, ATC was operating 2,700 aeroplanes, mostly major transports, with more than 200,000 military personnel scattered through all continents. All main routes were complete with maintenance facilities, communications, freight depots, hotel facilities for passengers, finance exchanges, air-sea and jungle rescue units, agricultural projects, recreational programs and specialized schools. In addition, ATC supervised all U.S. air priorities and maintained contracts with civilian air lines for additional operations.

ATC aerial supply extended rapidly behind advancing combat units, with its C-54s only eight days behind the first wave to hit Okinawa and the first A.A.F. planes on the island. ATC



planes were the first to land on defeated Japan, carrying advanced surrender-acceptance parties.

Under Lt. General Harold L. George, commanding general, ATC's Washington headquarters direct nine divisions, the Ferrying division, including domestic transport, and eight foreign divisions (Caribbean, Alaskan, South Atlantic, North Atlantic, Pacific, European, North African and India-China).

Major ATC operations during the latter months of 1945 included continuing redeployment; aerial services to occupational forces in all theatres, and demobilization and reorganization toward peacetime requirements.

(H. L. G.)

**A.L.A.:** see AMERICAN LIBRARY ASSOCIATION.

**Alabama.** Alabama, located in the east south central division of the United States, commonly called the "Cotton State," was admitted to the Union Dec. 14, 1819, as the 22nd state. Area: 51,609 sq.mi.—51,078 sq.mi. of land and 531 sq.mi. of water. The population in 1940 was 2,832,961;

the 1944 estimate, 2,818,083. Of the 1940 population, there were: 1,849,097 whites, 983,290 Negroes and 574 other persons; 2,821,004 native-born and 11,957 foreign-born. In 1940, 30.2% of the population was urban; 69.8%, rural. The capital city, Montgomery, in 1940 had a population of 78,084. The chief other cities were Birmingham (population of 267,583 in 1940) and Mobile (78,720).

**History.**—The legislature met in regular session from May 1 to June 29, 1945, inclusive, introducing 993 bills, passing 437 acts and proposing 10 amendments to the state constitution, 9 of which were not to be voted upon by the people until 1946. The defeated proposed constitutional amendment voted upon on Oct. 2, 1945, proposing to change the disposition of the state income tax revenues, received 42,368 votes for and 75,308 votes against. Incumbents of principal elective offices of the state government for the year were: Chauncey Sparks, governor; Handy Ellis, lieutenant-governor; William N. McQueen, attorney-general; John Brandon, state auditor; Joe N. Poole, commissioner of agriculture and industries; Gordon Persons,



chairman, Public Service commission; Sibyl Pool, secretary of state; Walter C. Lusk, state treasurer; Elbert B. Norton, state superintendent of education.

**Education.**—During the academic year 1944-45, there were 3,862 public schools which enrolled elementary students and 1,941 which enrolled secondary students; 1,805 of these schools were attended by both elementary and secondary pupils; therefore, the net total of separate public elementary and secondary schools was 3,998. There were 12,523 elementary and 6,908 secondary teaching positions in the public schools. Enrolment was 451,984 in the public elementary grades and 195,570 in the secondary grades. Institutions of higher learning included: the University of Alabama, Tuscaloosa; Alabama Polytechnic institute, Auburn; Alabama college, Montevallo; Agricultural and Mechanical institute, Normal (Negroes); and five state teachers' colleges, at Florence, Jacksonville, Livingston, Montgomery (Negroes) and Troy.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—Amounts spent for public assistance categories in Alabama during the fiscal year ending Sept. 30, 1945, and the number of recipients (in parentheses) during Sept. 1945, were as follows: old age assistance, \$5,897,676 (32,590); aid to the blind, \$145,124 (767); aid to dependent children, \$1,511,965 (5,342); aid to children in foster care, \$103,876 (286); aid to the handicapped, \$497,921 (3,150); temporary aid, \$25,257 (134). During 1944-45, unemployment compensation payments were \$1,593,116 to an estimated total of 20,000 beneficiaries. Estimated 1944-45 expenditures, excluding those for industries operated for profit, of the several state correctional agencies and their inmate populations on the 1945 dates shown, were: state department of correction and institutions, \$1,800,000, 3,654 inmates on Sept. 30; Alabama Boys' Industrial school, \$134,792, 244 inmates on Nov. 30; state training school for girls, \$61,118, 130 inmates on Nov. 30; Alabama Reform school for Negroes, \$61,000, 335 inmates on Aug. 31.

**Communications.**—Highways and roads consisted of 7,050 mi. in the state system, 52,554 mi. in county systems, and between 4,000 and 5,000 mi. in municipal systems. State government expenditures for the purpose of highways, excluding highway debt service, during the fiscal year ending Sept. 30, 1945, were \$11,108,251. Miles of railroads were approximately 6,724. There were about 1,490 mi. of navigable rivers. Total airway mileage on Dec. 1, 1945, was 1,487; the number of used airports, 49; the number of unused airports, 16. The approximate number of telephones installed on Sept. 30, 1945, was 208,397.

**Banking and Finance.**—On June 30, 1945, there were in Alabama: 151 state banks and one branch, which had total deposits of \$340,998,486 and total assets of \$361,972,820; 65 national banks and 19 branches, which had total deposits of \$762,251,849 and total assets of \$807,756,498; 8 state savings and loan associations with free shares of \$2,866,975; 17 federal savings and loan associations with free shares of \$19,705,000. According to best available estimates: total net state government receipts in the fiscal year ending Sept. 30, 1945, were \$95,000,000; total net disbursements were \$82,000,000; state bonded indebtedness on Sept. 30 was \$56,252,000; state cash and investment balances on Sept. 30 were \$72,500,000.

**Agriculture.**—The value of Alabama's crop production in

Table I.—Leading Agricultural Products of Alabama, 1945 and 1944

Crop	1945	1944	Value—1945
Cotton, bales . . . . .	935,000	1,006,000	\$104,720,000
Corn, bu. . . . .	50,626,000	48,128,000	72,901,000
Peanuts, lb. . . . .	339,300,000	327,600,000	27,144,000
Tame and wild hay, tons . . . . .	816,000	747,000	20,155,000
Cottonseed, tons . . . . .	359,000	...	18,309,000
Sweet potatoes, bu. . . . .	6,375,000	...	13,388,000
Potatoes, bu. . . . .	5,200,000	...	9,100,000
Oats, bu. . . . .	5,275,000	4,608,000	5,328,000
Peaches, bu. . . . .	2,440,000	...	5,002,000

1945 was \$293,178,000. A total of 6,955,000 ac. was harvested. Cash income from sale of crops, livestock and livestock products for 1944 was \$261,086,000; the value of home consumption of crops, livestock and livestock products was \$96,673,000; income from government payments was \$14,874,000. The 1945 season was favourable for the production of most crops.

**Manufacturing.**—The total estimated value of manufactures in Alabama in 1939 was \$574,670,690. The 2,051 manufacturing establishments working 8 or more persons in 1944 had 255,196 employees, to whom they paid wages of \$463,153,086.

Table II.—Principal Industries of Alabama, 1939 and 1937

Industry	Value of Products 1939	1937
Cotton broad woven goods . . . . .	\$75,044,582	\$ . . . .
Cotton woven goods (over 12" in width) . . . . .	37,085,389	93,390,182
Blast furnace products . . . . .	32,512,574	39,629,075
Sawmills, veneer mills, cooperage mills, stock mills, lumber and timber products, etc. . . . .	30,662,008	31,915,650
Cast iron pipe and fittings . . . . .	20,138,932	28,104,450
Oven coke and coke-oven by-products . . . . .	14,077,102	23,579,609
Cotton yarn and thread . . . . .	11,239,523	17,183,094
Meat packing, wholesale . . . . .	10,756,520	8,852,612
Cottonseed oil, cake, meal, and linters . . . . .	9,453,063	19,681,409
Fertilizers . . . . .		8,871,151

**Minerals.**—The value of Alabama mineral production in 1943 was \$102,584,000.

Table III.—Principal Mineral Products of Alabama, 1944 and 1943

Mineral	Value, 1944	Value, 1943
Coal . . . . .	\$73,701,000	\$59,145,788
Iron ore . . . . .	17,684,154	21,047,231
Cement . . . . .	6,777,741	10,943,926
Stone . . . . .	3,385,801	3,178,908

(C. Ss.)

**Alaska.** Alaska is one of the two incorporated territories of the United States. The territory lies between the meridians of 130° W. and 173° E. longitude and between the parallels of 51° and 72° N. latitude. It has an area of 586,400 sq.mi. (land, 571,065 sq.mi.) and a civilian population of 72,524 (1939 census). The capital is Juneau, with a population of 5,729; other chief cities are Ketchikan, population 4,695; Nome, 1,559; Anchorage, 3,495; and Fairbanks, 3,455.

**History.**—In 1945, the legislature enacted an antidiscrimination law, being the first territory or state of the United States to enact such a law. It created an Alaska Development board, aimed at further industrial development. It created for the first time in the territory a department of agriculture for the purpose of helping in developing farming and assisting new settlers. The legislature extended the voting franchise to 18-year-old residents, subject to validation by the congress.

Army and navy operations in Alaska were sharply curtailed with the end of World War II in 1945. Many huge airfields, which had been built and operated by the army, were being unmanned by the military and turned over to the Civil Aeronautics authority. Three major army field installations at Fairbanks, Anchorage and Nome were still being operated by the army. The navy had moved its 17th naval district from the Aleutian chain to Kodiak island where it was making a permanent installation.

Principal officers of the territory in 1945 were: Ernest Gruening, governor; Edward L. Bartlett, delegate to congress; Llewellyn M. Williams, secretary of Alaska; Ralph J. Rivers, attorney-general; Oscar G. Olson, treasurer; W. Leonard Smith, highway engineer; Frank A. Boyle, auditor; James C. Ryan, commissioner of education; George W. Gasser, commissioner of agriculture; Walter P. Sharpe, commissioner of labour.

**Finance.**—Alaska has no public debt. Its bank balance at the end of 1945 was \$1,112,000.

**Fisheries and Fur Production.**—The fishing industry produced 4,500,000 cases of salmon during the 1945 season. Between 40,000,000 and 50,000,000 lb. of halibut were taken from Alaskan waters during the year. Fur seals taken under govern-

ment supervision from the Pribilof Islands had a value of approximately \$1,000,000 in 1945. Other furs, such as mink, otter, fox, ermine and marten, taken were valued at \$2,000,000. At a December fur sale in Alaska, mink brought as high as \$35 per pelt and beaver brought an average of \$60, one of the highest prices on record.

**Education.**—Forty-four rural and 18 city schools were maintained in the territory during 1945, employing more than 300 teachers and with a total enrolment of 5,000 pupils. In addition, the Alaska native service, department of the interior, maintained 119 day schools and 3 vocational high schools for native children.

**Mineral Production.**—Mining, which had been discontinued during World War II except in the field of strategic metals, began to show signs of renewed life at the end of 1945. The ban on gold mining was lifted. Large and small placer operators in the gold regions of Seward peninsula and the Fairbanks-Jack Wade district were getting equipment in shape and crews assembled to resume prewar operations. No hard rock mines had yet opened but the Alaska Juneau mine, largest low-grade gold ore mine in the world, expected to be in operation by 1946.

**FILMS.**—*Alaska; Eskimo Children* (Encyclopædia Britannica Films Inc.). (L. M. W.)

**Alaska Highway:** see ROADS AND HIGHWAYS.

**Albania.** Albania, a republic (proclaimed Jan. 1946), formerly a kingdom in the western part of the Balkan peninsula. Area 10,631 sq.mi.; pop. (census 1930) 1,003,068; (estimate 1939) 1,063,000. Capital, Tirana. Chief cities (1930 census): Tirana (30,806); Scutari (29,209); Koritsa (22,787); Elbasan (13,796); Valona (9,100). Religion: Mohammedans (688,280); Orthodox Christians (210,313); Roman Catholics (104,184). Prime Minister (1945): Enver Hoxha.

**History.**—After the Germans were driven from Albania in Nov. 1944, the Peoples Liberation army, founded on July 10, 1944, established a government of the "Popular Front." The head of the government was Col. Gen. Enver Hoxha who was at the same time minister of war and commander in chief of the Albanian army. His government, which looked to Moscow for guidance, resembled in its complexion the government of Marshal Tito in Yugoslavia. Hoxha, a 36-year-old former school-teacher, glorified in his speeches Marshal Stalin's Russia and Marshal Tito's Yugoslavia as examples of true democracy.

The Albanian government demanded the invitation of Albania to the conference of the United Nations in San Francisco, Calif. This demand, transmitted to the world by the Russian and Yugoslav radios, was rejected. On May 8, 1945, an informal United States mission under John F. Jacobs entered Albania to survey conditions. On Aug. 1, an agreement was signed between the Albanian government and Col. D. R. Oakley Hill, chief of the United Nations Relief and Rehabilitation administration in Albania, according to which the U.N.R.R.A. would furnish Albania with food, textiles, engineering equipment and medical and agricultural supplies which would be distributed "without discrimination" by Albanian authorities. Between April 11 and June 30, 1945, military liaison brought 9,500 lb. of supplies and 334 vehicles into Albania to alleviate the situation. On Nov. 10, 1945, the U.S., Great Britain and Russia recognized the existing Albanian regime. Elections at the end of November confirmed the Hoxha regime.

The Albanian government addressed itself to the United Nations committee on war criminals with a formal request that the three former Italian administrators in Albania, Francesco Jacomini, Salvatore Mellone and Gen. Cristino Agostinucci be handed over to the Albanian government for trial in Albania.

No action was taken by the Allied Powers on this request.

The Greek government and Greek circles had repeatedly claimed that the Greeks residing in the northern Epirus, which forms the southern part of Albania, were suffering from "Albanian terrorism." The demand was raised for the dispatch of Allied troops into that area to protect the lives and properties of the Greeks, and for the incorporation of the northern Epirus into Greece. That territory was occupied by the Greeks in 1913 and in 1918, but both times they were expelled upon Italian insistence. The Greek foreign minister, John Politis, claimed that Italian imperialism had secured the subjection of Epirus to Albania and had used it as a springboard for the invasion of Greece. During the war of Italian aggression against Greece in 1940-41, the Greeks succeeded in invading northern Epirus and in administering that part of Albania until the collapse of Greece under German pressure.

**Education.**—Though primary education is nominally compulsory, illiteracy was still very high in 1945, especially among women. In 1939 there existed 663 state elementary schools with 38,988 male and 17,948 female pupils and 19 secondary schools with 4,810 male and 1,425 female students. There were no institutions of higher education.

**Trade and Finance.**—The value of the foreign trade for 1938 amounted to \$9,644,000. Imports amounted to \$6,719,000 of which 37.2% came from Italy and 6% from the U.S. The total exports amounted to \$2,925,000, of which 68.4% went to Italy and 4.5% to the U.S. The major import articles were cotton and cotton goods, corn, benzine and woollen goods; the main exports were wool, hides and furs, cheese, cattle, eggs and bitumen. Of the mineral wealth of the country aluminum and petroleum were of importance. In 1939, 229,278 short tons of crude petroleum were produced. With the economic life of the country still on a very primitive level there exists practically no modern industry. Albania has no railroads but a good highway system, improved by the Italians for strategic reasons. The Albanian currency in 1943 was pegged to the Italian currency, an Albanian franc equalling 6.25 lire (32.89 cents U.S. June 1941). (See also ITALIAN COLONIAL EMPIRE.) (H. Ko.)

**Alberta.** The most westerly of the three prairie provinces of Canada (*q.v.*), Alberta was created a province by parliament in 1905. The area is 255,285 sq.mi.; pop. 796,169 (1941 census), of which 489,583 was rural. The largest city is Edmonton, the provincial capital (93,817). Local administration is in the hands of a provincial parliament consisting of a lieutenant governor, executive council and legislative assembly of 63 members. Alberta is represented at Ottawa by 17 members in the house of commons and 6 senators.

**History.**—Throughout 1945, the Social Credit party under Hon. E. C. Manning continued in office. Following the dominion general elections on June 11, Alberta returned the following candidates: Social Credit 13; Liberals 2; Progressive Conservatives 2.

**Education.**—In the school session 1941-42, the enrolment of pupils in all educational institutions was 179,679. The total revenue for provincially controlled schools in 1943 was \$11,996,605. The University of Alberta, with its seat at Edmonton, is the provincial university.

**Agriculture.**—In 1944 the total value of agricultural production was \$420,111,000; farm income, \$314,100,000. In the same year, Alberta produced 10,000,000 lb. of dressed poultry. For 1945 the wheat crop was estimated to be approximately 83,000,000 bu. The total value of field crops in 1945 was set tentatively at \$177,061,000 (1944, \$237,869,000). Inspected slaughterings of livestock during the first 50 weeks of 1945 were: cattle 308,538; calves 71,677; hogs 1,434,677; sheep 108,047.

**Minerals.**—In the period Sept. 1944-Sept. 1945, coal production was 5,617,775 tons (1943-44, 5,240,353 tons). In 1944 oil production was 8,788,276 bbl. Active prospecting for petroleum continued throughout 1945, the Shell Oil company filing reservations for about 142,236 ac. in the Two Hills and Myrnam regions.

**FILMS.**—*Prairie Provinces* (Encyclopædia Britannica Films Inc.). (J. I. C.)

**Alcan (Alaska) Highway:** *see* ROADS AND HIGHWAYS.

**Alcohol, Industrial.** The production of industrial alcohol in the United States dropped rapidly following the end of World War II. The passing of the emergency brought a change in costs and uses of such raw materials as grains, molasses and sugar. The rubber industry turned to petroleum products and the future of grain alcohol became greatly limited. Stocks were greatly reduced by the end of 1945 because of the unsettled situation. With the need for alcohol for munitions manufacture ended and rubber makers turning to petroleum sources, the alcohol plants of the Defense corporation were being considered for reconversion for other purposes.

The use of grain for alcohol making was limited by the greater need for grain as food and feed. About 85,000,000 bu. of wheat were used for alcohol in the year ending in July 1945, compared with 140,000,000 bu. used in 1944. The use of corn was restricted early in the year because of the poor outlook for the new crop.

In July the secretary of agriculture announced that no corn could be used for either industrial or beverage alcohol.

Under normal conditions grains are too valuable to be used for alcohol making. The Defense corporation used one alcohol plant for experiments in producing grain alcohol by a new mould-bran method. This was said to lower the cost of production, but not sufficiently to let grain alcohol compete with that from other sources, such as low-grade molasses. The Defense Supplies corporation purchased all of the exportable supply of blackstrap molasses from the 1944-45 Cuban sugar-cane crop. The scarcity of sugar withheld most of this material from alcohol manufacture.

The expansion of alcohol production was one of the most remarkable of the war period. From an annual capacity of about 100,000,000 gal. in 1941 the output was increased to meet a demand for more than 600,000,000 gal. in 1944. By the use of grains in distilleries and in new plants the need was met, only to face, at the end of the war, an almost total loss of market. With the restoration of sugar production in two or three years, a normal industry was anticipated. (J. C. Ms.)

**Alcoholic Intoxication:** *see* INTOXICATION, ALCOHOLIC.

**Alcoholic Liquor:** *see* BREWING AND BEER; LIQUORS, ALCOHOLIC; WINES.

**Aleutian Islands:** *see* ALASKA.

## Alexander, Sir Harold Rupert Leofric George

(1891- ), British military commander and governor-general of Canada, the 3rd son of the 4th earl of Caledon, was educated at Harrow and Sandhurst. Commissioned in the Irish guards in 1911, he commanded a battalion of his regiment on the western front in World War I before his 26th birthday. He was wounded twice and won the D.S.O., M.C., and the Legion of Honour.

In 1939 he led the 1st division to France with the B.E.F. Later, given the 1st corps, he organized the final defense and evacuation of Dunkirk, and was among the last men to leave the beaches. Between Dec. 1940 and Feb. 1942, while general officer commanding in chief, southern command, he initiated in the battle school the new scheme of realistic training for scientific warfare. At the end of Feb. 1942 he arrived in Burma to extricate the hopelessly outnumbered British army from a campaign which was already lost. In Aug. 1942 he was sent to the middle east as commander in chief: under his direction the 8th army won the decisive victory of El Alamein and pursued the defeated German and Italian forces under Marshal Rommel to Tobruk, Bengasi, Tripoli and the border of Tunisia. Appointed deputy

commander in chief to General Eisenhower and field commander of the British, U.S. and French armies in North Africa, he coordinated and carried through the concentric Allied offensive in Tunisia which led to the fall of Tunis city and the axis surrender. As commander of the 15th British, Canadian and U.S. army group he directed the invasion of Sicily in July and the Italian mainland in Sept. 1943. Under his command the Anglo-American 5th army and the British 8th army (including also New Zealand, Canadian, South African, Indian, Polish, French and Italian formations) fought their way through Naples and Rome to beyond Florence and Rimini.

General Alexander was promoted field marshal with effect from June 4, 1944, the date of the capture of Rome. In Dec. 1944 he became supreme commander, Mediterranean theatre. It fell to him to establish friendly relations with Marshal Tito in Yugoslavia and Marshal Konev in Vienna and to deal with the civil war in Greece. As supreme commander he imposed unconditional surrender on the German southwestern armies in May 1945. In August he was appointed governor-general of Canada.

**Alexei** (SERGEI VLADIMIROVICH SIMANSKY) (1877- ), Russian ecclesiast, was born Oct. 27, in Moscow. He was graduated from the Moscow University Law school, 1899, and from the Moscow Ecclesiastical seminary, 1904, with a degree of doctor of theology. He was made a deacon in 1902, assuming the name Alexei, and became a priest the following year. Ordained a bishop in 1913, he later served as archbishop of Novgorod, 1932-33, metropolitan of Leningrad, 1933-43, and became metropolitan of Leningrad and Novgorod, 1943. After the German invasion in 1941, Stalin, in his efforts to rally all Russians against the invaders, relaxed his strong opposition to the church and ordered a quietus on the activities of the militant "Godless League." These moves facilitated resumption of religious activities in Russia, and the patriarch Sergei urged the faithful to join wholeheartedly with Stalin's efforts to repel the Germans. This policy was continued by Alexei, who remained in Leningrad during the siege to organize the church in support of the red army, for which he was decorated by the soviet government. In 1943, Alexei was made a permanent member of the Holy Synod. After the death of Sergei in 1944, Alexei was named acting patriarch of the Russian orthodox church, and was unanimously elected patriarch, Feb. 2, 1945.

**Alfalfa.** The alfalfa hay crop of the United States in 1945 was estimated at 33,671,000 tons, compared with 31,863,000 tons harvested in 1944 and an average of 28,604,000 tons 1934-43. The crop was larger than that of 1943. The acreage was 14,810,000 ac. compared with an average of 13,917,000 ac. 1934-43. Yields were estimated at an average of 2.27 tons per acre compared with 2.04 tons 1934-43. The crop was better than that of 1944 in almost all of the large producing states of the northwest central area except Iowa and Minnesota where the crop was slightly less. California, with its large part of the crop grown on irrigated land led with the largest yield of 4.20 tons per acre; Arizona 2.80; Texas 2.65; and Oregon and Washington with yields of 2.60 tons per acre. Wisconsin was not far behind with a yield of 2.55 tons and Connecticut on a small acreage produced an average of 2.5 tons per acre. There was generally favourable weather in almost all of the leading hay states.

Alfalfa seed production reflected the favourable year with an increase over 1944. The crop was estimated at 1,146,000 bu. compared with 1,142,000 bu. harvested in 1944 and an average of 1,178,700 bu. in 1934-43. The yield was 1.37 bu. per acre, better than 1944 but below the average of 1.63 bu. for 1934-43. The acreage harvested for seed was reduced to 835,400 ac. in



U.S. Production of Alfalfa Hay in Leading States, 1945 and 1944  
and the 10-Yr. Average  
(in thousands of tons)

State	1945	1944	10-yr. Average	State	1945	1944	10-yr. Average
California . .	4,171	4,106	3,304	Illinois . . .	1,289	1,041	1,024
Wisconsin . .	2,101	1,730	2,191	Montana . .	1,158	1,159	975
Iowa . . . .	1,999	2,041	1,940	Utah . . . .	1,007	1,040	927
Minnesota . .	1,993	2,090	2,234	Ohio . . . .	906	746	889
Nebraska . .	1,933	1,830	1,181	Indiana . . .	906	642	784
Idaho . . . .	1,795	1,814	1,814	Washington .	866	716	294
Kansas . . .	1,670	1,693	1,000	New York . .	835	847	700
Colorado . .	1,308	1,432	1,222	Missouri . .	822	806	576

1945 compared with 967,500 ac. in 1944. The heavy production centred in Kansas, 220,000 bu., Oklahoma 175,000 bu. and Nebraska 121,000 bu. Texas had a remarkable high yield of 4 bu. of seed per acre in 1945 compared with an average of 2.74 bu. 1934-43. (See also HAY.) (J. C. Ms.)

**Algeria:** see FRENCH COLONIAL EMPIRE.

**Aliens.** Alien Registration.—All aliens remaining in the United States for 29 days or longer are required to register under the provisions of the Alien Registration act of 1940. Statistical data concerning immigration and naturalization is compiled by fiscal and not calendar years. During the fiscal year ended June 30, 1945, there were 153,015 registrations recorded. An estimate based upon the alien registration records indicated that on June 30, 1945, there were in the United States 3,050,000 resident aliens. This estimate is based upon the initial registration of aliens taken during the period which began Aug. 27, 1940, and continued through Dec. 26 of that year. Net migration, naturalization and mortality factors were used in determining the estimate.

**Naturalization.**—Certificates of naturalization were issued in the United States and overseas to 231,402 persons during the fiscal year ended June 30, 1945. This is a marked decrease from the highest recorded figures of 441,979 certificates granted in the fiscal year 1944. Of the certificates issued in 1945, 208,707 were received by civilians. The nations to which new citizens formerly owed allegiance were: British empire 36,798; Czechoslovakia 5,561; Germany 42,720; Greece 3,838; Hungary 6,075; Italy 39,654; Poland 20,003; U.S.S.R. 11,714; Yugoslavia 3,614; all other countries 38,730. During the year 9,782 petitions for naturalization were denied; there were 7,297 denied in the fiscal year 1944.

The Second War Powers act, approved March 27, 1942, made available an expeditious naturalization procedure to noncitizens serving in the armed forces of the United States. The statute provided a judicial naturalization process for those residing within the jurisdiction of a naturalization court and an administrative naturalization process for those serving abroad. For the fiscal year 1945, 17,029 members of the military and naval forces residing in the United States, Alaska, Hawaii, Puerto Rico and the Virgin Islands were admitted to citizenship on the basis of petitions filed with naturalization courts. Such persons formerly owed allegiance to the following countries: British empire 4,914; China 367; Czechoslovakia 243; Germany 2,290; Greece 378; Hungary 204; Italy 1,562; Mexico 2,316; Poland 618; Switzerland 214; U.S.S.R. 334; all other countries 3,589. In addition, a total of 5,666 persons serving abroad with the armed forces of the United States were admitted to citizenship by designated representatives of the immigration and naturalization service under the administrative process. Naturalizations were granted in the following areas: England 997; France 1,208; Italy 727; other Europe 127; India 246; other Asia 115, Australia 444; New Guinea 1,411; other Pacific 239; all other countries 152. Among such petitioners naturalized were 1,899 subjects of the British empire, 326 Germans, 427 Italians, 191 Poles, 116 Russians, 590 Filipinos, 1,121 Mexicans and 92 Chinese.

There were 165 naturalization certificates judicially granted which were revoked during the year, a reduction of 73 as compared with the preceding fiscal year. In 122 cases the foreign service of the state department initiated the action because naturalized citizens of this country became permanent residents of foreign countries within five years after naturalization. In the remaining 43 cases the immigration and naturalization service initiated action because naturalization was fraudulently or illegally procured.

Nationality may be lost involuntarily through committing treason against the United States or attempting by force to overthrow, or bearing arms against the United States, provided there is conviction by court martial or a court of competent jurisdiction; through deserting the military or naval service of the United States in time of war, provided there is conviction by a court martial and dismissal or dishonourable discharge as a result of such conviction. Nationality may also be lost by departing from or remaining outside the jurisdiction of the United States in time of war or national emergency for the purpose of evading or avoiding training and service in the armed forces of the United States. In addition to approximately 5,000 U.S.-born Japanese, whose renunciation of citizenship was approved by the attorney general, there were 1,936 persons who expatriated themselves in 1945. Of these, 1,896 took affirmative action in a foreign country which resulted in loss of citizenship.

Petitions for naturalization, exclusive of overseas petitions by members of the armed forces, were filed by 195,917 persons. Declarations of intention filed in the fiscal year 1945 dropped to 31,195, the lowest number recorded after 1907, which was the first year in which consolidated statistical records of naturalization were made. There were 42,368 declarations filed in 1944, 115,664 in 1943, and 221,796 in 1942.

**Alien Enemies.**—Alien enemies included natives, citizens, denizens and subjects of countries with which the United States had been at war—Japan, Germany, Italy, Hungary, Rumania and Bulgaria. By authority of presidential proclamations of Dec. 7 and 8, 1941, and Jan. 14, 1942, a series of regulations was promulgated by the department of justice affecting the conduct of citizens and subjects of Japan, Germany and Italy, 14 years and older. (On Oct. 19, 1942, aliens of Italian nationality were

HARRY BRIDGES, Australian-born president of the Longshoremen's and Warehousemen's union, signing naturalization papers at San Francisco, Calif., on Sept. 17, 1945. On June 18, the supreme court ruled his deportation on charges of alleged membership in the Communist party to be illegal



excepted from the travel regulations prescribed for alien enemies by the attorney general.) The president, by proclamation on Dec. 12, 1945, revoked the regulations of Dec. 7 and 8, 1941, relating to the possession of certain prohibited articles, and to travel within the boundaries of the U.S.

During the fiscal year 1945 the population of alien enemy detention camps increased by 2,784, including 116 children born at the family internment camps. In the same period 1,658 were released from the camps, 792 for repatriation, 627 on parole, 88 for internment at large, and 119 by discharge. In addition, 32 died, leaving 7,364 in custody at the close of the fiscal year. Of this number there were 2,107 Germans, 25 Italians, 5,211 Japanese, 7 Hungarians, 2 Rumanians and 12 others. Of the total, 1,120 (197 Germans and 923 Japanese) were persons who applied for voluntary internment to join husbands or fathers in one of the family internment camps; 3,015 were persons apprehended in continental U.S. under presidential warrants; 733 persons were brought to continental U.S. from Alaska and Hawaii; 1,956 persons were brought to continental U.S. from Central and South America; 532 were seamen who were members of crews of enemy merchant vessels taken into custody in ports of the U.S. Seven detention centres were in operation at the close of the fiscal year, four having been closed during the year.

**New Legislation.**—The act of Dec. 19, 1944, eliminated in certain cases the liability of transportation companies to fines and penalties for bringing aliens to the United States without proper documents, and authorized the attorney general, in his discretion, to mitigate penalties incurred for failure to detain and deport alien seamen.

The act of Dec. 22, 1944, eliminated the requirement of lawful admission in the cases of naturalization applicants who entered the United States prior to Sept. 1, 1943, and who, during World War II, served honourably in the armed forces beyond the continental limits of the U.S.

The act of April 30, 1945, provided for the imposition of severe penalties for procuring or attempting to procure the escape of any prisoner of war or interned enemy alien held by the United States or any of its Allies.

The act of July 3, 1945, provided additional appropriation for the fiscal year ending June 30, 1946, on behalf of certain workers entering the United States temporarily to perform labour essential to the war effort.

The act of Oct. 11, 1945, amended the Nationality act of 1940 by providing that nationality shall not be lost under the provisions of sections 404 or 407 of that act by certain citizens residing abroad until the expiration of six years following the date the said Nationality act was approved.

The act of Oct. 29, 1945, amended the Immigration act of May 26, 1924, so as to add to the classes excludable on the ground of ineligibility to citizenship certain aliens of neutral countries who applied for relief from training and service in the armed forces of the United States.

The act of Dec. 28, 1945, expedited the admission to the United States of alien spouses and alien minor children of citizen members of the armed forces by exempting them from the usual documentary requirements and from exclusion on the ground of certain physical and mental defects. (See also CENSUS DATA, 1945; WAR RELOCATION AUTHORITY.)

(U. C.)

## Alimentary System, Disorders of. The Gastrointestinal Tract.

—The unprecedented progress made in knowledge of tropical diseases lessened to a great extent the concern of the medical profession about the threat of exposure offered by returning infected military personnel to the civilian population. Malaria, bacillary and amoebic dysentery, visceral leishmaniasis (kala-azar) and schistosomiasis are of special importance. Malaria, public enemy number one in this respect, may give rise to manifestations simulating those of acute abdominal disease. The sequelae of bacillary and amoebic dysentery are found chiefly in the intestinal tract and liver. Penicillin is an effective adjuvant to treatment for serious refractory amoebiasis. Early diagnosis and treatment of kala-azar and schistosomiasis minimize the damage to the liver and spleen. Among troops returned from the Mediterranean area, as well as among those returned from India, China, Africa or the near east, the possibility of these two diseases must be entertained in the presence of enlargement of the liver and spleen. Essentials to early diagnosis of visceral leishmaniasis, according to John Lowe, are the presence of irregular, intermittent fever, a relatively rapid pulse rate and absence of severe toxæmia. Additional

diagnostic aids are sternal puncture, with staining of specimens obtained by this means for *Leishmania donovani* and complement fixation tests with special antigens. Pentavalent antimony derivatives, such as neostibosan are used in the treatment of this disease for they proved to be the most effective and least toxic. It was estimated that more than 12.5% of the population of Puerto Rico are, or have been, afflicted with schistosomiasis. Fuadin has been used in treatment of this disease.

An awareness of the necessity for additional knowledge of the nervous system and its functions, to enhance further diagnostic acumen, was attested by increased activity in clinical and experimental research. Thomas M. Rivers' clinical investigations of pain produced by various lesions extending from the level of the oesophagus to the lower part of the ileum in man, and Walter Ganado's review are illuminating. The practical diagnostic aspects of abdominal pain, on the basis of contemporary research, have been considered in two short articles by Walter C. Alvarez. However, the fact remains that there were still in 1945 significant gaps in knowledge, particularly with respect to the splanchnic innervation of abdominal viscera and the pathways, connections and mechanisms that give rise to visceral pain. It appears that visceral pain is diffuse, is segmental in distribution and is referred to the level from which the viscus migrated in embryologic development. Thus, for example, the pain is epigastric in location if its cause is in the stomach; in the umbilical region, if the cause is in the small intestine, including the appendix, and in the hypogastric region, if the cause is in the colon or urinary bladder. The early pain of acute appendicitis is ascribed to excessive contraction of the muscular wall of the appendix. The later, local pain, usually in the right iliac fossa, is a somatic pain, attributed largely to chemical irritation of the adjacent peritoneum. In chronic appendicitis, the epigastric location of the pain is ascribed to reflex pylorospasm (the ileogastric syndrome of Braithwaite).

B. H. Kesert and M. O. Grossman reported encouraging results with intraspinal injections of thiamin chloride in the treatment of gastric crisis or lightning pains associated with tabes dorsalis (locomotor ataxia). The dose and number of treatments vary.

Chordotomy was advocated more frequently than before, for relief of intractable pain, particularly that due to inoperable carcinoma. Also, chordotomy was employed from time to time for relief of pain arising from irreparable injury to the nerve roots or cord which may result from mechanical or unavoidable surgical trauma as well as for relief of pain which arises from neuromas and after amputation of limbs.

The progress achieved in preparation of protein hydrolyzates for parenteral or oral use in management of certain critical surgical and medical conditions marked a milestone on the road of progress in nutrition. Nitrogen equilibrium can be maintained by parenteral administration of these hydrolyzates, without recourse to dietary nitrogen, provided enough carbohydrate is supplied. Alexander Brunschwig and his associates successfully supplied a patient with proteins by parenteral administration of a casein digest for eight weeks. Preparations of the essential amino acids are also available. These have been recommended for treatment of allergic states, chronic peptic ulcer, and the hypoproteinaemia which results from bleeding ulcer.

The treatment of chronic gastroduodenal ulcers by the intragastric continuous drip method, especially those refractory to the usual treatment, was increasingly regarded as most effective. From the standpoint of surgical treatment, subtotal gastrectomy in addition to anterior subphrenic section of the vagus nerve at the cardia, or complete supradiaphragmatic vagotomy

alone, as recommended by Lester R. Dragstedt, have been advocated.

**The Biliary Tract.**—Infectious hepatitis, so-called catarrhal jaundice, is a serious problem in the civil population throughout the world. It proved to be the only pandemic disease of World War II. Investigations showed that the causative agent is, in all probability, a virus and that the virus may be present in the faeces of persons who have the active disease. Infectious hepatitis can be produced readily in man by feeding infective faeces or infective serum and by spraying such material into the nasopharyngeal passages. The same purpose can be accomplished by injection of infected serum. J. R. Neefe and Joseph Stokes reported in detail an epidemic of infectious hepatitis, apparently due to a water-borne agent. Their observations on the efficacy of gamma globulin in the prevention and attenuation of disease have been confirmed by others. The investigations of M. Herbert Barker, Richard B. Capps and Fred W. Allen confirmed earlier convictions that chronic hepatitis, in an active and in an inactive form, is frequently a sequel to acute hepatitis.

**BIBLIOGRAPHY.**—John Lowe, "The Early Diagnosis of Kala-Azar," *Indian M. Gaz.*, 79:459-465 (Oct. 1944); Walter Ganado, "The Clinical Characters of Pain," *Brit. M. J.*, 1:141-144 (Feb. 1945); Walter C. Alvarez, "Toward a Better Understanding of Pain," *Gastroenterology*, 1:227-230 (Feb. 1943); Walter C. Alvarez, "Helpful Hints in the Diagnosis of Abdominal Pain," *Quart. Bull., Northwestern Univ. M. School*, 19:11-14 (1945); B. H. Kesert and M. O. Grossman, "Intraspinal Thiamin Chloride in the Treatment of Gastric Crisis or Lightning Pains in Tabes Dorsalis: Report of Eight Cases," *J. Nerv. and Ment. Dis.*, 101:372-377 (April 1945); Alexander Brunschwig, Robert R. Bigelow and Sabra Nichols, "Intravenous Nutrition for Eight Weeks; Partial Enterectomy; Recovery," *J. A. M. A.*, 129:441-442 (Oct. 1945); J. R. Neefe and Joseph Stokes, Jr., "An Epidemic of Infectious Hepatitis Apparently Due to a Water Borne Agent; Epidemiologic Observations and Transmission Experiments in Human Volunteers," *J. A. M. A.*, 128:1063-75 (Aug. 1945); Joseph Stokes, Jr. and J. R. Neefe, "The Prevention and Attenuation of Infectious Hepatitis by Gamma Globulin: Preliminary Note," *J. A. M. A.*, 127:144-145 (Jan. 1945); M. H. Barker, R. B. Capps and F. W. Allen, "Chronic Hepatitis in the Mediterranean Theater: New Clinical Syndrome," *J. A. M. A.*, 129:653-659 (Nov. 1945).

**FILMS.**—*Alimentary Tract; Digestion of Foods* (Encyclopædia Britannica Films Inc.). (G. B. EN.)

**All-American Canal:** see AQUEDUCTS; IRRIGATION.

**Allergy.** During 1945 several authors emphasized the importance of nonprotein substances as causes of allergy. S. M. Feinberg and R. M. Watrous reported 14 cases of allergic rhinitis in employees of a pharmaceutical plant following exposure to chloramine-T and halazone. The importance of this report was the finding of positive skin and passive transfer reactions to these simple chemicals. In line with this study of chemical sensitivity was K. A. Baird's description of dermatitis in a baker due to benzoic acid used as an "improver" of flour, and of cobalt dermatitis among carbide workers described by L. Schwartz and his co-workers.

In contrast with these studies of external causes of allergy was the observation made by B. Zondek and Y. M. Bromberg of various allergic disturbances due to sensitivity of patients to their own hormones. These authors reported itching of the vulva, asthma, vasomotor rhinitis, urticaria and angioneurotic oedema related to menstrual or climacteric disturbances. Positive skin reactions were obtained with various steroid hormones in these patients. Complete or marked improvements occurred in a large proportion of the 44 cases treated by "desensitization" with the hormones.

The use of penicillin for the treatment of asthma due to respiratory infection resulted in a number of contradictory reports. A. L. Barach and his co-workers reported favourable results in infectious asthma from inhalation of finely vaporized (aerosol) penicillin. These results were confirmed by Herbert N. Vermilye. Contrary to these favourable findings were the observations of S. F. Hampton and his associates. They used

massive doses of penicillin by injection and by a pressure spray but were unable to find effective benefit in eight asthma patients. Improvement in methods of administration by improving the nebulizing apparatus was described by H. A. Abramson and M. Demerec. This may produce more consistent results in penicillin therapy by inhalation. Despite previous reports to the contrary it was shown that sensitivity to and allergic reactions from penicillin may occur. A. Rostenberg and H. Welch reported in a study of 144 normal persons who had never received penicillin that 5% gave positive skin reactions to the material. Some of the subjects developed sensitivity from repeated injections of penicillin. What the proportion would be in patients sensitive to moulds was not brought out by this report.

A significant contribution to the treatment of pollen asthma was made by M. B. Cohen and H. J. Friedman. Three patients were treated with ragweed pollen to which was added pollen antibody prepared by immunizing normal human beings. Only three to four injections were given each patient before the pollen season. Excellent results were reported in this limited number of patients.

The treatment of hives has always been a difficult problem in medicine. To the many measures already reported, J. H. Black added one more by using vitamin K. The patients selected had failed to respond to the usual allergic management. Of these, 62% were helped by vitamin K.

**BIBLIOGRAPHY.**—S. M. Feinberg and R. M. Watrous, "Atopy to Simple Chemical Compounds—Sulfonechloramides," *J. Allergy*, 16:209-220 (Sept. 1945); K. A. Baird, "Allergy to Chemicals in Flour: A Case of Dermatitis Due to Benzoic Acid," *ibid.*, 16:195-198 (July 1945); L. Schwartz, S. M. Peck, K. E. Blair, and K. E. Markuson, "Allergic Dermatitis Due to Metallic Cobalt," *ibid.*, 16:51-53 (Jan. 1945); B. Zondek and Y. M. Bromberg, "Endocrine Allergy, Allergic Sensitivity to Endogenous Hormones," *ibid.*, 16:1-16 (Jan. 1945); A. L. Barach, F. H. Silberstein, E. T. Oppenheimer, T. Hunter and M. Soroka, "Inhalation of Penicillin Aerosol in Patients with Bronchial Asthma, Chronic Bronchitis, Bronchiectasis and Lung Abscess; Preliminary Report," *Ann. Int. Med.*, 22:485-509 (April 1945); H. N. Vermilye, "Aerosol Penicillin in General Practice," *J.A.M.A.*, 129: 250-257 (Sept. 1945); S. F. Hampton, M. B. Wine, W. Allen, C. S. Thompson and M. P. Starr, "The Clinical Use of Penicillin in Treatment of Intrinsic Bronchial Asthma," *ibid.*, 127:1108-09 (April 1945); H. A. Abramson and M. Demerec, "Method for Experimental Control of Particle Size of Therapeutic Aerosols," *J. Allergy*, 16:184-187 (July 1945); A. Rostenberg, Jr. and H. Welch, "A Study of the Types of Hypersensitivity Induced by Penicillin," *Am. J. M. Sc.*, 210:158-167 (Aug. 1945); M. B. Cohen and H. J. Friedman, "Treatment of Ragweed Pollinosis with Antigen-Antibody Mixtures," *J. Allergy*, 16:121-124 (May 1945); J. H. Black, "Treatment of Urticaria with Synthetic Vitamin K," *ibid.*, 16:83-86 (March 1945). (B. Z. R.)

**Allied Commission on Reparations.** At the three-power conference at Yalta, U.S.S.R., Feb. 4-11, 1945, it was agreed by the United States, the United Kingdom and the soviet union that Germany, after its defeat, should be made to compensate the Allied nations for damages sustained as a result of the German aggression, such compensation to be made "in kind to the greatest extent possible." It was agreed to establish a commission in Moscow.

Accordingly, the Allied Commission on Reparations met in Moscow, June 21-July 14, 1945. Participants were: for the United States, Edwin W. Pauley, personal representative of the president, with Dr. Isador Lubin as associate; the United Kingdom, Sir Walter Monckton; and the soviet union, deputy commissar for foreign affairs, Ivan M. Maisky.

The commission reached informal agreement on a plan providing for: (1) maximum possible compensation "in kind" (that is, in materials, commodities and capital equipment as contrasted with payment in money) to the Allied nations on the basis of their respective contributions to, and losses sustained in, bringing about the defeat of nazi Germany; (2) elimination of Germany's war-making power, through removals of machinery and equipment; and (3) maintenance of sufficient means of livelihood within Germany to ensure that no other



nation need assume the burden of supporting the German people.

Under the plan, claims of the U.S.S.R. and Poland were to be met by removals from the zone of Germany under soviet occupation, and claims of other Allied nations were to be met by removals from the western zones occupied by the United States, the United Kingdom and France. The latter three nations in Aug. 1945 invited 15 other countries, members of the United Nations, to present their individual claims for reparations, with a view to conferring subsequently on the matter of a division of the German assets available for meeting these claims.

Also under the plan, the soviet union was to receive 15% of the industrial equipment deemed removable from the western zones of Germany in exchange for equivalent value of food and other commodities, and another 10% without any obligation in return.

Power of decision on specified removals from Germany was vested in the heads of the military governments in their respective zones.

The reparations plan was approved at the conference of President Truman, Prime Minister Attlee and Marshal Stalin in Potsdam, Germany. (E. W. Py.)

**Allied Control Council:** see ALLIED MILITARY GOVERNMENT.

**Allied Council for Japan:** see ALLIED MILITARY GOVERNMENT.

**Allied Military Government.** Spurred by Allied victories over Germany and Japan, Allied military government (A.M.G.) grew in 1945 until it had responsibility for the government of more than 200,000,000 people scattered from Korea to Germany.

The distinction between military government in enemy countries, and the administration of civil affairs in liberated United Nations was illustrated by the operations in Germany on the one hand, and France, Belgium, the Netherlands and Luxembourg on the other.

During the combat phase of operations, the prime objective of U.S. and British military government had been to assure Allied generals that their armies would not be impeded by civilian disorder and unrest while they were trying to defeat the aggressor nations. Closely associated with this objective was the great aid given liberated countries by civil affairs officers as axis armies were driven from their soil. In these countries civil affairs officers helped restore economic and political life until provisional governments could assume the responsibility.

With the end of combat, the key objective of military government became demilitarization and democratization of the defeated countries, executing policies and enforcing rules established by the U.S. government and its allies. In no instance did military government make political policy.

At the end of 1945 the first Allied commission established to administer a defeated country prepared to move from its original testing ground—Italy, where, only two and one-half years before, U.S. and British military government personnel had begun the job of replacing a 22-year-old fascist regime with democratic government.

In Italy a representative government was functioning. The wheels of economic and political life had begun to revolve once more. Also, 1945 saw civil affairs officers turn over a majority of their functions to provisional governments in France, Belgium, Netherlands and Luxembourg. Detachments came in with Allied armies in Normandy on D day and followed them in the victory drive across Europe. In these liberated countries they helped



AUXILIARY POLICE at Bayreuth, Germany, supervised by the Allied Military government in 1945. They lacked uniforms but bore arms to preserve peace and guard property. They had only a limited authority over Allied nationals, and none over Allied military personnel

restore communications, fed the population, obtained seed for planting, removed mines from the fields, started operation of mills and coal mines, procured labourers for the Allied armies and cared for millions of displaced persons.

In Germany, military government did not wait for V-E day and unconditional surrender to go into operation. It rolled up with and behind divisions, corps and armies, created local German governments; maintained civilian law and order; established centres of refuge for displaced persons; restored essential communications; ousted nazis from government and industry; assisted in bringing war criminals to trial; and put Germans to work on farms, roads and rubble-packed streets. Bombed-out water and sewerage systems were made to work again; epidemic diseases were prevented. Invaluable art treasures were recovered and given interim security by M.G. experts.

Following Germany's collapse, military government was set up by Great Britain, U.S., Russia and France throughout four zones. The military governor of the U.S. zone was also the U.S. member of the Allied Control council in Berlin which was working out a common occupation policy under directives of the Berlin conference.

The end of the year found denazification of the U.S. zone of Germany virtually complete. Almost 200,000 nazi office-holders were ousted and 100,000 more held in custody for trial. M.G. also made substantial progress in the job of demilitarizing Germany, demobilizing its army, razing war plants which the bombers missed, destroying war weapons and liquidating cartels.

Military government also began the arduous task of educating the Germans to democratic thoughts and ways, and elections were planned for early 1946.

The pattern of A.M.G. in Austria was virtually the same as in Germany, except that the country was classified as liberated and a representative government was quickly established. Four Austrian zones were occupied by U.S., British, Russian and French troops, and an Allied Control council was established. The commanding general of the U.S. occupation forces also served as U.S. representative on the council.

On the other side of the globe, other M.G. units were island-hopping with Allied naval units in Pacific ocean areas and with ground force units into liberated areas in the Southwest Pacific, the Philippines and Japan and Korea.

Unlike the situation in Germany, the supreme commander for the Allied powers in the Pacific was able to make use of an existing government in Japan, thus making the job primarily one of supervision to see that Allied orders were carried out. In Germany M.G. had to build from the ground—feeding, clothing,

housing, transporting and furnishing medical care to 6,500,000 displaced persons in the process.

The terms of the Potsdam declaration, the instrument of surrender and the directives of the joint chiefs of staff furnished the terms of reference for military control of Japan. These were implemented by a series of memoranda from the Allied supreme commander's headquarters.

In Japan, wage and price controls were established; the Japanese imperial general headquarters, the war and navy ministries, the Greater East Asia ministry, the Students Demobilization bureau, all ultra-nationalistic, secret and other societies which might have proved inimical to the fulfilment of the terms of surrender were abolished; and the Japanese government was instructed to refrain from sponsoring, perpetuating, or in any way participating in Shintoism.

Military schools were closed in Japan; objectionable teachers were removed and demobilized military personnel were barred from teaching until thoroughly investigated; and religious education was again permitted in private schools. Secret police organs, concerned with the control of thought, speech, religion and assembly, were abolished; the government was forbidden to abridge freedom of thought, religion, assembly and speech; unrestricted discussion of the emperor and government was allowed; and all persons confined on political grounds were ordered released.

By the end of 1945, the supreme commander for the Allied powers had virtually completed the demobilization of the Japanese army and navy; he ordered the arrest and trial of many high-ranking government officials, industrialists and businessmen as suspected war criminals; and had begun a far-reaching investigation of atrocities occurring in prisoner of war camps. By the end of the year, steps had been taken to liberalize voting to encourage wider participation in government. Free and open discussions on the future type of Japanese government were encouraged. Appropriate measures had been set in motion to educate the Japanese people in democracy and stamp out every vestige of militarism. Domei, the government monopoly news agency, was dissolved and two independent news agencies were established.

As a result of the conference of foreign ministers in Moscow in December, the Far Eastern Advisory commission was replaced by the Far Eastern commission, whose functions were: to formulate policies with respect to Japan; to review, on the

request of any member, any directive issued to the supreme commander for the Allied powers or any action taken by the latter involving policy decisions, and to consider such other matters as might be assigned to it by agreement among the participating governments.

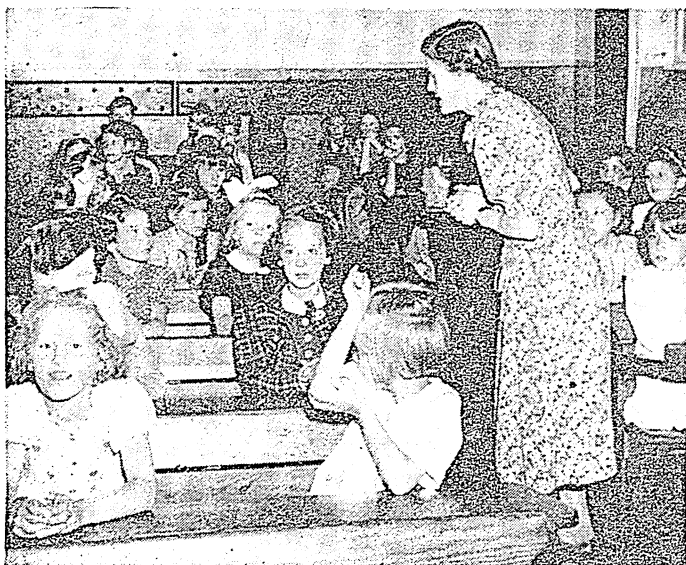
The conference also established an Allied Council for Japan to be located in Tokyo. It was composed of four members representing the U.S., Russia, China and the United Kingdom. The Allied council was to consult with and advise the supreme commander for the Allied powers in regard to the implementation of the terms of surrender and directives issued supplementary thereto. The supreme commander for the Allied powers was the sole Allied executive authority in Japan. He was to withhold issuance of orders in the absence of unanimity of the council when those orders concerned: a change in the regime of control; fundamental changes in the Japanese constitutional structure; or a change in the Japanese government as a whole, pending agreement thereon in the Far Eastern commission.

The occupation and liberation of Korea necessitated the immediate assumption of control of all government functions and release of Japanese officials.

During the period from Aug. 15, when hostilities ceased, and Sept. 9, the day of liberation, approximately 65 political parties sprang up, because of a lack of unity of action, leadership and 35 years of oppression by the Japanese. With the return of former political leaders in exile, an attempt was made to unify all political parties and at the end of the year considerable progress was made with three major parties emerging; *i.e.*, the Democratic party, the People's republic and the People's party.

The separate occupation of Korea by the U.S. forces in the south and the Russian forces in the north created many difficult problems in the administration of the country's economy. This was because of the lack of any joint group authorized to assure common action on problems relating to the country as a whole. Steps to solve this problem were taken at the Big Three Conference of Foreign Ministers in Moscow, when it was decided to establish a joint Soviet-American commission formed from the two military commands in Korea, preparatory to formation of a provisional government under the supervision of the U.S., United Kingdom, Russia and China. (See also EUROPEAN ADVISORY COMMISSION.) (J. H. Hg.)

ONE OF 10 German schools for first to fourth graders, opened in Aachen, Germany, by the Allied Military government on June 4, 1945. Teachers and curricula were carefully screened for taint of nazi ideology. Lessons were in the three R's, gymnastics, natural history and religion



**Allocations and Allotments:** see PRIORITIES AND ALLOCATIONS.

**Alloys:** see BERYLLIUM; MAGNESIUM; METALLURGY; MOLYBDENUM; MONAZITE; NICKEL; TITANIUM; VANADIUM.

**Almonds:** see NUTS.

**Aluminum.** World production of aluminum, as estimated by the U.S. bureau of mines, is shown in Table I, supplemented by a few official figures.

Demands of World War II passed their peak in 1943, and world output dropped from 2,176,000 short tons to 1,922,000 tons in 1944. Japan and the soviet union were the only countries showing increased output. German supplies were reduced from lack of ability to do better, and not for lack of need for the metal. One of the outstanding features of the war years was the record made by the aluminum industry in the United States and Canada, where combined outputs increased by nearly sixfold between 1939 and 1943. In the latter year their output was nearly double the world total of 1939.

**United States.**—A brief cross section of the progress of the industry in the United States is given in Table II.

Total plant capacity was 1,167,000 tons, of which 55% was



WORKER buffing an aluminum cooking utensil in a California plant in 1945. The plant had reconverted from the manufacture of castings for aircraft plants to aluminum pots and skillets

Table I.—World Production of Aluminum

	(Thousands of short tons)					
	1939	1940	1941	1942	1943	1944
Canada . . . . .	82.7	109.2	212.3	335.8	493.	461.
France . . . . .	55	68.1	70.5	49.8	50.7	28.7
Germany . . . . .	220	265	265	303	342	330
Great Britain . . . . .	27.6	21.3	25.8	52.7	62.7	40
Italy . . . . .	37.7	44	55	55	46	22
Japan . . . . .	25	44	72	80	121	143
Norway . . . . .	34	16.5	12	21	30	16.5
Switzerland . . . . .	31	22	27.5	24	19.3	5.5
U.S.S.R. . . . .	50	75	68	63	72	78
United States . . . . .	163.6	206.3	309.1	521.1	920.2	776.4
Others . . . . .	8.2	9.9	12.1	13.2	14.3	20.9
Total . . . . .	735	881	1,130	1,530	2,176	1,922

Table II.—Data of Aluminum Industry in U.S., 1940-44

	(Thousands of short tons)				
	1940	1941	1942	1943	1944
Production, primary . . . . .	206.3	309.1	521.1	920.2	776.4
Imports . . . . .	17.4	13.4	112.1	135.6	102.8
Exports . . . . .	26.9	7.4	38.7	117.6	188.5
Available new supply . . . . .	227.0	302.8	589.0	877.4	746.0
Secondary recovery . . . . .	80.4	106.9	195.5	314.0	325.6
Total supply . . . . .	307.4	409.7	785.5	1,191.4	1,071.6

in privately owned plants and 45% in government-owned plants. In Jan. 1944 production was at the rate of 1,017,000 tons annually, declining to 560,000 tons in December.

In March 1945 the long-drawn-out court action against the Aluminum Company of America resulted in a decision that the company was a monopoly in certain phases of its operations, but dissolution of the company was postponed pending the disposal of surplus plant capacity after the close of World War II, in the hope that the disposal could be arranged in such a way as to establish a competitive industry. (See also METALLURGY.)

(G. A. Ro.)

**Ambassadors and Envoys.** The following is a list of ambassadors and envoys to and from the United States and to and from Great Britain Jan. 1, 1946.

To and From the United States

To the United States	Country	From the United States
Aziz, Abdol H. . . . .	Afghanistan	Palmer, Ely E.
*Ibarra García, Dr. Oscar <sup>1</sup> . . . . .	Albania	Jacobs, Joseph E. <sup>3</sup>
Eggleston, Sir Frederic . . . . .	Argentina	*Vacant
	Australia	Johnson, Nelson T.
	Austria	Erhardt, John G. <sup>3</sup>

To and From the United States—Continued

To the United States	Country	From the United States
*Silvercruys, Baron Robert . . . . .	Belgium	*Vacant
*Andrade, Victor . . . . .	Bolivia	*Thurston, Walter
*Martins, Carlos . . . . .	Brazil	*Berle, Adolf A., Jr.
	Bulgaria	Barnes, Maynard B. <sup>3</sup>
*Pearson, Lester B. . . . .	Canada	*Atherton, Ray
*Mora, Marcial . . . . .	Chile	*Bowers, Claude G.
*Wei Tao-ming, Dr. . . . .	China	*Marshall, Gen. George C.
*Sanz de Santamaría, Carlos . . . . .	Colombia	*Wiley, John C.
*Gutiérrez, Francisco de P. . . . .	Costa Rica	*Johnson, Hallett
*Belt, Dr. Guillermo . . . . .	Cuba	*Norweb, R. Henry
*Hurban, Vladimír . . . . .	Czechoslovakia	*Steinhardt, Laurence A.
Kauffmann, Henrik de . . . . .	Denmark	Davis, Monnet B.
*García Godoy, Emilio . . . . .	Dominican Rep.	*McCurk, Joseph F.
*Plaza, Galo . . . . .	Ecuador	*Scotten, Robert M.
Hassan Bey, Mahmoud . . . . .	Egypt	Tuck, S. Pinkney
Brennan, Robert . . . . .	Eire (Ireland)	Gray, David
*Castro, Dr. Héctor David . . . . .	El Salvador	*Simmons, John F.
Kaiv, Johannes <sup>1</sup> . . . . .	Estonia	
Medhen, Blatta Ephrem Tewelde . . . . .	Ethiopia	Cole, Felix
Julita, Dr. Kalle T. . . . .	Finland	Hamilton, Maxwell M.
*Bonnet, Henri . . . . .	France	*Caffery, Jefferson
	Germany	Murphy, Robert D. <sup>4</sup>
*Halifax, The Rt. Hon. the Earl of . . . . .	Great Britain	*Winant, John G.
*Diamantopoulos, Cimon P. . . . .	Greece	*MacVeagh, Lincoln
*García Granados, Jorge . . . . .	Guatemala	*Kyle, Edwin Jackson
*Antoine, Jacques C. . . . .	Haiti	*Wilson, Orme
*Cáceres, Dr. Julián R. . . . .	Honduras	*Erwin, John D.
	Hungary	Schoenfeld, H. F. Arthur
Thors, Thor . . . . .	Iceland	Dreyfus, Louis G., Jr.
*Ala, Hussein . . . . .	Iran	*Murray, Wallace
Jawdat, Ali . . . . .	Iraq	Vacant
*Tarchiani, Alberto . . . . .	Italy	*Kirk, Alexander C.
Bilmanis, Dr. Alfred . . . . .	Latvia	
Malik, Dr. Charles . . . . .	Lebanon	Wadsworth, George <sup>5</sup>
	Liberia	Walton, Lester A.
Zadeikis, Povilas . . . . .	Lithuania	
La Gallais, Hugues . . . . .	Luxembourg	Vacant
*Espinosa de los Monteros, Dr. Antonio . . . . .	Mexico	*Messersmith, George S.
*Loudon, Dr. A. . . . .	Netherlands	*Hornbeck, Stanley K.
Berendsen, C. A. . . . .	New Zealand	Warren, Avra M.
*Sevilla Sacasa, Dr. Guillermo . . . . .	Nicaragua	*Warren, Fletcher
*Munthe de Morgenstjerne, Wilhelm . . . . .	Norway	*Osborne, Lithgow
	Palestine and Trans-Jordan	Pinkerton, Lowell C. <sup>6</sup>
*Vallarino, Dr. J. J. . . . .	Panamá	*Hines, Brig. Gen. Frank T.
*Velázquez, Dr. Celso R. . . . .	Paraguay	*Beaulac, Willard L.
Fernández-Dávila, Dr. Humberto . . . . .	Peru	*Pawley, William D.
	Philippine Islands	Steintorf, Paul P. <sup>7</sup>
*Lange, Oskar . . . . .	Poland	*Lane, Arthur Bliss
*Bianchi, João A. de . . . . .	Portugal	*Baruch, Herman B.
	Rumania	Berry, Burton Y. <sup>3</sup>
Seni Pramoj Rajawongse <sup>1</sup> . . . . .	Saudi Arabia	Eddy, Col. William A.
*Cárdenas, Juan F. de . . . . .	Siam	
Eriksson, Herman . . . . .	Spain	Vacant
Bruggmann, Charles . . . . .	Sweden	Johnson, Herschel V.
Koudsi, Dr. Nazem al- . . . . .	Switzerland	Harrison, Leland
*Baydur, Hüseyin Ragip . . . . .	Syria	Wadsworth, George <sup>5</sup>
Andrews, H. T. . . . .	Turkey	*Wilson, Edwin C.
	Union of South Africa	Holcomb, Gen. Thomas
*Gromyko, Andrei A. . . . .	U.S.S.R.	*Harriman, W. Averell
*Blanco, Dr. Juan C. . . . .	Uruguay	*Dawson, William
*Escalante, Dr. Diógenes . . . . .	Venezuela	*Corrigan, Frank P.
*Simic, Stanoje . . . . .	Yugoslavia	*Patterson, Richard C., Jr.

\*=ambassadors; unstarred, envoys.

<sup>1</sup>Absent.

<sup>2</sup>Acting consul general in New York city.

<sup>3</sup>Foreign service officer.

<sup>4</sup>U.S. political adviser.

<sup>5</sup>Accredited to the governments of Lebanon and Syria.

<sup>6</sup>Consul general in Jerusalem.

<sup>7</sup>Consul general in Manila.

To and From Great Britain

To Great Britain	Country	From Great Britain
Sardar Ahmed Ali Khan . . . . .	Afghanistan	Wylie, Sir Francis V.
*Cárcano, Dr. Don Miguel Angel . . . . .	Argentina	*Kelly, Sir D. V.
*de Marchienne, Baron de Cartier . . . . .	Belgium	*Knatchbull-Hugessen, Sir H. M.
Patiño, Antenor . . . . .	Bolivia	Rees, Thomas I.
*de Aragão, J. J. Moniz . . . . .	Brazil	*Gainer, Sir D. St. C.
	Bulgaria	Houston-Boswall, W. E.
*Bianchi, Manuel . . . . .	Chile	Leche, J. H.
*Koo, Dr. V. K. Wellington . . . . .	China	*Seymour, Sir H.
*Echandi, Dr. Don Dario . . . . .	Colombia	*Snow, T. M.
	Costa Rica	Coults, F. G.
de Blanck, Guillermo . . . . .	Cuba	Dodds, J. L.
*Lobkowitz, Maximilian . . . . .	Czechoslovakia	Nicholls, P. B. B. <sup>1</sup>
Reventlow, Count Eduard . . . . .	Denmark	Randall, A. W. G.
Pastoriza, Andrés . . . . .	Dominican Republic	Macrae, R. D.
†Puig-Arosena, Alberto . . . . .	Ecuador	Hallett, L. C. Hughes
*Abd el Fattah, Amr Pasha . . . . .	Egypt	*Killearn, Lord
Medhen, Blatta Ephrem T. . . . .	Ethiopia	†Cook, F. A. G.
	Finland	Shepherd, F. M.
*Massigli, René . . . . .	France	*Cooper, Alfred Duff
*Aghnides, Thanassis . . . . .	Greece	*Leeper, Sir R. W. A.
†Fuentes, Gen. Miguel Ydioras . . . . .	Guatemala, Honduras, Nicaragua, and Salvador	
Laleau, Leon . . . . .	Haiti	†Watt, E. D.
	Honduras	†Robinson, J.
	Hungary	Gascoigne, A. D. F.
Thorvardsson, Stefan . . . . .	Iceland	Shepherd, E. H. G.
*Seyed Hassan Taqizadeh . . . . .	Iran	*Bullard, Sir R. W.
†Wadi, Shakir El . . . . .	Iraq	*Stonehewer-Bird, Sir F. H. W.
Carandini, Count Nicolò <sup>2</sup> . . . . .	Italy	Charles, Sir Noel <sup>2</sup>
Chamoun, Camille . . . . .	Lebanon	Shone, T. A.
de Lynden, Baron Robert Aernout . . . . .	Liberia	†Vaughan, G. E.
Clasen, André . . . . .	Luxembourg	Knatchbull-Hugessen, Sir H. M.



# 46 AMERICAN ACADEMY—AMERICAN FEDERATION OF LABOR

To and From Great Britain—Continued

To Great Britain	Country	From Great Britain
*Diaz, Dr. Alfonso de Rosenzweig . . .	Mexico	*Bateman, C. Harold
Gen. Shingha Shumshere Jung		
Bahadur Rana . . . . .	Nepal	Falconer, Lt. Col. G. A.
*van Verduynen, Jonkheer E. Michiels .	Netherlands	*Bland, Sir G. N. M.
Herdacia, Dr. Constantino . . . . .	Nicaragua	Robertson, A. W.
*Colban, Eric Andreas . . . . .	Norway	*Collier, Sir L.
Porras, Dr. Demetrio A. . . . .	Panamá	Irving, S. G.
Aguilera, Gen. Andres . . . . .	Paraguay	Fell, J. R. M.
†Prado, Jorge . . . . .	Peru	Roberts, W. St. C. H.
*Strasburger, Henryk . . . . .	Poland	*Cavendish Benlinc, V. F. W.
*The Duke of Palmella . . . . .	Portugal	*O'Malley, Sir O. St. C.
	Rumania	Le Rougatel, J. H.
†Dawson, Samuel Jorge . . . . .	Salvador	†Stadler, S. M.
Sheikh Hafiz Wahba . . . . .	Saudi Arabia	Graffey-Smith, L. B.
*de las Barcenaz, Domingo . . . . .	Spain	Mallet, Sir V.
Prytz, Björn Gustaf . . . . .	Sweden	Jerram, C. B.
Ruegger, Paul . . . . .	Switzerland	Norton, C. J.
Armanazi, Dr. Najeeb Al . . . . .	Syria	Shone, T. A.
*Aikalin, Cevat . . . . .	Turkey	*Peterson, Sir Maurice
*Gousev, Feodor Tarasovitch . . . . .	U.S.S.R.	*Clark-Kerr, Sir Archibald
*Winant, John Gilbert . . . . .	United States	*Halifax, Earl of
*MacEachen, Dr. Don Roberto . . . . .	Uruguay	*Vereker, G. G. M.
	Vatican	Osborne, Sir F. d'A. G.
*Azpúrua, Andrés Rodriguez . . . . .	Venezuela	*Ogilvie-Forbes, Sir G. A. D.
*Leontić, Ljubo . . . . .	Yugoslavia	*Stevenson, R. C. Skrine

\*—Ambassador; unstarred—Envoy Extraordinary; †—Chargé d'Affaires.  
 †British representative.  
 †Representative (with personal rank of ambassador).  
 Persons no longer in the foregoing list but still accepted by H.M. government as personally possessing diplomatic privileges:  
 Torma, August . . . . . Estonia  
 Zarine, Charles . . . . . Latvia  
 Balutis, Bronius . . . . . Lithuania

**American Academy of Arts and Letters:** *see* SOCIETIES AND ASSOCIATIONS.

**American Academy of Arts and Sciences:** *see* SOCIETIES AND ASSOCIATIONS.

**American Academy of Political and Social Science:** *see* SOCIETIES AND ASSOCIATIONS.

**American Association for the Advancement of Science:** *see* SOCIETIES AND ASSOCIATIONS.

**American Association of Law Libraries:** *see* SOCIETIES AND ASSOCIATIONS.

**American Bankers Association:** *see* SOCIETIES AND ASSOCIATIONS.

**American Bar Association:** *see* SOCIETIES AND ASSOCIATIONS.

**American Bible Society:** *see* SOCIETIES AND ASSOCIATIONS.

**American Chemical Society:** *see* SOCIETIES AND ASSOCIATIONS.

**American Citizens Abroad.** Because United States consular representation, the source of the department of state's information on the number of U.S. citizens residing abroad, was not yet re-established in all parts of the world in 1945, the department was unable to compile the estimate for that year. (R. B. S.)

**American College of Life Underwriters:** *see* SOCIETIES AND ASSOCIATIONS.

**American College of Surgeons:** *see* SOCIETIES AND ASSOCIATIONS.

**American Dental Association.** During 1945, the American Dental Association intensified its study of dental socio-economic problems. It developed a plan to provide dental services to individuals in the low income groups and it established principles and standards for experimental voluntary prepayment dental programs. It promulgated a set of four principles which, in the opinion of the association, should be observed in the formulation of a dental health program for the people of the U.S. To implement the objectives set forth by these principles, it caused to be introduced in congress two bills, the first of which would provide funds, facilities and personnel for dental research through the United States public health service; the second would provide grants-in-aid to states for dental health educa-

tion and dental services, particularly for children.

The association was also instrumental in having a bill passed in congress to improve the status of the dental corps in the United States navy. It assisted the Veterans' administration in improving dental service for veterans. It was particularly active in its efforts to solve the problems of dentists in service and those returned to civilian practice. It issued two manuals on dentistry for men in service. One contained information on the location and distribution of dentists; the second contained information on dental education for those individuals in the armed forces who might wish to enter the profession.

It revised its list of accepted dental remedies and certified dental materials. It produced a sound motion picture film on the history of the association and increased its public educational activities.

Because of the war, the association held no meeting of its house of delegates in 1945. Consequently, the 1945 officers were to officiate during the year 1946. These were: president, Dr. Walter H. Scherer; president-elect, Dr. Sterling V. Mead; first vice-president, Dr. Herbert E. King; second vice-president, Dr. W. I. McNeil; third vice-president, Dr. E. M. Clifford; secretary, Dr. Harry B. Pinney; treasurer, Dr. Roscoe H. Voland. (L. W. M.)

**American Economic Association:** *see* SOCIETIES AND ASSOCIATIONS.

**American Federation of Labor.** As in previous war years, the American Federation of Labor during 1945 followed established precedents for wartime activity. At the same time, the federation persistently pressed for adequate advance postwar planning on the part of the government in order to avert widespread unemployment and attendant loss of purchasing power when the transition period should be at hand.

With the dramatic and sudden closing of the war, the executive council of the federation immediately announced a program of postwar steps which labour regarded as immediately necessary in order to effectuate a speedy and orderly reconversion. This program included provisions for the return of prewar rights and privileges which were voluntarily relinquished in the interest of the war effort, such as the restoration of free collective bargaining; end of wartime controls over labour and industry; increased wages, etc. In its official declaration made on the announcement of the termination of hostilities, the executive council of the American Federation of Labor said in part: "For its own part the American Federation of Labor believes that organized labor has an important contribution to make for the postwar recovery program. . . . America still has a vitally important job to do—to win the peace."

The federation's legislative program for the immediate future called for enactment of the Kilgore bill providing broader unemployment compensation provisions; the enactment of the Murray-Wagner Full Employment bill; a postwar housing bill creating millions of new jobs over a 10-year period; a law lifting minimum wage levels; and the Wagner-Murray-Dingell Social Security bill broadening coverage under the law and expanding its services.

In the international field, the American Federation of Labor was in full support of the International Labour organization as the world centre for labour. It consistently refused to participate in international conferences composed of delegates which included representatives of workers organizations which the federation did not consider representative of the wage earners. The federation reaffirmed its position that it is not a political organization: it does not seek to control the government nor to

have the government control trade unions—rather does it insist upon both economic and political freedom coupled with freedom of speech and press, freedom of assemblage and freedom of worship.

The American Federation of Labor entered the postwar period firm in its conviction that the future prosperity of the United States depends upon the success of its free economic system—a system of free enterprise and free association of workers, and release from wartime government controls.

The American Federation of Labor had a paid-up membership in July 1945, of 6,946,218. Its resident officers were William Green, president, and George Meany, secretary-treasurer, with headquarters in the American Federation of Labor building, Washington, D.C.

(See also CONGRESS OF INDUSTRIAL ORGANIZATIONS; LABOUR UNIONS; STRIKES AND LOCK-OUTS; UNITED STATES.) (W. G.)

**American Geographical Society:** see SOCIETIES AND ASSOCIATIONS.

**American Indians:** see INDIANS, AMERICAN.

**American Institute for Property and Liability Underwriters, Inc.:** see SOCIETIES AND ASSOCIATIONS.

**American Institute of Accountants:** see SOCIETIES AND ASSOCIATIONS.

**American Institute of Chemical Engineers:** see SOCIETIES AND ASSOCIATIONS.

**American Institute of Electrical Engineers:** see SOCIETIES AND ASSOCIATIONS.

**American Institute of Mining and Metallurgical Engineers:** see SOCIETIES AND ASSOCIATIONS.

**American Iron and Steel Institute:** see SOCIETIES AND ASSOCIATIONS.

**American Law Institute:** see SOCIETIES AND ASSOCIATIONS.

**American Legion.** An organization of U.S. veterans of both World Wars I and II. Originally chartered as a World War I veterans' organization by congress in 1919, it became a two-war organization Oct. 29, 1942, when President Roosevelt signed Public Act 767, making honourably discharged veterans of World War II eligible for membership.

The accomplishments of the American Legion in 1945 included: (1) liberalization of its original G.I. Bill of Rights for World War II veterans through amendments providing increased benefits and cutting away much of the administrative red tape which hampered the operations of the law; (2) vast expansion of its rehabilitation service machinery on the state levels as well as nationally to render every possible assistance to returning veterans, particularly the disabled; (3) formulating and recommending to the nation a sound and practical program for national security built around a specific plan of universal training and including scientific research, a world-wide military intelligence system, training of diplomats, a navy strong in bases, ships, guns and men, unification of command with the army, navy and air forces on an equal level, retention of all secrets of the atomic bomb, maintenance of a national guard of not less than 425,000 men plus officer personnel, a highly trained, mechanized and mobile small regular army, and preservation of the U.S. merchant marine as a vital arm of national defense; (4) drafting of maximum employment program calling for 55,000,000 postwar jobs including the creation of 7,000,000 new jobs in the fields of distribution, sales and service; (5) distribution of more than 1,300,000 Christmas gifts to hospitalized soldiers and sailors at home and abroad; (6) enrolment of an all-time high membership of 1,667,743 including more than 500,000 World War II veterans.

Other 1945 achievements included: (1) appropriation by the



MEN AND WOMEN VETERANS of World War II being sworn in as members of the American Legion on Nov. 19, 1945, during the 27th annual Legion convention, in Chicago

Indiana state legislature of \$2,500,000 for the construction in 1946 of three new national headquarters buildings in Indianapolis; (2) vigorous endorsement of the San Francisco United Nations charter and the world security organization; (3) great expansion of national child welfare emergency aid to needy children of World War II veterans; (4) drafting of plans for a great increase in 1946 of all youth-training activities, including Boys' state, Junior Baseball, National High school; (5) launching of a nation-wide postwar accident prevention campaign; (6) modernization of its publicity machinery through the creation of a new national division of public relations with press, radio and movie branches, offices in Indianapolis, Ind., Washington, D.C., New York city and Los Angeles, Calif., and establishment of a national weekly press clipsheet going to 20,000 daily, weekly, radio, labour and college publications; and (7) record sales of victory bonds.

All membership records were broken again during 1945. On Dec. 31, 1945, the American Legion had an all-time high enrolment of 1,667,743 in 13,165 posts. Its auxiliary set a new mark with 634,822 in 9,765 units.

The Sons of The American Legion rolled up 46,258 members in 3,488 squadrons.

The Forty and Eight mustered a new peak of 64,016 members in 750 voitures. The Eight and Forty got 10,132 enrolments in 294 salons.

At the annual convention in Chicago, Ill., John Stelle, former governor of Illinois, farmer, lawyer and businessman of McLeansboro, Ill., was elected national commander. (Jo. Sr.)

**American Library Association.** Established in 1876, the A.L.A. is the official organization in the United States and Canada of librari-

ans and others interested in the educational, social and cultural responsibilities of libraries. It is affiliated with more than 60 other library associations in the United States and other countries and works closely with many organizations concerned with education, recreation, research and public service. Its activities were carried on in 1945 by a headquarters staff of 87 persons and by approximately 80 committees and boards of more than 600 volunteer workers, all interested in various aspects or types of library services. Its program includes information and advisory services, personnel service, field work, annual and mid-winter conferences (discontinued during World War II) and the nonprofit publication of numerous professional books and pamphlets (100 publishing projects considered in 1944-45). It publishes also the following periodicals: *A.L.A. Bulletin*, *Book-list*, *College and Research Libraries*, *Hospital Book Guide* and *Subscription Books Bulletin*.

Ralph A. Ulveling, Public Library, Detroit, Mich., was president 1945-46. The headquarters in 1945 were at 520 North Michigan avenue, Chicago 11, with Carl H. Milam, executive secretary. During the year, the association purchased an historic Chicago mansion at 50 East Huron street, which was to become its headquarters as soon as remodelling was completed.

Located in the Library of Congress annex, Washington, D.C., was the A.L.A. International Relations office with Harry Miller Lydenberg, director. A library information bureau, financed from funds contributed by librarians and friends of libraries, and operated by the association was opened in Oct. 1945 at 1709 M. street, N.W., Washington 6, D.C. Paul Howard directed activities of this office which was established to keep the government informed of library needs and to inform librarians of government activities and regulations.

In 1944-45 the association's income (excluding cash balance of \$197,000 at the close of the fiscal year on Sept. 1, 1944) was about \$1,133,800. Approximately \$223,700 was derived from membership dues, sales of publications, advertising, subscriptions, etc., and was used primarily for membership and publication activities. Publications are sold practically at cost as this aspect of the association's activities are conducted not for profit but in the interest of library progress. Income from endowment funds was \$76,500; \$53,600 came from librarians for the establishment of the A.L.A. National Relations office in Washington; \$188,000 was in payment of group retirement annuity premiums; and \$592,000 came from outside sources in the form of grants or payments for 25 specific purposes. The association's endowment was approximately \$2,110,000.

The 24th annual Newbery medal, for the outstanding contribution to children's literature printed in the United States, was conferred on Robert Lawson for *Rabbit Hill*, and the 9th annual Caldecott medal, for the most distinguished picture book, on Elizabeth Orton Jones for the illustrations of Rachel Field's *Prayer for a Child*. Both medals were presented in New York city on June 9, 1945.

The annual citations for distinguished service as library trustees were presented to Montefiore M. Harris, president of the San Antonio (Texas) Public Library board, and Mrs. Albert W. Errett, president of the board of directors of the Public Library, Kewanee, Ill. A third citation was awarded posthumously to a former trustee of the North Carolina Library commission, Charles Wedbee, of Hartford, Conn.

In recognition of his "contribution to library efficiency and to every field where books and periodicals are used," Halsey W. Wilson, president of H. W. Wilson company, was elected an honorary member of the association by its council. From its founding, the A.L.A. had conferred honorary memberships on only 27 persons.

The first conferences scheduled after the war were the mid-

winter at Chicago, Dec. 27-30, 1945, and the annual at Buffalo, N. Y., June 17-22, 1946.

During the war years the A.L.A.'s program was directed without open meetings. In addition to special wartime activities, the A.L.A. continued plans for special types of library service for demobilized service persons and war workers, accelerated postwar plans for libraries, considered the needs and problems of postwar library personnel, maintained federal relations with Washington on all matters affecting libraries, and gave consideration to international relations and needs in the library field.

The year 1945 marked the 20th anniversary of the A.L.A. Library Extension board, formed for "organized effort toward the goal of adequate public library service within easy reach of everyone in the United States and Canada." In 1925 there were 43% of the population without libraries, compared with 26% in 1945. Most of these were in rural areas. The formulation of postwar standards and studies of existing conditions made during the year were expected to provide a foundation for accelerated action in eliminating the remaining 26%.

Increased progress was made during the year in legislation, appropriations, and establishment of large-unit libraries.

In order to co-ordinate the efforts of many groups interested in collecting gift books for restocking libraries in war areas of the Allied Nations, the American Book centre was established in June 1945 under the auspices of several national library associations. A campaign for gifts of printed materials was to be conducted early in 1946.

Special attention was given in 1945 by the A.L.A. Board of Education for Librarianship to the need of recruiting more personnel for the profession and more scholarships in the 34 accredited library schools; to the redirection of professional education in line with changing requirements for librarianship; to certification and accreditation; and to the needs of veterans for orientation or other special courses.

Organized as a binational association, the A.L.A. greatly increased its international activities during World War II. Before the war, hundreds of foreign students had visited U.S. libraries and studied in U.S. library schools. Hundreds of U.S. librarians had visited, studied, and attended library conferences abroad. Many library ideas had been exported and imported, to the mutual advantage of all.

War conditions made it imperative to expand international library activities along other lines, when the exchange of personnel became impossible except between the Americas. During 1945, valuable research materials were exchanged with China, through co-operative arrangements between universities according to plans developed by the American Library association. The association continued to purchase and store research materials for the rehabilitation of war-damaged libraries. Through correspondence and librarians on official visits, it was possible, particularly in 1945, to keep in close touch with the Library association (British).

The association's work in Latin America, Europe, China and other devastated war areas is financed out of special funds from government, foundations, or individual libraries. (M. O. P.)

**American Literature.** The end of World War II and the arrival of the atomic age found American literary production considerably more noteworthy for its quantity than its quality. The booming book market of the war period showed no signs of a decline with the coming of peace and while publishers continued to count their fat profits, writers of best-sellers of no very notable claim to distinction were made relatively rich by Hollywood's willingness to pay for movie rights what would have been a king's ransom in another literary epoch. Novels that attracted attention merely



because they seemed somewhat better than their nearest rivals brought as high as \$250,000 for cinema purposes, or more than the lifetime earnings of many distinguished novelists of less opulent times.

Commercial and financial tendencies were much easier to discern than literary trends. In fiction, especially, there seemed to be no major influences at work. Established novelists like Sinclair Lewis, whose *Cass Timberlane*, the story of a middle-aged man's marriage to a young woman, handled as crude satire on present-day holy wedlock; Upton Sinclair, who in *Dragon Harvest* continued in the same key the long tale of Lanny Budd; and John P. Marquand, whose *Repent in Haste*, was a short, competent novel on a current war theme, surprised no one with their offerings and added nothing to their reputations. A notable new talent for the short story made its appearance in Jessamyn West's *The Friendly Persuasion*, quietly charming stories of a Quaker family, but there were few new novelists who aroused the critics to loud hosannahs. *Beach Red* by Peter Bowman, a story in verse of a landing in the Pacific, had all the earmarks of a successful tour de force, while James Ramsey Ullman's *The White Tower* was an exciting adventure story of mountain climbing rather than the philosophical novel its author seemed to have had in mind. Thomas B. Costain's *The Black Rose* was old-style romantic melodrama of the *Anthony Adverse* school and Nancy Bruff's *The Manatee*, a novel of Nantucket whaling days, was as scorned by the reviewers as was Kathleen Winsor's 1944 sensation, *Forever Amber*, but seemed as the year ended to be on its way to a large popular success, aided by an all-out publicity campaign.

The spate of war books shrank notably as the world turned its attention to the problems of peace, but the public continued to be interested in Gen. George Marshall's work, *The Winning of the War in Europe and the Pacific*, which was really the biennial report of the chief of staff of the United States army from July 1, 1943 to June 30, 1945. Another factual report was widely read because of its timely nature, *Atomic Energy for Military Purposes*, by Henry de Wolf Smyth, which was issued under the direction of Maj. Gen. L. R. Groves, head of the atom bomb project. Other books on the atom included *Atomic Energy in the Coming Era* by David Dietz and *Almighty Atom* by John J. O'Neill, both by popularizers of science; and also a quickly produced addition to Pocket Books, *The Atomic Age Opens*, which was edited by Donald Geddes and Gerald Wendt, a piece of semi-journalistic enterprise that proved popular. On the closely allied subject of jet propulsion and rocket power, there were three valuable books, R. Tom Sawyer's *The Modern Gas Turbine*, Herbert S. Zim's *Rockets and Jets* and G. Edward Pendray's *The Coming Age of Rocket Power*.

Among the books that appeared generally on lists of the best offerings were included such explorations into the U.S. past as George F. Willson's lively *Saints and Strangers*, a fresh approach to the history of the pilgrim fathers and Plymouth plantation; Arthur M. Schlesinger, Jr.'s *The Age of Jackson*, a re-interpretation of Jacksonian democracy in the light of a large body of hitherto undisclosed facts, which won the immediate praises of young Schlesinger's fellow historians; and Henry Christman's *Tin Horns and Calico*, a stirring account of a revolt of tenant farmers against the patroons of the Hudson valley, which had an introduction by Carl Carmer. Louis Bromfield's *Pleasant Valley* sang the praises of a farmer's life and gave a glowing account of how successfully Bromfield had combined art and agriculture on Malabar farm in the author's native Ohio.

In biography one of the most solid contributions was J. G. Randall's *Lincoln the President: Springfield to Gettysburg*, a two-volume work by a historian who examined and weighed all

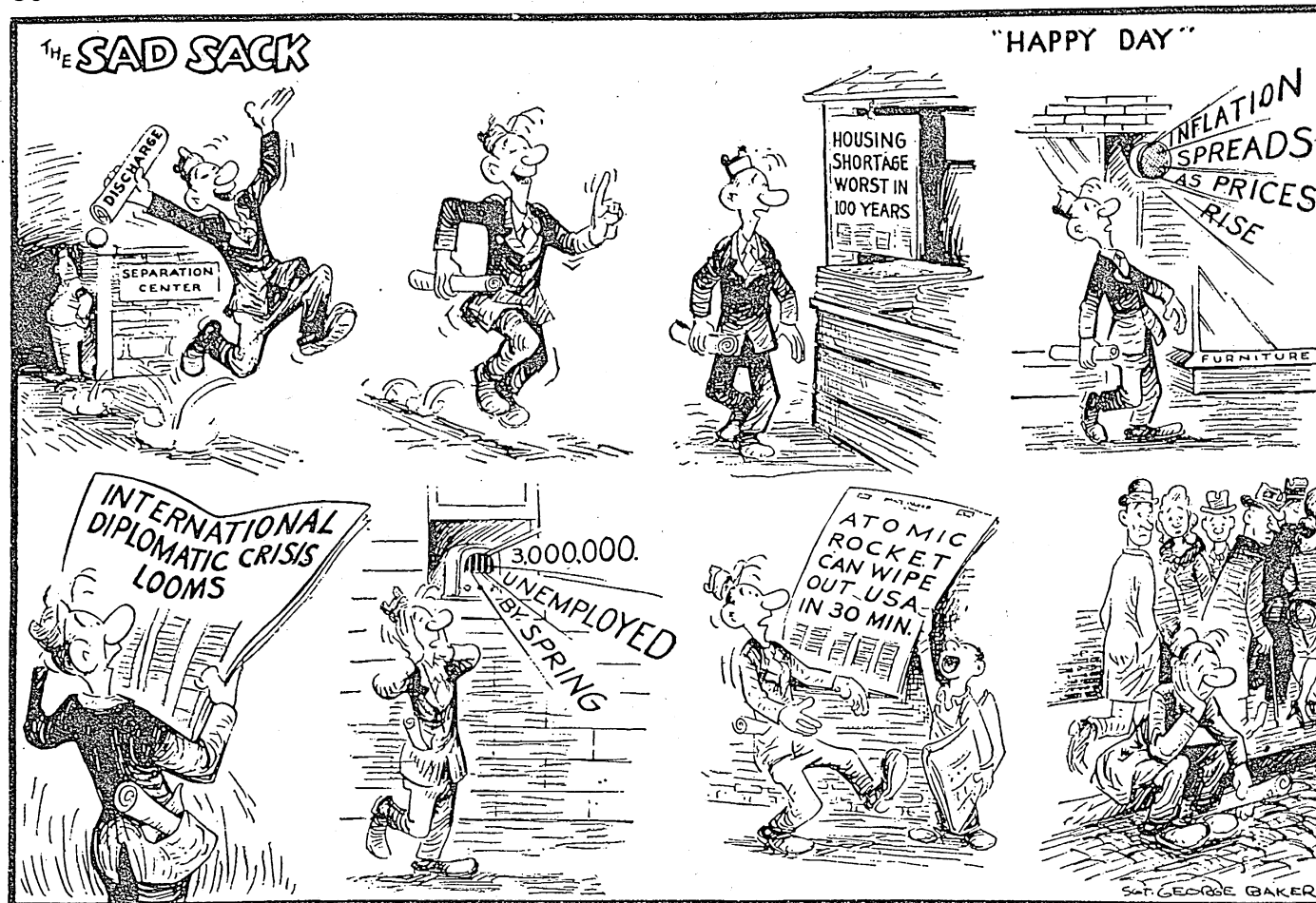
the factual evidence available and thereby added much to the better portraits already in existence. Another book about Lincoln was Jay Monaghan's *Diplomat in Carpet Slippers*, which described the handling of foreign affairs by the president and revealed another side of his shrewdness. Thomas Paine found a passionate defender in W. E. Woodward, whose *Tom Paine: America's Godfather* moved a national hero another step toward complete rehabilitation. Claude G. Bowers added a fine volume to his full-length study of Jefferson in *The Young Jefferson, 1743-1789*, which told the story from Jefferson's boyhood in colonial Virginia down to his return from France to become a member of Washington's cabinet.

In *Names on the Land* George R. Stewart examined with affection and thoroughness place-naming in the U.S. and proved it to be a fascinating subject. Norman Corwin's radio dramas *On a Note of Triumph* brought an interesting new form of literary expression, which he had obviously mastered, to public attention. Norman Cousins expanded a *Saturday Review of Literature* editorial into a small book, *Modern Man Is Obsolete*, which declared with no qualifying words that in view of the existence of the atom bomb the human race must either form a world government or perish. Cousins presented his case cogently and forcefully, but left others to work out the details of the operation. Emery Reves also argued for a world state in *The Anatomy of Peace* and found the idea of national sovereignty dangerously obsolescent.

Secretary of commerce Henry A. Wallace's *Sixty Million Jobs* tackled the problem of universal employment under capitalism and William Aylott Orton's *The Liberal Tradition* offered the opinion that liberalism as a philosophy was decadent because it had lost its spiritual content. Charles G. Bolté's *The New Veteran* came boldly to grips with the question of the returning serviceman's place in a democracy; Jacques Barzun, French-born but for a long time a U.S. professor, attracted wide attention with his refreshing book on education, *Teacher in America*; and Henry L. Mencken continued his priceless investigation into our ways of speech with Supplement One of *The American Language*, a supplement as large as the fourth edition of the parent volume, and also every bit as rich.

The nation chuckled over Betty MacDonald's *The Egg and I*, a light-hearted book about the adventures of poultry raising by city people who purchased a "little place in the country," and a most popular book was a collection of cartoons by Bill Mauldin called *Up Front*, which portrayed G.I.-Joe as a democratic soldier who fought much better than he dressed or looked. Two books, *One Nation*, a collection of photographs, with text by Wallace Stegner, and *A Nation of Nations* by Louis Adamic dealt with the diverse strains in U.S. culture; Stegner's emphasis being upon the abuses of minorities, and Adamic's upon the vast contributions made by peoples not of the Anglo-Saxon strain. Charles P. Curtis, Jr., and Ferris Greenslet collected "man's thinking about man" into *The Practical Cogitator*, an unusual anthology that had a certain timeliness in view of the widespread discussion of the possible wiping out of the human race in an atomic war. A publishing event of considerable importance was the completion of the 12-volume *History of American Life*, edited by Arthur M. Schlesinger and Dixon Ryan Fox, with Carl Becker as consulting editor. Dr. Fox, who died during the year, was co-author with John Allen Krout of the volume which finished the set, Number Five, *The Completion of Independence, 1790-1830*.

**War and Peace.**—Among the best of the war books were Ira Wolfert's *American Guerrilla in the Philippines*, a record of daring individual heroism to match anything in its field and *Persian Gulf Command* by Joel Sayre, an excellent piece of reporting on Americans at work in Iran, which remained timely



IN THE CLOSING ISSUE of *Yank*, the Army Weekly, Dec. 28, 1945, the Sad Sack, Sgt. George Baker's army private cartoon character, continued his luckless way. "Happy Day" showed him no less confused by civilian life than he was as a soldier

throughout the year because of the international situation in the area discussed. Keith Wheeler, a correspondent who was himself seriously wounded, spoke for the living victims of warfare in *We Are the Wounded*, a book filled with praise for the courage of the injured; and the story of the coast guard in World War II was told in *Sea, Surf and Hell*, edited by Commander Arch R. Mercy, U.S.C.G.R., and Lee Grove of the same branch of the service.

Two books on the carrier type of warfare, one of the most important developments in World War II, were *Carrier War* by Lt. Oliver Jensen, U.S.N.R., which told the story of task force 58 and its achievements, and *Mission Beyond Darkness* by Lt. J. Bryan III, U.S.N.R. and Philip Reed, written from the airman's point of view. *Old Leatherface of the Flying Tigers* by Keith Ayling was the story of Brig. Gen. Claire Chennault and the exploits of his daring aviators. *Betio Beachhead* was the marines' own story of Tarawa, written by Capt. Earl J. Wilson and marine correspondents Jim G. Lucas, Samuel Shaffer and C. Peter Zurlinden. *The Best from Yank* was a collection of a great variety of contributions in the soldiers' magazine, which passed out of existence at the close of 1945.

Problems of the peace were considered in a large number of books, such as Ralph Barton Perry's *One World in the Making*; Nathaniel Peffer's *America's Place in the World*, another argument for making international government as strong as possible; William Henry Chamberlin's *America: Partner in World Rule*, which predicted war with Russia; and *The Basis of Lasting Peace* by Herbert Hoover and Hugh Gibson. George Soule touched upon an important topic in *America's Stake in Britain's Future*, in which he argued the interdependence of the economic systems of the two nations; while David J. Dallin in *The Big Three* expressed pessimism about the ability of the United Nations organization to solve problems being handled, in his opinion, solely on the basis of power politics. Two books on Wilson—

*Woodrow Wilson and the Great Betrayal* by Thomas A. Bailey and *Woodrow Wilson and the People* by H. F. C. Bell—pointed out similarities between the post World War II and the post World War I periods.

Of books on the problems of separate countries, Henry Morgenthau Jr.'s *Germany is Our Problem* seemed to be alone in its field, while Japan especially and the far east generally received a great deal of attention in such well informed discussions as Owen Lattimore's *Solution in Asia*, which recommended the most complete co-operation possible, especially with Russia; Philip Jaffe's *New Frontiers in Asia*, a full, well-done survey of the whole contemporary situation; Wilfrid Fleisher's *What to do With Japan*, which argued that the Japanese must be shown they were really beaten; Lt. Andrew Roth's *Dilemma in Japan*, which urged the need to give strong backing to the existing democratic elements in Japan; Willard Price's *Japan and the Son of Heaven*, which insisted that we must get rid of the emperor for good; and *Shinto: The Unconquered Enemy* by Robert O. Ballou, a plea for the complete destruction of Japan's state religion. Timely books on China included Gunther Stein's *The Challenge of Red China*, a penetrating study of the communists in action; and Harrison Forman's *Report from Red China*, another fair and useful study.

Efforts to clear up the mystery of the U.S.S.R. continued. Edmund Stevens insisted that *Russia Is No Riddle*, declaring that the Russians were simply being kept uneasy by the imperialistic foreign policy of capitalistic states. Richard E. Lauterbach's *These are the Russians* was a reasonable explanation of what the Russians are really like, the thesis being that the soviet system had saved the country from Hitler, but that it was decidedly not for the U.S. Edgar Snow's *The Pattern of Soviet Power* gave a clear analysis of existing conditions and of international attitudes. W. L. White's *Report on the Russians* presented a decidedly unfavorable picture of actual conditions within the soviet union and was believed or violently attacked according to the political leanings of the reviewers. One of the best informed of living foreign observers and correspondents, Paul Scott Mowrer, produced an autobiographical volume called *The House of Europe*, in which he urged a broader and more definite foreign policy as one of the essentials of the United States' proper part in the world drama.

**The United States.**—The work of covering the United States river by river, mountain by mountain and region by region which was begun about 1935 plowed steadily ahead with the appearance in the Rivers of America series of *The Missouri* by Stanley Vestal, *The Salinas, Upside-down River* by Anne B. Fisher and *The Shenandoah* by Julia Davis, while Blair Niles revised and enlarged her *The James: From the Iron Gate to the Sea*. The Great Lakes series was completed with *Lake Erie* by Harlan Hatcher, while Wallace W. Atwood told of *The Rocky Mountains* in a new series and Robert Ormond Case and Victoria Case wrote of *Last Mountains: The Story of the Cascades*, using many handsome photographs to help tell their absorbing story.

Struthers Burt's *Philadelphia, Holy Experiment* was a notable addition to a series about U.S. cities and Gertrude Atherton told San Francisco's story in *Golden Gate Country*, while Margaret Parton covered the same

subject from another angle in her autobiographical *Laughter on the Hill*, youth and Bohemia as seen from a shack on Telegraph hill. The west was also treated in James Gray's *Pine, Stream and Prairie*, a book about Wisconsin and Minnesota by a noted novelist and book reviewer of the region; in Meridel Le Sueur's *North Star Country*, which covered Minnesota, Wisconsin, the Dakotas and Michigan's upper peninsula and did it brilliantly; in *If the Prospect Pleases: the West the Guidebooks Never Mention* by Ladd Haystead; in *Texas; An Informal Biography* by Owen P. White, who is one of the more passionate admirers of his home state; and *This is the Place* by Maurine Whipple, which covers Utah, with pictures.

A hitherto neglected region received attention in *Nine-Mile Bridge* by Helen Hamlin, who spent three years in Maine's fabulous Aroostook county amid its French puritans and loggers and who broke fresh ground with her descriptions of the country and its people. Samuel Chamberlain's picture-book, *Ever New England*, with an introduction by Donald Moffat, gave a comprehensive view of a section that cannot be exhausted in its interest; and at the other end of the country, Harnett T. Kane continued his rewarding exploration of the deep south in *Plantation Parade*, a book about the great houses of the "good old days" and the odd people who lived in them. Lyle Saxon's work as historian of New Orleans and vicinity received an excellent addition to *Gumbo Ya-Ya*, a collection of folk material edited by Saxon and some of his friends, which revealed anew the richness of the U.S. in the raw material of literature and art.

Alaska continued to receive considerable attention. George Sundborg's *Opportunity in Alaska*, a soberly factual account filled with sound information; *Alaska: Promyshlennik and Sourdough* by Stuart Ramsay Tompkins, a history and also an account of present possibilities; and Henry Varnum Poor's *An Artist Sees Alaska* were notable additions. Poor went to Alaska to paint and remained to put into words his impressions, illustrating them himself.

Other books that told much of U.S. history from various angles included two on the industry of sheep raising, which began when Columbus introduced the valuable animals into the new world, *Shepherd's Empire* by Charles Wayland Towne and Edward Norris Wentworth, and *The Golden Hoof* by Winifred Kupper; *Railroad Avenue: Great Stories of American Railroad* by Freeman H. Hubbard; and *Big Business in a Democracy* by James Truslow Adams, in which large corporations were praised and capitalism presented in its brighter aspect.

Current problems more or less peculiar to the United States were dealt with in Ward Shepard's *Food or Famine: The Challenge of Erosion*; Frank Lloyd Wright's *When Democracy Builds*, in which a noted modernistic architect described his plans for the ideal cities of "Usonia" and "Broad-acres"; Dorothy Rosenman's *A Million Homes a Year*, or how to deal with the housing problem by building plenty of low-cost houses with government aid; *Black Metropolis*, a study of Negro life in a northern city by St. Clair Drake and Horace R. Cayton, with an introduction by the novelist Richard Wright and *They Seek a City* by Arna Bontemps and Jack Conroy, a study of Negroes on the move, which argued that the race problem was now common to all parts of the U.S.; and *America's Role in the World Economy* by Alvin H. Hansen, which insisted that the U.S. must maintain its own prosperity in order to assist the rest of the world to be prosperous.

**Regionalistic Anthologies.**—Four large volumes undertook to bring together on a regionalistic basis the best writing available, or at least representative selections. The most ambitious of these was *North, South, East, West*, edited by Charles Lee, with the help of five associates, and containing a good selection. The other three were *Promised Land*, a collection of northwestern writing edited by Stewart Holbrook; *America is West*, an anthology of midwestern life and literature, edited by John T. Flanagan; and *Mid Country*, edited by Lowry C. Wimberly, with an introduction by B. A. Botkin.

**Biography and Criticism.**—Among the widely read biographies were Samuel Hopkins Adams' *Alexander Woolcott: His Life and His World*, a candid portrait of a curious literary figure of these times; Kenneth S. Davis' *Dwight Eisenhower: Soldier of Democracy*, not the first life story of the chief of staff of the U.S. army, but by far the most thorough and of especial value as a study of a typical American; Fawn M. Brodie's *No Man Knows My History*, the life of Joseph Smith, the Mormon prophet, which is at once the first definitive biography of an interesting personality and a dependable history of the early days of the Mormons and their church; Edgcomb Pinchon's *Dan Sickles: Hero of Gettysburg and "Yankee King of Spain"*, a portrait of one of the most fantastic characters in U.S. history, who lived to be 95 and counted a love affair with a queen of Spain as only one of his innumerable amorous adventures; and *Enrico Caruso: His Life and Death*, by Dorothy Caruso, a wife's tribute to her artist husband, which portrayed a man of great natural talent who worked very hard to gain and keep his place as an opera singer.

There were two biographies of notable public figures, *Al Smith, American* by Frank Graham, and David Hinshaw's *A Man from Kansas*, the story of William Allen White, both worthy of their subjects. Joseph Cannon Bailey paid tribute to a great leader in agriculture with his *Seaman A. Knapp: Schoolmaster of American Agriculture* and a quick sketch of a living president was done by Frank McNaughton and Walker Hehmyer in *This Man Truman*. American scholars proved their cosmopolitan interests with such books as Robert Haven Schaffer's *Florestan*, a biography of Robert Schumann; Frances Winwar's *The Life of the Heart: George Sand and Her Times*; Katherine Anthony's *The Lambs*, a study of Charles and Mary and their odd relationship; and *The Trollopes: The Chronicle of a Writing Family*, by Lucy Poate Stebbins and Richard Poate Stebbins, a mother-son writing combination.

Of autobiographies there were a number that attracted deserved attention, one of these being Marquis James' *The Cherokee Strip*, a story of a typical American boyhood, admirably told by the biographer of Andrew Jackson. Another was *Fighting Liberal* by the late Senator George W. Norris, who died at 83 without ever having hauled down his flag; and the list also included Oliver La Farge's *Raw Material*, the story of the inner life of the author of the well-known Indian novel, *Laughing Boy*; *That Vanishing Eden: A Naturalist's Florida* by Thomas Barbour,

a book about Florida past and present written by a great naturalist who expressed the fervent desire that Florida might become a homeland for people desiring to lead normal lives; *All Our Lives, Alice Duer Miller*, the candid story of the marriage of two writers, written by H. W. Miller, the survivor of the couple, and with great charm; and Benjamin Franklin's *Autobiographical Writings*, edited by Carl Van Doren, and one of the most important volumes of Frankliniana to appear in a number of years.

In *A Texan in England* J. Frank Dobie, professor of English at the University of Texas, wrote a small romantic volume describing his happy experiences as a visiting professor at Cambridge, England, which he liked very much indeed. Morris Ernst told of his adventurous career as a liberal attorney in *The Best is Yet* and Charlie May Simon described life in the Ozarks under the title of *Straw in the Sun*, the account of three years among southern mountaineers; while George Santayana continued his autobiography with *The Middle Span*, which covered the period between 1889 and the end of the Harvard era, and which seemed inferior to the first volume of *Persons and Places*. Richard Wright's *Black Boy*, a bitter small book on how a Negro boy grew up in the U.S., was rated by many critics as among the year's best.

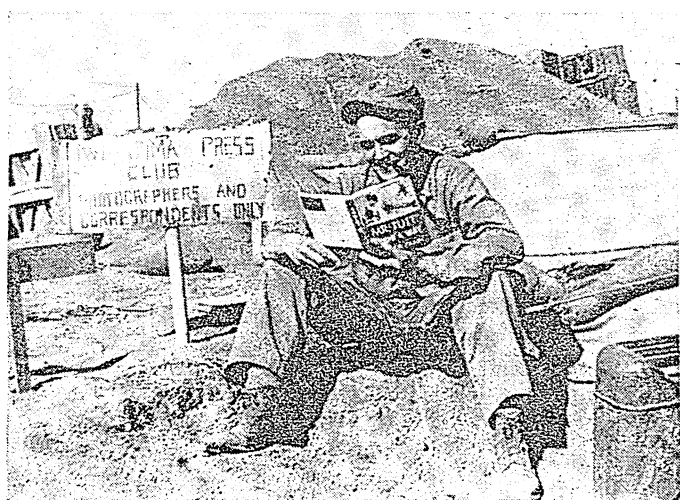
In criticism, the interest in Henry James which began to manifest itself in 1944 continued with the publication of *The Short Stories of Henry James*, edited with copious comment by Clifton Fadiman, and of a new edition of *The Bostonians* with an introduction by Philip Rahv. *The Question of Henry James*, edited by F. W. Dupee, contained 26 articles on James and his works. Edmund Wilson collected and edited the literary remains of F. Scott Fitzgerald in *The Crack-Up* and helped to revive interest in the work of this talented novelist and short-story writer. George F. Whicher wrote a short but penetrating study called *Walden Revisited*, a centennial tribute to Henry David Thoreau and William Ellery Sedgwick's *Herman Melville: The Tragedy of a Mind* made a real contribution to the understanding of the author of *Moby Dick*. Alice Payne Hackett's *Fifty Years of Best-Sellers* was a complete record of a half century of changing tastes in fiction.

**The Novel.**—In addition to a selection of the notable novels presented earlier, other popular works of fiction included Glenway Wescott's *Apartment in Athens*, a story of the German occupation of Greece which divided the reviewers in their opinions; Josephine Pinckney's tale of social conflict in Charleston, S.C., *Three O'Clock Dinner*, well-done but brittle; Elizabeth Janeway's *Daisy Kenyon*, a second novel by the author of *The Walsh Sisters*, and a triangle involving a woman and two men, with the background our own times and very skillfully handled; William Maxwell's *The Folded Leaf*, the delicately done but slight story of the attachment between two boys, one an introvert, the other an extrovert; Anne Parrish's *Poor Child*, which showed a noteworthy growth of an exceptional talent; and Alice Tisdale Hobart's novel of modern Mexico, *The Peacock Sheds His Tail*, which was a competent handling of a thesis-plot that undertook to put into fictional form the social conflicts of the times. The most notable first novel was Adria Locke Langley's *A Lion is in the Streets*, the story of a character very much like the late Huey Long of Louisiana, and a work of fiction highly praised in all quarters was Josephina Niggli's *Mexican Village*, a collection of sketches that fused into what was called one of the best of recent books about Mexico and its people, as well as a distinguished piece of writing.

John Steinbeck's *Cannery Row* belonged to his lighter and more whimsical tradition and was not regarded as affecting his reputation one way or the other; Walter Van Tilburg Clark's *The City of Trembling Leaves* was a long and diffuse story of a young musician's growth that did not somehow come off, although Clark's talent is undeniable; Wilbur Daniel Steele's *That Girl from Memphis* was a successful period piece by a master of the short story who came closer to writing a good novel than in any previous attempt; David Cornel de Jong's *Somewhat Angels* was a satirical tale of three women who busied themselves keeping the home fires burning for absent servicemen; and in *Gold in the Streets* Mary Vardoulakis told the story of a Greek family living in Chicopee, Mass., in a novel which won an intercollegiate prize.

Other novels by writers of established reputations, none of them considered as representing the peaks of their authors' achievements, included Booth Tarkington's portrait of a predatory female, *Image of Josephine*; Pearl S. Buck's story of a successful marriage between a

A CORPORAL in the Fourth Marine division on Iwo Jima relaxes temporarily over Mr. Tutt Finds a Way by Arthur Train, published by Scribner's in 1945





cultured painter and a physically attractive country girl, *Portrait of Marriage*, which again proved that Mrs. Buck's talents are more at home among the Chinese than among contemporary Americans; Frances Parkinson Keyes' *River Road*, a long novel of life on a Louisiana sugar plantation; Charles Jackson's *Lost Week-End*, the powerful story of a drunkard; and Frederic Prokosch's *Age of Thunder*, a story of the war and its consequences considerably inferior to Prokosch's other novels. Ben Lucien Burman, novelist of the Mississippi river, moved one of his whimsical characters and a steamboat all the way to Africa in *Rooster Crows for Day* and wrote a sentimental story that pleased many people; James Street turned from colourful historical fiction to the life story of a small-town preacher in *The Gauntlet*, one of his best pieces of work to date; Susan Glaspell in *Judd Rankin's Daughter* wrote about good, everyday middle western people in a competent fashion; and Josephine Lawrence continued her series of problem-novels, which have all been faithful pictures of life in the United States, with *Let Us Consider One Another*, based on the marriage of a Jew and a Gentile.

Martha Dodd used her memories of nazi Germany as material for her novel, *Sowing the Wind*, which showed how the nightmare grew until it enveloped the world. There were two novels on racial themes of some merit, Chester B. Himes' story of a resentful Negro, *If He Hollers Let Him Go* and Edwin Peeples' *Swing Low*, a sympathetic account of life among the residents of Billiard hollow, a slum district of Atlanta, Ga. Other noteworthy collections of short stories, in addition to Jessamyn West's volume mentioned earlier, were John O'Hara's *Pipe Night*, William March's *Trial Balance and Other Stories* and Caroline Gordon's *The Forest of the South*.

**Latin-America.**—Interest in hemispheric neighbours continued, with especial emphasis on Argentina because of the political situation, and on Brazil because of the ever-increasing realization of the importance and possibilities of that great country. *The Argentine Republic* by Ysabel F. Rennie, complete and balanced, was written after two years of residence in the country. *Argentine Riddle* by Felix J. Weil was the work of an Argentine that threw much light on a complex problem. A translation of Ricardo Rojas' life of Argentina's national hero, *San Martin: Knight of the Andes*, made by Herschel Brickell and Carlos J. Videla, introduced a classic of contemporary Latin-American literature to the reading public of the United States, and *The Knights of the Cape*, selections from Ricardo Palma's long famous *Tradiciones Peruanas*, was done into English by Harriet de Onis.

Henry Albert Phillips wrote on both Argentina and Brazil, his two books being *Argentina: Pivot of Pan-American Peace* and *Brazil: Bulwark of Inter-American Relations*. *Brazil: Giant to the South* by Alice Rogers Hager, was illustrated with a number of magnificent photographs taken by Jackie Martin; Gilberto Freyre's *Brazil: an Interpretation*, a collection of essays by Brazil's leading sociologist, was a useful and informative short study; and Morris L. Cooke's *Brazil in the Making* was another solid contribution. *What the South Americans Think of Us*, a symposium, contained sections on Argentina by Samuel Guy Inman and on Brazil by Bryce Oliver, along with others on other countries by Carleton Beals and Herschel Brickell. An attempt to measure the present state of the Latin-American mind, the volume had the advantage of presenting points of view of writers who had actually lived in the countries discussed.

Of general books on Latin America, the most valuable was Roland Hall's *South America Uncensored*, made up of a series of articles first published in the *Christian Science Monitor*. Others in this category were *The Economic Problems of Latin America*, a comprehensive symposium edited by Seymour E. Harris and *The Pan American Year Book, 1945*, a reference book, with 53 maps. Charles Morrow Wilson's *New Crops for the New World* discussed the future place of the tropical regions as a source of food supplies for the world.

**Poetry.**—The year's record in original verse was undistinguished, although it saw a volume by Robert Frost called *A Masque of Reason*, a satirical poem based on Job, which revealed no new facet of its distinguished author's talent. Karl Shapiro, in the armed forces, wrote a long discussion of the present state of poetry called *Essay on Rime* that provoked discussion beyond its merits as literature, and the work of Alfred Kreymborg and John Crowe Ransom found representation in their *Selected Poems*, while David Morton's *Poems 1920-1945* presented a quarter century of verse of uniformly high quality. Individual volumes of merit included Gwendolyn Brooks' *A Street in Bronzeville*, a brilliant collection of verse by a gifted Negro poet; Randall Jarrell's *Little Friend, Little Friend*; and William Carlos Williams' *The Wedge*. Jeremy Ingalls' *Tahl* told the story of the life and death of a young aviator composer in a new kind of epic. Emily Dickinson's life and works were widely discussed in the light of the publication of *Bolts of Melody*, newly published poems which were fragmentary and decidedly inferior for the most part, and *Ancestor's Brocades: The Literary Debut of Emily Dickinson*, by Millicent Todd Bingham, which added a good many interesting details to the inexhaustible subject of the strange genius of the "New England nun." (See also ENGLISH LITERATURE.) (H. BL.)

**American Medical Association.** The American Medical Association included in 1945 almost 126,000 physicians in its membership who were themselves members of county and state medical societies. The association is a democratic organization whose policies are determined by its house of delegates. The house of delegates includes delegates elected by the houses of delegates of the individual state societies.

In 1945 the association had assets of property and equipment representing about \$1,500,000; securities of about \$4,600,000 and other assets making a total of almost \$7,000,000. Total

income for the year 1944 was more than \$1,500,000. The association is incorporated not for profit, and all funds are devoted to promoting its objectives, which, according to its constitution, are to promote the science and art of medicine and the betterment of public health. The publications of the American Medical Association include the *Journal of the American Medical Association*, with a circulation of 110,000 weekly; *Hygeia*, a health magazine for the public, with a circulation of approximately 200,000 monthly; a medical journal in each of the medical specialties; a directory which includes information regarding physicians, medical schools, libraries and hospitals, and the *Quarterly Cumulative Index Medicus*, which indexes regularly the contents of more than 1,200 medical periodicals.

Through its bureau of health education the association circulates hundreds of thousands of pamphlets devoted to education of the public in health, provides a radio program on health over a national chain and circulates thousands of radio transcriptions for use on local radio stations. The library of the American Medical Association conducts a package library service which sends articles and reprints to physicians on subjects of interest. Particularly requested by physicians in 1945 were articles on the Rh factor, penicillin, military medicine (including various phases of tropical medicine, aviation medicine, burns and malaria), blood pressure, the sulfonamides, anaesthesia and blood transfusion.

A special committee on postwar medical service developed plans to aid the graduate education of physicians returning from the war; a bureau of information aided medical veterans in finding new locations and helped to provide physicians for areas without medical personnel.

The association conducts its own printing establishment and in its headquarters offices at 535 North Dearborn street, Chicago 10, Ill., normally employs some 600 persons.

The meeting of the house of delegates of the association, held in Dec. 1945, adopted a program for the extension of medical services to the people and set up the following program of objectives:

1. Sustained production leading to better living conditions with improved housing, nutrition and sanitation which are fundamental to good health; supporting progressive action toward achieving these objectives.
2. An extended program of disease prevention with the development or extension of organizations for public health service so that every part of the United States would have such service, as rapidly as adequate personnel could be trained.
3. Increased hospitalization insurance on a voluntary basis.
4. The development in or extension to all localities of voluntary sickness insurance plans and provision for the extension of these plans to the needy under the principles already established by the American Medical Association.
5. The provision of hospitalization and medical care to the indigent by local authorities under voluntary hospital and sickness insurance plans.
6. A survey of each state by qualified individuals and agencies to establish the need for additional medical care.
7. Federal aid to states where definite need is demonstrated, to be administered by the proper local agencies of the states involved with the help and advice of the medical profession.
8. Extension of information on these plans to all the people with recognition that such voluntary programs need not involve increased taxation.
9. A continuous survey of all voluntary plans for hospitalization and illness to determine their adequacy in meeting needs and maintaining continuous improvement in quality of medical service.
10. Discharge of physicians from the armed services as rapidly as is consistent with the war effort in order to facilitate redistribution and relocation of physicians in areas needing physicians.
11. Increased availability of medical education to young men and women to provide a greater number of physicians for rural areas.
12. Postponement of consideration of revolutionary changes while 60,000 medical men are in the service voluntarily and while 12,000,000 men and women are in uniform to preserve the American democratic system of government.
13. Adoption of federal legislation to provide for adjustments in draft regulation which would permit students to prepare for and continue the study of medicine.
14. Study of postwar medical personnel requirements with special reference to the needs of the veterans' hospitals, the regular army, navy and United States public health service.

Resolutions were adopted to co-ordinate through the Council

on Medical Service and Public Relations of the American Medical association the various plans for voluntary sickness insurance and voluntary hospitalization insurance which were developing in the United States. The house of delegates opposed the plans for compulsory sickness insurance proposed by Senators Wagner and Murray and Congressman Dingell and included by President Harry S. Truman in his message on the health of the nation. The house of delegates favoured, however, the proposals for the extension of construction of hospitals and health centres throughout the U.S., the extension of preventive medicine under the Social Security act, a wider development of public health facilities, the establishment of a national science foundation to encourage co-ordinated and intensified research in the medical sciences and insurance against loss of wages due to illness.

The principal officers of the association, following the elections by the house of delegates in 1945, were: president, Roger I. Lee, Boston; president-elect, Harrison H. Shoulders, Nashville; secretary and general manager, Olin West, Chicago; treasurer, J. J. Moore, Chicago; editor of publications, Morris Fishbein, Chicago; business manager, Thomas R. Gardiner, Chicago. The board of trustees included: James R. Miller, Hartford, Conn.; John H. Fitzgibbon, Portland, Ore.; E. L. Henderson, Louisville, Ky.; Louis H. Bauer, Hempstead, N.Y.; William F. Braasch, Rochester, Minn.; Ernest E. Irons, Chicago; R. L. Sensenich, South Bend, Ind.; Dwight H. Murray, Napa, Calif.; Charles W. Roberts, Atlanta, Ga. (M. Fl.)

**American National Red Cross:** see RED CROSS.

**American Samoa:** see SAMOA, AMERICAN.

**American Society of Civil Engineers:** see SOCIETIES AND ASSOCIATIONS.

**American Society of Composers, Authors and Publishers:** see SOCIETIES AND ASSOCIATIONS.

**American Society of Mechanical Engineers:** see SOCIETIES AND ASSOCIATIONS.

## American Veterans of World War II (Amvets).

Founded in Kansas City, Mo., Dec. 10, 1944, by ten independent veterans organizations from the states of Louisiana, Tennessee, New York, Texas, California, Florida, Washington, D.C., and Oklahoma, this national veterans organization was established exclusively for veterans of World War II.

Membership is restricted to U.S. citizens who are members of or who have served honourably in the army, navy, marine corps or coast guard of the United States, or its Allies, between Sept. 16, 1940, and date of cessation of hostilities, as established by the United States government.

The American Veterans of World War II makes no distinction between rank, sex, race or colour in its membership. Its purposes are to assist the veteran in all ways consistent with the public welfare; to restore in both veterans and all the people of the U.S. renewed faith and confidence in themselves and in their country, and recognition of the necessity and worth of individual and national integrity; to demand that public office be accepted and administered as a public stewardship and trust; to have a powerful voice in the peace and its preservation; to demand that U.S. leadership co-operate with the leaders of all nations who accept world peace as a national policy to the end that war shall not come to the world again; to avoid becoming another "pressure group" for veterans, at the expense of the public good and welfare; to assure the disabled veteran of all necessary assistance in his care and rehabilitation; and to serve the community and nation in peace as in war.

The first annual convention was held in Chicago, Ill., Oct. 12-

14, 1945, at which Jack W. Hardy of Los Angeles, Calif., was elected national commander.

The next convention of American Veterans of World War II was scheduled to be held in St. Louis, Mo., Nov. 21-24, 1946.

Membership (Dec. 1945): More than 200 local posts in 40 states; and in excess of 25,000 members. (J. W. Hy.)

**Amvets:** see AMERICAN VETERANS OF WORLD WAR II.

**Anaemia.** Numerous new studies were made on sickle cell anaemia. The abdominal crises were associated with packing of the small capillaries, stagnation, haemolysis and anoxaemia. The cholelithiasis rate was higher than in the normal population.

In Central America sicklaemia appeared in 9.6% of the individuals examined in the Canal Zone; in 9.6% among the British West Indians and in 11.2% of the Panamans.

The increase in the haematocrit reading above 20 mm. per hour following treatment of sickle cell anaemic blood with carbon dioxide was of diagnostic value (normal blood, less than 20 mm.).

A new type of severe hereditary anaemia of boys, transmitted through unaffected females was described.

Erythroblastosis and its relation to the Rh factor was studied extensively. It was almost twice as common among children of Rh-negative women previously immunized by transfusion than normal. Haemolytic anaemia due to Rh antibodies was not only the initial cause of erythroblastosis, but by damage to the hepatic parenchyma, gave rise to many of the complex manifestations of the disease.

The titre was highest in mother and child eight to 20 days after delivery. Transfusion of Rh-negative blood through the umbilical cord in a prematurely delivered infant was followed by recovery.

Erythroblastosis was, however, reported in children of Rh-positive mothers.

A number of cases showing haemolytic reactions associated with Rh incompatibility were reported.

Haemolytic reactions were found to be present in some patients with cold agglutinins.

Haemolytic anaemia was produced in dogs by the feeding of fat and choline.

The period of 30 days for a donor to regain his original haemoglobin level was reduced to 26 days with iron therapy, and was eliminated entirely with premedication of iron and copper.

In chronic haemorrhage and in anaemias associated with iron malnutrition, and in pregnancy the uptake of a test dose of 15 mg. of iron was 20% to 50% as compared with a normal of -2%.

Although the individual response was quite variable, new experiments showed that ferrous salts were absorbed more rapidly and utilized better than ferric compounds.

In anaemias during pregnancy the marrow changes, correlated with those of the peripheral blood, were valuable indications in prognosis and therapy.

Aplastic anaemia was relieved by removal of an ovarian tumour and of a mediastinal tumour in different patients.

Certain types of refractory anaemia responded to lactobacillus casei factor (folic acid, B<sub>6</sub>).

Delayed poisoning from exposure to benzene manifested itself in aplastic anaemia years later.

An increase in red blood cells containing granules of stainable non-haematin iron (siderocytes) was described in haemolytic diseases and industrial poisons.

In 2,205 rural school children in Florida, 42.3% had haemoglobin values in the range of 3.6 to 11.4 gr. per 100 c.c. secondary to dietary, especially iron, deficiency.

Two-thirds of the natives of northwest India showed hypochromia and iron deficiency, associated with an inadequate iron intake.

East African soldiers showed oedema and effusions during the period of blood regeneration in macrocytic dietary deficiency anaemia.

Dermatitis and macrocytic anaemia were noted in patients with nutritional deficiency.

Hypoproteinaemia was present during the recovery period, corrected by transfusions of plasma.

Diets low in protein, pantothenic acid, casein hydrolysate, zein, pyridoxine or B-complex, were reported as causes of anaemia.

Nutritional macrocytic anaemias were corrected by orally administered liver extracts after being refractory to parenteral medication.

Ultraviolet irradiation caused a slight, but not therapeutic increase in the blood haemoglobin level.

Both haemoglobin and plasma proteins given intraperitoneally to protein-fasting dogs were used effectively to supply the protein requirements of the body.

In anaemia in Eck fistula dogs, standard diet factors and iron were not utilized as efficiently as in control dogs; and the regeneration of haemoglobin was only one-fourth normal in some animals.

When the haemoglobin level was below 7 gr. per 100 c.c. the cardiac output at rest was increased.

Progressive Addisonian pernicious anaemia was treated successfully with choline chloride administered intravenously.

Carcinoma of the stomach was present in 8% of 211 patients with pernicious anaemia and benign polyps in 7.1%.

The first case of transmission of equine anaemia to man was reported.

**BIBLIOGRAPHY.**—O. D. Abbott, R. O. Townsend and C. F. Ahmann, "Hemoglobin Values for 2,205 Rural School Children in Florida," *Am. J. Dis. Child.*, 69:346-349 (1945); F. S. Daft, A. Kornberg, L. L. Ashburn, W. H. Sebrell and H. Bakerman, "Anemia and Granulocytopenia in Rats Fed a Diet Low in Pantothenic Acid," *Pub. Health Rep.*, 60:1201-15 (1945); T. Davies, "Hypoproteinaemia During Recovery from Severe Anaemia," *Brit. M. J.*, 1:45-46, (1945); P. F. Hahn, E. Jones, R. C. Lowe, G. R. Menely and W. Peacock, "Relative Absorption and Utilization of Ferrous and Ferric Iron in Anemia as Determined with Radioactive Isotope," *Am. J. Physiol.*, 143:191-197 (1945); P. Levine, "Prevention of Unintentional Isoimmunization of the Rh Negative Female Population," *J.A.M.A.*, 128:946 (1945); S. Shapiro, C. P. Segard and E. N. Tabachnick, "Prevention of Hemorrhagic Anaemia After Blood Donation in Normal Adults," *New York State J. Med.*, 45:394-396 (1945); G. F. Taylor and P. N. Chhuttani, "Nutritional Macrocytic Anaemia and Animal Protein of Diet," *Brit. M. J.*, 1:800-802 (1945); C. J. Watson, W. H. Sebrell, J. L. McKelvey and F. S. Daft, "Possible Effectiveness of L. Casei Factor ('Folic Acid') Concentrates on Refractory Anemia and Leukopenia with Particular Reference to Leukopenia Following Radiation Therapy," *Am. J. M. Sc.*, 210:463-470 (1945); J. Watson and W. B. Castle, "Nutritional Macrocytic Anemia: Response to a Substance Other than the Anti-Pernicious Anemia Principle," *Proc. Soc. Exper. Biol. & Med.*, 58:84-86 (1945). (R. Is.)

**Anaesthesia.** In 1945 further developments in the technique of continuous spinal anaesthesia were suggested by Major E. B. Tuohy. A better needle and a better catheter were made available. The new method was more flexible than that in which a particular mattress was needed. Consequently, it became increasingly possible to employ spinal anaesthesia in circumstances such as those presented by orthopaedic operations, wherein especially designed operating tables are necessary. The new developments permitted the anaesthetist to obtain with procaine the results that otherwise could be obtained only with the use of long-lasting anaesthetic preparations. This was an important step, since procaine is much less toxic than long-lasting anaesthetic agents.

The use of curare became widespread. Its advantages were evident both at the time of operation and afterward. During operation it was not necessary to saturate the patient with the anaesthetic agent but simply to provide light surgical anaesthesia. The required relaxation was provided by the curare. The importance of slow administration of curare, rather than its rapid injection, became clear. This change in technique was reminiscent of that which took place as methods of using evipal were developed. In the few minutes required for slow injection of curare, it is possible to give a dose, the effect of which lasts for almost an hour, without stopping the patient's respiration.

The cumulative experience of anaesthetists in the armed forces during World War II made it clear that insufficient facilities for anaesthesia could clog the flow of surgical patients at the front. It became evident that well-qualified physician anaesthetists were needed in forward areas as well as in installations further behind the battle lines. Anaesthetists pointed out that to make up tables of military organization of the future, the progress that had been made in the special field of anaesthesiology would have to be kept in mind. The experience which medical officers gained in the war was reflected in an increasing demand for capable anaesthesiologists.

Certain interesting contributions to the literature of anaesthesia appeared in 1945. One was *The History of Surgical Anesthesia*, by T. E. Keys, which is an excellently documented account. Another was *Man Against Pain*, by H. R. Raper, a dentist, whose interesting book covers the development of modern anaesthesia. The second edition of *Nitrous Oxide-Oxygen Anesthesia*, by F. W. Clement, presents the McKesson-

Clement viewpoint and technique.

In the first six months of 1945, lectures and courses in anaesthesiology were given in several army and navy hospitals. Lectures were given by anaesthetists who were under the sponsorship of the so-called War-Time Graduate Medical Meetings. A variety of plans was considered by which medical officers who had been separated from the service, and who desired training in anaesthesia, might obtain it. Through the Office of Inter-American Affairs, and through the efforts of various special societies, physicians from South America, Central America and even from Europe spent periods of time in the United States visiting various clinics and learning to apply methods of anaesthesia. (See also SURGERY.)

**BIBLIOGRAPHY.**—Edward B. Tuohy, "Continuous Spinal Anesthesia: A New Method Utilizing a Ureteral Catheter," *S. Clin. North America*, 25: 834-840 (Aug. 1945); Thomas E. Keys, *The History of Surgical Anesthesia* (1945); Howard R. Raper, *Man Against Pain* (1945); F. W. Clement, *Nitrous Oxide-oxygen Anesthesia* (1945). (J. S. L.)

**Anderson, Clinton Presba** (1895- ), U.S. government official, was born Oct. 23, in Centerville, S.D. He attended Dakota Wesleyan university, Mitchell, S.D. (1913-15), and the University of Michigan, Ann Arbor, Mich. (1915-16). Ill health forced him to give up his studies and he went to New Mexico. In Albuquerque, he worked as a reporter and editor on the *Journal* (1918-22) and later turned to selling insurance. In 1935, Anderson was placed in charge of the state's relief administration, and he was chairman of New Mexico's Unemployment Compensation commission (1936-38). In 1940, he was elected on the Democratic ticket to the federal house of representatives and was twice re-elected. Anderson was divided on support of administration measures. He endorsed several bills inimical to the Roosevelt administration, such as the antistrike measure and the move to investigate government seizure of the Montgomery Ward plants during World War II. On the other hand, he approved in large part the administration's foreign policy. Anderson headed the house committee investigating the food situation, which advocated (April 1945) fusion of the War Food Administration and Office of Price Administration operations in food control. On May 23, President Truman appointed Anderson secretary of agriculture, and on June 29, the president announced the transfer of the War Food Administration to Anderson's control. On July 1, Anderson said the latter move would result in "efficient organization serving agriculture and the people." He predicted (Sept. 24) that the 1946 agriculture program would call for over-all reduction of farm produce, asserting that the sudden ending of World War II had already resulted in surpluses.

**Angling.** During 1945, both fresh- and salt-water angling in the United States continued at wartime levels, although considerable increase in activity was noted in offshore fishing after the end of gasoline rationing and the lifting of coast guard restrictions following the end of World War II.

Only one new world record was established. A rainbow trout of the Kamloops, or Kootenay, variety weighing 32 lb. 8 oz. was caught in Lake Pend d'Oreille, Ida., on July 15 by Laurence Hamilton of Reardan, Wash. This rainbow exceeded the previous record, a steelhead from the Chehalis river in Washington, by 3½ lb.

Anglers generally were unable to obtain new tackle and, although a few items appeared on the market before the end of the year, the supply still was far below the demand.

The annual tournament of the National Association of Angling and Casting clubs, which was held in Detroit, Mich., Aug. 22-26, was won by Lt. Ernest Liotta, Jr., of Cleveland,



O., although S. G. Dennis, of Chicago, Ill., set the only new national casting record with a score of 99 out of a possible 100 in the  $\frac{3}{8}$ -oz. accuracy plug casting event.

In the south, the amount of offshore fishing increased during the fall and winter, with privately-owned boats being used again with gasoline once more available. Many boat captains continued commercial fishing, however, because of the high price of fish, which enabled them to make more from commercial fishing than from guiding.

FILMS.—*New England Fishermen* (Encyclopædia Britannica Films Inc.). (T. Tv.)

**Anglo-Egyptian Sudan.** A territory under the joint sovereignty of Great Britain and Egypt in northern Africa, south of Egypt (*q.v.*). Area 967,500 sq.mi.; pop. (est. 1942) 6,590,996. Chief towns: Khartoum (pop. 1944) including Khartoum North (76,724); Omdurman (pop. 1944) (104,513); Port Sudan (pop. 1943) (35,617); Atbara (pop. 1943) (26,816); El Obeid (pop. 1942) (36,725). Governor-general in 1945: Lt. Gen. Sir Hubert Huddleston; language: Arabic; religion: Mohammedan and Paganism.

**History.**—At the request of five members of the advisory council for the northern Sudan the governor-general in 1945 outlined proposals of which the final aim was self-government for the Sudan and which included a 20-year plan by which it was hoped to fill senior administrative posts in the government by Sudanese as soon as men of sufficient education, character and integrity could be trained for the posts. The opening of the Gordon Memorial college in its new form, as an independent university college (Feb. 21), and the increase of government grants to the college and for post-graduate work outside the Sudan were indications that steps had been taken to make the supply of recruits equal the demands of the 20-year plan, and that the development of education and administrative responsibility of the Sudanese were being correlated.

Demands for the revision of the status of the Sudan were made in Egypt both by the Wafdist party and the premier. Speaking in the senate on Aug. 6 on the revision of the Anglo-Egyptian treaty, the premier said: "As for the unity of the Nile valley, which includes both Egypt and the Sudan, the principles of the new era which have spread all over the world are sufficient guarantee for its achievement. This is particularly the case as this unity reflects the heartfelt desire of all the people of the Nile valley."

Comment in the British press stressed the discrepancy between this view and the British policy of allowing the Sudanese to decide their future status for themselves, and questioned whether every Sudanese would accept the premise of "the unity of the Nile valley." The Egyptian view was expressed more moderately by Mohammed Riadh Bey, chairman of the foreign affairs committee of the Egyptian chamber of deputies and secretary-general of the Saadist party, in London on Oct. 4. He told a press conference that in the condominium of the Sudan, Egyptians would like to see their country taking more than a passive share, but that the most important interests were those of the Sudanese, who should be consulted on their future status.

The cotton crop for 1944-45 was 1,565,309 kantars, a record for the past 20 years. (J. RA.)

**Education.**—(Jan. 1, 1945) Government schools: elementary schools 117, scholars 19,400; intermediate schools 11, scholars 1,847; secondary schools 1, scholars 500; Gordon Memorial college, scholars 134, excluding Kitchener school of medicine; subgrade schools and state-aided Koranic schools 345, scholars 23,000; scholars at nongovernment (mission) schools, 10,200.

**Banking and Finance.**—Revenue (1944) \$40,198,200; ex-

penditure (1944) \$39,978,400; public debt (Dec. 31, 1944) \$36,467,400. Currency: Egyptian pound (£E) = 413.8 U.S. cents.

**Trade and Communication.**—In 1944 imports were valued at \$41,380,000; the value of exported merchandise amounted to \$35,976,300. Communications: roads, suitable for motor traffic, all weather, c. 1,000 mi.; railways 1,991 route mi.; river service 2,325 mi.; motor vehicles licensed (1944) 3,399 cars, commercial vehicles and cycles; telephone subscribers (1945) 3,546.

**Agriculture and Mineral Production.**—(1943-44) Production (in short tons): cotton seed 84,477; ginned cotton (lint) 44,500; millet 521,400; sesamum 54,384; maize 1,342; wheat 10,443; groundnuts 11,500; barley 110; gold (in kg.) (1944) 0.062.

**Angola:** see PORTUGUESE COLONIAL EMPIRE.

**Animal Fats:** see VEGETABLE OILS AND ANIMAL FATS.

**Animal Industry, Bureau of:** see AGRICULTURAL RESEARCH ADMINISTRATION.

**Annam:** see FRENCH COLONIAL EMPIRE.

**Anniversaries and Centennials:** see CALENDAR, 1946, page xxii.

**Anthropology.** With the ending of World War II in Aug. 1945, anthropologists at once moved to re-establish communications with colleagues from whom they had been cut off during hostilities. In England, Sir John Myres, permanent secretary of the International Anthropological congress, initiated attempts to ascertain the fate of members of the bureau of this organization so that it could once more look toward taking up its functions, which had been broken off by the war. Similar efforts in the United States were made by a committee on international co-operation, National Research council. This committee included representatives of the principal anthropological societies, and had the following members: H. Collins, John M. Cooper, F. de Laguna, W. Fenton, Henry Field, Robert H. Lowie, D. Strong, Frank Weidenreich and Melville J. Herskovits (chairman). The first of a series of reports on anthropology in various countries during the war, in this instance France, appeared in the *American Anthropologist* for October, with others scheduled for subsequent publication.

Reports from war areas showed that losses, whether in personnel, museum collections, or library and manuscript materials were not as great as had been feared. It was known that the ethnographic specimens of the British museum had been stored in places of safety, but it was not anticipated that the great Musée de l'Homme of Paris, or Danish, Netherlands and other museums would come through the war practically unharmed. The Musée du Congo Belge at Brussels, however, was damaged by a V-1 bomb, with considerable losses. Russian museums in combat areas were all evacuated in time and were thus unharmed. Buildings of the principal Russian ethnographic museums in Moscow and Leningrad were only slightly damaged, though such structures in occupied areas were destroyed. In many instances by the end of the war specimens had been returned to the larger institutions, and in some cases even been reinstalled. All collections in Czechoslovak museums were entirely destroyed. In Germany, though museum buildings in Berlin, Hamburg, Cologne and Frankfurt were wrecked or seriously damaged, much of their ethnographic and anthropological materials had been removed, except in Munich. Specimens of the Museum für Völkerkunde in Berlin were discovered in a salt mine in Thuringia, and other caches came to light elsewhere after this original discovery.

In the Philippines, the rich ethnographic and archaeological collections made by H. O. Beyer were partially destroyed, while

all the ethnographic field notes of M. Van Overburgh and F. Lambrecht, and the anthropometric data of J. F. Ewing, were lost. All these anthropologists, however, survived the Japanese occupation, as did R. F. Barton who was also caught in the islands. The whereabouts of the priceless remains of *Pithecanthropus erectus* remained a matter for speculation, despite rumours that they had been recovered. Archaeological materials in Java were not disturbed, except for one Mgandong skull sent to Japan and, according to G. H. R. von Koenigswald in *Science* (Dec. 14, 1945), probably lost.

Publications were continued wherever possible. Four out of nine French periodicals appeared during the occupation, seven Norwegian journals were issued, though irregularly, and a considerable number of papers achieved publication in the Netherlands. In Denmark a new society, the Societas Arctica Scandinavica, with a journal, *Acta Arctica Scandinavica*, was instituted; while the centenary of the founding of the department of ethnography of the National museum was celebrated by initiating a new series. The three principal Russian anthropological periodicals devoted to archaeology, ethnography and material culture appeared during the war, while a fourth, newly begun *Kratkie Soobscheniia*, was issued during 1945. The Institute of Ethnography of the Academy of Sciences of the U.S.S.R. held a meeting on June 23 in Moscow, attended by foreign anthropologists who were guests of the academy at the celebration of its 100th anniversary. U.S. delegates were Henry Field and A. U. Pope; C. G. Child represented England. Russian field expeditions continued even during the war, and more had been organized after its end. Italian publication was irregular, though research not requiring field work seemed to have been carried on. In Switzerland the exiled members of the Austrian school, W. Schmidt and W. Koppers, continued their programs of writing and publication.

The year was marked by an expansion in university offerings in a number of countries. In England, E. E. Evans-Pritchard assumed the readership at Cambridge university and S. F. Nadel was scheduled to join the University of London when relieved as senior staff officer to the military government of Tripolitania. University college, London, named D. Forde as professor of social anthropology, but a serious loss was registered when this same institution discontinued work in physical anthropology where it was long associated with the name of Karl Pearson and was carried on more recently by G. M. Morant. The University of Edinburgh announced its intention to establish a lectureship in anthropology.

K. Birket-Smith, who had assumed the head curatorship of the ethnographic department of the National museum, Copenhagen, Denmark, after the retirement and subsequent death of Th. Thomsen, was named to a newly created readership in ethnology at the University of Copenhagen. W. Thalbitzer, professor of Eskimo language and culture in the same institution was succeeded, on his retirement, by E. Holtved, as docent. Ethnography was made a regular subject for examinations and degrees at Stockholm university under the direction of Karl G. Lindblom, and S. Lagercrantz was appointed docent to initiate anthropological teaching at the University of Uppsala, Sweden. On the death of Dr. Walter Kaudern in 1942, his post as director of the Ethnographical department of the Gothenburg museum was filled by K. G. Izikowitz.

In the Netherlands, C. H. de Goeje was appointed to a special professorship in the linguistics and ethnology of Surinam and Curaçao at the University of Leyden; while in France, the Sorbonne instituted a new chair of ethnology. P. Rivet resumed his prewar post as director of the Musée de l'Homme. Jacques Soustelle, assistant director before the war, was minister of information and then minister of colonies in the De Gaulle gov-

ernment. Some field work was initiated by the French; A. Schaeffner and D. Paulme-Schaeffner, the latter the successor of H. Labouret at the École Nationale de la France d'Outre-Mer (formerly the École Coloniale), Paris, left for research among the Kisi and Toma peoples of French Guinea.

Plans were announced for the expansion of the Institut Français d'Afrique Noire at Dakar, Senegal. This institute, in Jan. 1945, sponsored a successful meeting of Africanists from French and British colonies of West Africa, and organized a number of local centres to further its work. An important development was the appointment to the staff of the Rhodes-Livingstone institute, Northern Rhodesia, of J. A. Barnes, E. Colson, R. F. Fortune, J. F. Holleman, M. G. Marwick and J. C. Mitchell, to carry on field studies in accordance with a co-ordinated plan drawn up by M. Gluckman, director of the institute, under grants from the colonial office development project and other agencies.

The Palestine Institute for Folklore and Ethnology issued the first number of its journal *Edoth (Communities)*, under the editorship of R. Patai and J. J. Rivlin. Two numbers of the *Southwestern Journal of Anthropology*, edited by Leslie Spier and jointly supported by the University of New Mexico and the Laboratory of Anthropology (at Santa Fe) appeared. *Afroamerica*, the journal of the International Institute of Afro-American Studies in Mexico City also began publication.

The return of anthropologists from the military and other war services, in many cases to resume their prewar posts, marked the anthropological year 1945 in the U.S. The annual meetings of the American Anthropological association and of the American Folklore society were held for the first time after the beginning of World War II. Ralph Linton was elected president of the American Anthropological association, J. M. Carrière was named to head the American Folklore society, while Herbert J. Fleure became president of the Royal Anthropological institute.

Reports of new researches were few, except in Latin American archaeology. Physical anthropology was represented by an *Introduction* by M. F. Ashley-Montagu, especially useful for the summaries of data concerning recent finds of protohuman forms which it contains. The posthumous volume by Elsie Clews Parsons, *Peguche, a Study of Andean Indians*, a volume of the University of Chicago Press series of anthropological publications, was an outstanding contribution to the ethnology of northern South America. Fay C. Cole's *Peoples of Malaysia* provided a long-felt need for a general work on the peoples of southeastern Asia; M. Fortes published the first part of his study of the social structures of the Tale of West Africa, *The Dynamics of Clanship among the Tallensi*.

In the field of theory Alfred L. Kroeber's *Configurations of Culture Growth* presented the culmination of many years' study of the problem of change in the complexities of human civilization. Based primarily on the history of European culture, it at once aroused controversy and was expected to stimulate discussion for a considerable period in the future. A symposium edited by Ralph Linton, entitled *The Science of Man in the World Crisis* at the instance of the Viking fund, discussed the contribution of anthropological science to problems of the present-day world. Abram Kardiner and others collaborated in a volume, *The Psychological Frontiers of Society*, elaborating this student's concept of the basic personality structure. A second posthumous work of Bronislaw Malinowski, edited by Phyllis M. Kaberry, *The Dynamics of Culture Change, an Inquiry into Race Relations in Africa*, expanded Malinowski's earlier papers on this topic, and presented a conceptual scheme for its study.

Also to be noted were works by Leo W. Simmons, *The Role*

of the Aged in Primitive Society, a cross-cultural study based on world-wide sampling of the literature, of an aspect of native cultures that has too rarely been considered. Paul Radin returned to his Winnebago materials with his volume *The Road of Life and Death*, a discussion of the medicine rite of this people based on texts recorded in the field. Martin C. Yang extended knowledge of Chinese ways of life with an anthropological treatment found in his book *A Chinese Village, Taïton, Shantung Province*.

Contributions in the journals include the further statements of the neo-evolutionist position of L. White, "Diffusion vs. Evolution, an Anti-Evolutionist Fallacy" (*Amer. Anth.*, July 1945), and "History, Evolutionism and Functionalism: Three Types of Interpretation of Culture" (*Southwestern Journal of Anth.*, Summer 1945); and M. Opler's "Themes as Dynamic Forces in Culture" (*Am. Journal of Sociology*, Nov. 1945). Hermann J. Braunholz' presidential address to the Royal Anthropological Institute of Great Britain and Ireland, London, "Culture Contact as a Museum Problem" (*Jour. Roy. Anth. Inst.*, 1942, published 1945), presented a new facet of the problem of acculturation that is outstanding in the interests of students of culture. (M. J. Hs.)

**Anti-Aircraft Guns:** see MUNITIONS OF WAR.

**Antigua:** see WEST INDIES, BRITISH.

**Antilles, Greater and Lesser:** see WEST INDIES.

**Antimony.** The salient features of the antimony industry in the United States during World War II are indicated in the table.

*Date of Antimony Industry in the U.S., 1940-44*

	(Short tons)				
Production	1940	1941	1942	1943	1944
In ore . . . . .	494	1,214	2,944	5,556	4,735
In alloys* . . . . .	2,077	2,958	3,267	2,085	2,857
Secondary recovery . . . . .	11,421	21,629	18,200	15,483	15,886
Imports . . . . .	16,216	27,504	21,470	28,969	17,505
In ore . . . . .	15,733	19,386	20,947	28,755	16,824
Metal . . . . .	209	7,469	127	932	293
Other forms† . . . . .	274	649	307	282	388
Consumption, primary . . . . .	17,955	29,994	23,852	19,508	23,756

\*Antimony content of antimonial lead produced from foreign and domestic ores.  
†Estimated antimony content of alloys, oxide and liquated sulphide.

There was little production of metal from straight antimony ores; most of the output came from complex ores in combination with lead, silver, copper or tungsten. The passing of the war peak of demand was signalled by the reduction in output in 1944, and by a drop in producing mines from 17 to 11. Early in 1945 two of the five metal smelters shut down.

Other producers showed declines in 1944 similar to those in the United States—Mexico from 13,873 short tons to 11,085 tons; Bolivia from 18,228 tons to 7,553 tons and Peru from 2,725 tons to 1,008 tons; Canada increased from 513 tons to 901 tons. Most of the smaller producers showed declines of the same order. (G. A. Ro.)

**Anti-Saloon League of America:** see SOCIETIES AND ASSOCIATIONS.

**Anti-Semitism.** The defeat of Germany in 1945 put an end to the official spread of anti-Semitism by the propaganda machine of the German government. The occupation by the Allied armies brought everywhere a restitution of civil rights to the Jews. On the other hand, official investigations revealed for the first time the whole extent of the deliberate extermination of European Jewry by Germany. It was estimated that at least 80% of Germany's Jews had been murdered. Official plans had marked every remaining Jew in German-occupied Europe for extinction before the



JEWISH SLAVE LABOURERS marked with the yellow cross were liberated by troops of the U.S. 9th army near Kaunitz, Germany, in 1945. These girls had been brought from conquered countries and made to work in an ammunition plant.

summer of 1946. Even worse, if that be possible, than the fate of the German Jews themselves was the fate which befell the Jews in eastern European territory, especially in Poland and Russia, occupied by the Germans in 1939 and 1941. Nor were the Jews in western Europe spared: in the spring of 1943, Jews from France, Belgium and the Netherlands were deported to eastern Europe where systematic extermination of the Jews by gas had started. Many Jews were brought to Germany as slave labourers and were subject to a regime in which starvation, disease and cold undermined their strength. After Germany's defeat these "displaced persons" who came from eastern Europe created a serious problem for the Allied occupational authorities, as their repatriation met with great difficulties.

The few German Jews remaining in occupied Europe were returned to their homes, Jewish synagogues were reopened and the first Jewish services were held in Germany after Nov. 1938. The restoration of confiscated property was slow because complicated administrative and judicial machinery had to be set up. As many nazis remained in subordinate positions in Germany, complaints of persisting anti-Semitism continued to be heard. For some time Jews were subjected to the same restricted rations as non-Jewish Germans until it was pointed out that as a result of many years of deliberate semistarvation the Jews needed higher rations than the general population.

The U.S. representative on the Inter-Governmental Committee on Refugees, Earl G. Harrison, reported to President Truman on the shocking conditions in the camps for displaced Jews in Germany and Austria. As a result of President Truman's intervention and of directives issued by Gen. Dwight D. Eisenhower these conditions were substantially improved.

It was too early to make a definite estimate of the number of victims of German anti-Semitism. In a country like Yugoslavia the Jewish population was reduced from 75,000 to 6,000. From the Netherlands about 110,000 Jews were deported, of whom only 5,000 returned. Norway, where there was a Jewish population of less than 1,000, saw 734 of them deported and only 12 returned. From France the number of Jews deported was estimated at 105,000, the number of Jews returning, as less than 4,000. All the others died in Auschwitz, Belsen, Buchenwald and the other camps.

No trace of official anti-Semitism remained in France, the Low Countries and Italy. The anti-Semitic legislation of



fascism had taken no deep roots in Italy. According to all reports the Italian population behaved in a friendly and helpful way toward its Jewish fellow citizens throughout the period of German occupation.

On the other hand, complaints about continuing discrimination against Jews in Poland and other eastern European countries were frequently voiced. In view of the secrecy veiling the happenings in these lands little authentic information reached the outside world in 1945.

As unsatisfactory as in Poland was the situation of the Jews in Argentina. There the followers of Col. Juan D. Perón tried to organize anti-Semitic disturbances. Anti-Semitism became part of the antidemocratic and anti-United States policy of the Argentinian nationalists. (*See also* FASCISM; JEWISH RELIGIOUS LIFE; REFUGEES.) (H. Ko.)

**Antitank Guns:** *see* MUNITIONS OF WAR.

**Antitrust Law:** *see* LAW.

**Apples:** *see* FRUIT.

**Applied Chemistry:** *see* CHEMISTRY.

**Applied Psychology:** *see* PSYCHOLOGY.

**Appropriations and Expenditures:** *see* BUDGET, NATIONAL.

**Aquariums.** The status of public aquariums throughout the world remained unchanged during 1945; those surviving the troubled times of the World War II years managed to keep open, with restricted exhibits, without much further difficulty. None of those closed during 1942-45 reopened, however, and the ending of hostilities in 1945 did not mitigate the difficulties of collecting and transporting fishes nor improve the conditions of shortages of trained personnel, material or equipment. Popular interest in public exhibitions of fishes remained unabated, however, for in many cities and several countries, plans for the construction of new institutions and the renovation of old ones crystallized during the year, and the start of physical building of several was to take place as soon as possible, probably during 1946. The most notable of these are the aquarium at Miami, Fla., a co-operative exhibition and research plant to be built jointly by the University of Miami and Dade County, Fla., and the New York aquarium, a joint operation between New York city and the New York Zoological society.

(C. W. C.)

**Aqueducts.** The Metropolitan aqueduct (241 mi.) delivers Colorado river water, regulated by the bureau of reclamation's Boulder and Parker dams, to Los Angeles and 12 other California cities. This aqueduct was constructed in 1943 at a cost of \$200,000,000 by the Metropolitan Water district comprising these 13 municipalities. The capacity of the system is 1,000,000,000 gal. per day. The aqueduct extends from Parker dam to Cajalco reservoir, 12 mi. south of Riverside, Calif.

Bureau of reclamation engineers in 1945 prepared the designs and specifications for the 71-mi. San Diego aqueduct under construction by the navy department. This aqueduct was expected to be capable of delivering 50,000,000 gal. of Colorado river water daily to San Diego, Calif.

The Salt Lake aqueduct was being built by the bureau of reclamation on the Provo river project, Utah. This 41-mi. structure was to tap Deer Creek reservoir, providing water for industrial and domestic purposes in Salt Lake City, Utah, and in addition serving irrigation needs.

Another water conductor under construction by the bureau on the Provo river project was the Duchesne tunnel. This 6-mi. structure, when completed, would divert water for irrigation

purposes from the upper tributaries of the Duchesne river (Colorado river watershed) to the Provo river for storage in Deer Creek reservoir. The tunnel was to have a capacity of 375 cu.ft. per second.

The Estes Park aqueduct was to be constructed by the bureau as a part of the Colorado-Big Thompson irrigation project. Another important feature of this reclamation development was the 13-mi. Alva B. Adams tunnel, being lined with concrete in 1945. The tunnel through the Rocky mountains under the continental divide was planned to bring Colorado river water from the western or Pacific slope of the Rockies to the eastern side, furnishing supplemental irrigation water for 615,000 ac. of fertile farm land in northeastern Colorado.

The All-American canal, a part of the Boulder canyon project, taps the Colorado river at Imperial dam downstream from Boulder dam. This 80-mi. canal, completed in 1940, serves approximately 500,000 ac. of irrigable land in the Imperial valley of California.

The Coachella canal, planned to be a 145-mi. branch of the All-American system, was under construction by the bureau to serve irrigation needs of approximately 75,000 ac. of land in the Coachella valley of California.

The canal system of the multimillion acre Central valley project under construction by the bureau of reclamation in California would consist of the Madera canal, the Friant-Kern canal, the Contra Costa canal, the Delta Cross channel and the Delta Mendota canal.

The 37-mi. Madera canal was completed in June 1945. Construction work on the 160-mi. Friant-Kern from Friant dam to Bakersfield, Calif., was started in Aug. 1945. These two large gravity canals were designed to carry water from Millerton lake, storage reservoir created by Friant dam, to the fertile San Joaquin valley. The first water was delivered through the Madera canal in 1944. It has a capacity of 1,000 second feet. The Friant-Kern canal was to have a capacity of 4,000 second feet. The 47-mi. Contra Costa canal was almost completed. Industries in the Antioch-Pittsburg area of the Delta region of Central valley were provided with water by means of this system during 1944. The canal has a capacity of 350 cu.ft. of water per second.

The Delta Cross channel and the Delta Mendota canal were also scheduled for construction on the Central valley project. The 50-mi. Delta Cross channel with 8,000 to 10,000 second feet diversion capacity was to carry Sacramento river water to the San Joaquin river. The 120-mi. Delta Mendota canal with a diversion capacity of 4,600 second feet was designed to transport the water along the west side of the San Joaquin valley to Mendota pool. (*See also* CANALS AND INLAND WATERWAYS; DAMS; TUNNELS.) (K. W. M.)

**ARA:** *see* AGRICULTURAL RESEARCH ADMINISTRATION.

**Arabia.** Total area (est.) 1,000,000 sq.mi. Total pop. (est. 1939) 7,000,000; (earlier est.) Saudi Arabia 1,500,000; Yemen 3,500,000; Oman and Muscat 550,000; Kuwait 80,000; Trucial Sheikhs 80,000. Language: Arabic; religion: Mohammedan. Rulers: Saudi Arabia, King Abdul-Aziz ibn Abdurrahman al-Faisal Al-Sa'ud; Yemen, Zaidi Imam Yahya ben Muhammed ben Hamid ed Din; Oman and Muscat, Sultan Sayyid Sa'id ibn-Taimur; Kuwait, Sheikh Ahmad ibn-Jabir as-Subah.

**History.**—In Feb. 1945 Ibn Sa'ud met both Pres. Roosevelt and Winston Churchill on their return from the Crimea conference. Later in the year the texts were published of an exchange of letters between the king and Pres. Roosevelt which took place after their meeting. The king expounded the Arab



PRESIDENT ROOSEVELT, returning from Yalta, received King Ibn Sa'ud aboard a U.S. destroyer in Great Bitter Lake near Cairo, through which the Suez canal passes, Feb. 20, 1945. The king's 800-mile journey marked a first departure from Arabian soil

case in Palestine, and in reply the president expressed the desire of the U.S. government "that no decision be taken with respect to the basic situation in that country without full consultation with both Arabs and Jews." He also assured Ibn Sa'ud that he would take no action in his capacity as chief of the executive branch of the U.S. government, which might prove hostile to the Arab people.

Ibn Sa'ud declared war against Germany and Japan on March 1, 1945, excluding, however, from this declaration the holy places of Mecca and Medina.

The king was embarrassed, in the autumn, by the arrival on his territory of Rashid Ali al Gailani, an ex-premier of Iraq, who had been condemned to death in his absence by an Iraqi court on account of his *coup d'état* in 1941. The extradition of Rashid Ali was demanded by the government of Iraq but compliance with a demand of this kind is incompatible with traditions of Arab hospitality which still have a strong hold in the Arabian peninsula.

Prince Faisal, the king's foreign minister and second son, who led the Saudi Arabian delegation at the San Francisco conference, also conducted conversations in Washington, D.C., before he left the U.S., on economic and political questions of mutual interest to the two countries.

**Finance.**—Monetary unit, in Saudi Arabia is the Saudian rial. Exchange rate in 1942: 1 rial=Rs. 1 (Indian)=30.12 U.S. cents.

**Trade.**—With India (1939-40): Oman and Muscat, imports \$741,000; exports \$1,076,000; other states of Arabia, imports \$298,000; exports \$2,208,000. With the United Kingdom (1938): Saudi Arabia and Yemen, imports \$383,000; exports \$116,100; Oman and Muscat, Trucial Sheikhs and Kuwait, imports \$162,200; exports \$74,000. Total trade of Oman and Muscat (1938-39): imports \$1,468,000; exports \$1,002,000; Kuwait (1937-38): imports \$1,655,600; exports \$701,200. Saudi Arabia exports: skins, wool, gold, charcoal, cattle, dates, clarified butter, gum.

**Arce y Ochotorena, Emanuel** (1879- ). The cardinal archbishop of Tarragona was born at Ororbia in the province of Navarre, Spain, on Aug. 18. He was educated in seminaries of Pamplona and Saragossa and at the Gregorian university in Rome.

Named bishop of Zamora in 1929, he headed this see during

the difficult years of the republic. He specialized in labour studies and contributed both knowledge and action in the solving of social problems. Under his inspiration there was a development of Catholic Action in the archdiocese of Tarragona.

Transferred from Zamora to the diocese of Oviedo in 1929, he had as his first great task the reconstruction of destroyed or damaged churches of the Asturias region, including the Oviedo cathedral. At the same time he was serving as apostolic administrator of his former diocese. He was elevated to the metropolitan see of Tarragona in 1944. He is the author of several books on canon law and various pastorals dealing with dogma and morals. He was created and proclaimed a cardinal at consistory on Feb. 18, 1946.

**Archaeology.** Eastern Hemisphere.—With the end of World War II, fuller reports as regards the damage and destruction of archaeological monuments and collections began to come in. The reports were most complete for Italy; the extent of damage in the rest of Europe and in the far east was not so well known at the close of 1945. The United States and British military services concerned with the conservation of antiquities seemed to have done their best against great odds.

The list of destroyed or badly damaged monuments in Italy would be long; the great fortune was that so much was saved. Save for Pompeii, none of the great Roman antiquities was seriously affected. Such buildings as Santa Chiara in Naples and Campo Santo in Pisa were gutted; the main bridges at Florence and Verona were destroyed. In many cases, buildings which were protected with sand-bags suffered, as the bags were of paper and burned with an intense heat, ruining painting and sculpture.

The Free French had listed, for the supreme command, the 25 monuments which they prized most highly. None of these was damaged during the saturation bombing. Of some 10,000 official French monuments, 8,000 received some damage but in no case was it irreparable.

Reports of the details of archaeological destruction in Germany were not complete at the close of 1945, but it was known that the most important collections were removed during the bombing. The Porta Nigra at Trier was badly damaged, as were many Mediaeval and Renaissance buildings in Nuernberg and Munich.

The main collections of the north Russian museums were kept safely in hiding places in the Urals, but terrible damage

came to the materials in Kiev, and to many local museums in the Ukraine and the Caucasus.

The antiquities of Crete were most fortunately preserved, considering the actions which took place on the island. Sites of lesser importance (Ag. Triadha, Palaioakastro, Amnisos) and the local museums at Sitia and Ierapetra suffered some vandalism, but Knossos and Phaestos saw no serious harm.

In Greece, the major antiquities and the contents of the greater museums were essentially unharmed by the war, although some cases of minor theft or looting were reported. In the hostilities which followed the retreat of the Germans, the British reported that the Acropolis was hit by 32 E.L.A.S. bombs or shells, but that very few even bruised the monuments. The Parthenon received minor splinters in two places. The monuments in the city of Athens suffered some bullet scars; no details were available concerning the more important sites in the countryside. Reports of looting in the National museum proved to be false, and no damage came to any of its antiquities.

In America, and in the less devastated portions of Europe, new plans for the continuation of archaeological activity were being laid. However, with inflation in many European countries, and political instability in some, full scale excavations would probably not be resumed for several years.

A most provocative conference on the problems and prospects of European archaeology took place late in 1944, at the Institute of Archaeology in London (*Occ. Pa.* 6). Prof. V. Gordon Childe's introduction inventoried the present status of archaeological knowledge in a general way, recalling the distortions of the interpretations of archaeological material which followed from various state-supported projects, especially in the totalitarian countries. He also pointed to some major problems: the distribution of lower palaeolithic hand-axes, the area of origin of the Solutrean and of the blade tool-traditions, the effect of the deflation of Ertebolle dates on the general picture of the mesolithic, and the need to re-examine claims of potentially domesticable plants and animals in mesolithic horizons. Childe censured those excavators who ignore the unspectacular items in their excavated materials; in an attempt to study early querns, he found shocking inadequacy in the presentation of these humanly most important objects.

The most remarkable archaeological discovery reported in 1945 was that of the Iraq government excavations at Tell Hassuna, in the upper Tigris river valley (see below).

*The Palaeolithic-Mesolithic Periods.*—There was little to report of new Stone age materials from Europe. The Italian excavator L. B. Brea, who made fresh excavations in the Ligurian cave of Arne Candide in the early war years, was captured by the British, to whom he gave information as to the stratigraphy of the site. Eight levels were exposed in a depth of *c.* 10 metres; these proceeded from Upper Aurignacian to Roman.

Several general statements and summaries of Russian archaeological activity appeared during the year (*e.g.*, Prof. E. H. Minn's "Note on Russian Archaeological Literature" in the *Antiquaries' Journal*; V. Gordon Childe's article in *Nature* [no. 3956] and his review of "Tripil's'ka Kultura" in *Antiquity*, and the U.S.S.R. section in the "Archaeological News" of the *American Journal of Archaeology*). The work of Russian archaeologists themselves became significantly clearer with the appearance of P. P. Efimenko's *Paleolit i Neolit SSSR* (Materialy i issledovaniia po Arkheologii SSSR, no. 2), a collection of some 21 papers by Russian archaeologists, which reports work done up to the time of Russia's entry in World War II. The papers mainly concern upper palaeolithic to neolithic materials, and have concise but usable French summaries. The volume also includes a very valuable list of palaeolithic sites in the U.S.S.R., complete up to 1938, and with brief notes and the

principal bibliography on each site. The list is given in terms of "primitive Mousterian and Clactonian," "Mousterian," and "upper palaeolithic and epipalaeolithic," and the sites with materials so classified are then listed regionally for both European and Asiatic Russia.

There was little good news from the far east. The *Sinanthropus Pekinensis* physical material was reported to have been lost with the torpedoing of a ship; late reports of fossil human material from Choukoutien recovered in Japan seemed to refer to the "Upper Cave" specimens. Prof. G. von Koenigswald wrote that he survived the occupation of Java, and that his *Pithecanthropus* materials are intact.

Archaeological work continued in Africa during the war, and several important finds were reported. Prehistoric exploration in South Africa was stimulated by the presence of the great French prehistorian, the Abbé H. Breuil, who escaped the occupation of his homeland.

A preliminary report appeared in *Man*, of excavations in the "Border Cave," in the region of the boundary between Zululand and Swaziland, South Africa. An adult human skull had appeared while a native was digging for fertilizer in the cave; the joint Bureau of Archaeology-University of Witwatersrand investigation yielded "a rich industry of Middle Stone age times (Pietersburg Culture), showing continuous development of the industry during a considerable period of time." Fragments of an infant skeleton were found *in situ*. For the adult skull, morphological comparisons are made with the Springbok Flats, Fish Hoek and Florisbad skulls.

Professor C. van Riet Lowe presented an important paper in *Man* on the evolution of the Levallois technique in South Africa. Regardless of the fact that the South African sequence might not be directly linked to the geochronological scheme available for Europe and the Himalayas, it was noteworthy to have the word of a prehistorian of Lowe's competence that the Levallois developed as a technical process "through a period of much greater length than is covered by the development of its European counterpart," and that the South African Levallois technique "is an integral part of the Great Hand Axe Culture and not an independent parallel development."

Two late (neolithic) but interesting groups of African finds were reported, that from the "Bosumpra" cave near Abetifi, Gold Coast Colony, by C. T. Shaw (*Proc. Prehist. Soc.*, x), and that by Mary D. Leakey at Hyrax Hill, Nakuru, Kenya (*Trans. Roy. Soc. S. Africa*, xxx). Both sites yielded materials which indicate that domestication had probably taken place; while the Gold Coast site is a cave, the Kenya site proved to have been that of pit-dwelling village people.

*The Near East.*—The most outstanding report on protohistoric material to appear in 1945 (*Journal of Near Eastern Studies*, iv) was on the excavations at Tell Hassuna, 22 miles south of Mosul, in northern Mesopotamia. On this site, Seton Lloyd and Fuad Safar recovered for the Iraq government Directorate General of Antiquities a remarkable sequence of materials in the range of the earliest village culture assemblages of western Asia. The basal layer in the sequence contained three superimposed "camp sites" with hearths, coarse pottery, and both chipped and ground stone tools.

Above the "camp sites" were at least six successive architectural phases, characterized by Lloyd and Safar as the "Hassuna levels." The several-roomed adobe buildings of these levels contained three major groups of pottery, the "Hassuna archaic," the "Hassuna standard" and the Samarran (the first group restricted to the lowest floors, the last group to the middle and upper floors). The first two ceramic groups were tentatively known from the minute exposure of Nineveh I—hitherto the earliest north Mesopotamian village material. Various small





EXCAVATIONS in the fourth layer of six prehistoric levels at Tell Hassuna in the upper Tigris valley, Iraq, reported on in Nov. 1945

objects in clay, stone and bone appeared; the sustenance pattern was indicated by sickle blades, silos and the bones of domesticated sheep (or goats) and cattle as well as of wild animals. There were burials, but the bones seem to have been badly preserved, and no studies of the human physical types were yet available.

The "Hassuna levels" were superimposed by levels containing pottery of the Halaf range, then of the Ubaid range, and in the disturbed surface layer there was Assyrian pottery.

The importance of the Hassuna discovery is in the area of the exposure made and in the bulk of material reclaimed and presented from so early a range of village materials. The excavators possibly exaggerated the difference between the basal "camp site" material and that from the "Hassuna levels"; since the latter was already present in Nineveh I, the claims made in press releases on Hassuna as to its being the earliest village yet known needed qualification (cf. *Time*, Nov. 12, 1945). Actually, insofar as means of dating is reliable for those times, there were excavated village materials of equivalent antiquity from Iran to Egypt. However, Hassuna's importance appeared to be self-evident; it also depended to some extent on the fact that the position of the Samarran pottery is stratigraphically fixed. Primarily, Hassuna contributes significantly to an understanding of the beginnings of settled life in the area where, subsequently, civilization made its first appearance.

The first volume of the final *Tell Halaf* (H. Schmidt, Berlin, 1943) publication reached the U.S.; the famous pottery from this site which gives its name to one of the early west Asian village cultures, seems well presented. It is clear, however, that Tell Halaf contains Transitional Halaf-Ubaid and Ubaid pottery as well as the classic Halaf style.

The preliminary report on "Two Sondages on the Coast of Syria, South of Tartous" by Robert J. and Linda Braidwood (*Syria*, xxi) became available. A discontinuous sequence of materials from pre-Halaf to Byzantine times was discovered in

two mounds, Tabbat al-Hammam and Tell Simiriyan. The former mound appeared to have been the site of an important Phoenician town with a breakwater and harbour installation, and also yielded the southernmost *in situ* occurrence of the pre-Halaf dark-faced burnished ware complex.

Nelson Gleuck (in *Bulletin of the American Schools of Oriental Research*) reported on intensive surface explorations on Tell Umm Hamâd esh-Sherqi, a low mound in the Jordan valley. By careful comparative study of the potsherds obtained, he postulated a main period of occupation in Upper Chalcolithic (Beth Shan XVII-XVI) times, c. 3400-3200 B.C., and a smaller occupation in Early Bronze I times. Taken with other sites already explored or excavated, Gleuck believed his survey makes it possible to demonstrate that "Chalcolithic civilization" in the Jordan valley was "widespread, well established, and obviously built up on a well-developed system of irrigation agriculture." Such a postulate might have some bearing on W. C. Lowdermilk's suggested "TVA on the Jordan."

Information on inscriptions written on ossuaries found in a tomb on the Jerusalem-Bethlehem road, and first announced by Prof. M. Sukenik of the Hebrew university as having been inscribed to "Master Jesus" and bearing the sign of the crucifixion, was later tempered by a statement of the department of antiquities of Palestine. The statement made clear that the inscriptions are not extensive. Two of the ossuaries bore the name "Iesous" in Greek, which was the common Jewish name "Joshua" at that time, and one was marked with a cross identical with the ancient Hebrew letter "Tav." Until the final study is complete, the department's statement concluded that "it would be premature to assume any connection between this tomb and any known event or person in sacred history."

*The Tombs and Moon Temple of Hureidha (Hadhramaut)* by G. Caton-Thompson appeared in the U.S. during 1945 (late 1944 in England). The volume reports excavations in southern Arabia, mainly in the time range between the 7th and 3rd centuries B.C., at the time when the spice- and incense-bearing

caravans flourished. The report is a model of completeness, with studies varying from the Quaternary geology of the region to the physical anthropology of the remains found in the tombs. The temple is architecturally "indebted to the Near Eastern Asiatic world of the last five-and-a-half centuries before Christ," while beads and seals in the tombs connect with Syria and Persia in the time range of the 7th to 4th centuries B.C.

The *Chronique d'Égypte* (nos. 39-40) contains all of the communications issued by the *Service des Antiquités* of Egypt on excavations from 1939 to 1944; it also includes an account of the 1944-45 season of the Royal Excavations at Helouan. Here, 847 tombs were discovered, 149 of which were intact and most of which dated to the First and Second dynasties. Some of the larger tombs had limestone walls and floors, a construction detail hitherto unknown in the First dynasty. Cases of from one to four holes in the upper part of the portcullis slab are explained as having been made originally to receive ropes used in lowering the slab into place. In a later sarcophagus, there was an inscription which included the name of the town, Heliopolis, which the cemetery probably served. A new position for the customary stela, in the tomb chamber, is also suggested.

*Belleten* indicated the continuing and the new activities of the Turkish Historical society. Important new material from the sites of Düdartepe and Tekeköy, near the Black sea port of Samsun, was presented by K. Kökten and N. and T. Özgüç; this includes dark-faced burnished pottery, "mother goddess" figurines, and metals from the little known area of northern Anatolia. A summary of the present status of Turkish proto-historic chronology by T. Özgüç also appeared. Dr. Hamit Zubeyr Kosay, in the *Illustrated London News*, reported on the continuing work at Alaca Hüyük, with illustrations of some new material including copper human figurines.

*Europe*.—An assessment of the present status of "Air Photography and Archaeology" is made by J. K. St. Joseph in the *Geographical Journal*. *Nature* contained H. Godwin's account of the work of the Swiss pollen-analyst Max Welten, whose investigation of a small filled-up lake basin in the Bernese Oberland has yielded a geochronology from postglacial times to the present. Early human activity in the area is indicated by changes in pollen frequency and by the appearance of the pollen of cereals and of such introduced trees as walnut. There is evidence of a retrogression in the ameliorating climate at about 6150 B.C.; at 5400 B.C. the mixed oak forests were markedly extended, while beech became dominant about 3200 B.C.

Spanish excavations at Ampurias, the "Spanish Pompeii," were continued, with the exposure of several blockhouses with fine mosaic and stucco decoration. Work in the cemetery yielded wearing apparel, jewellery, and funerary urns in lead and glass.

Don Juan Cabré began work on a unique Visigothic city and basilica, on the banks of the Tagus near Zorita de los Canes.

Excavations on the site of the 10th century summer palace of the caliphs near Cordova, yielded important architectural decorations of Spanish Moslem times.

Archaeological news from the European countries directly affected by the war consisted mainly of chance finds, or of finds exposed by bombs. The Danes reported antiquities of such age (10,000 years) that the makers must have been present in Denmark during the recession of the last glaciation. A farmer plowing near Athens turned up the marble figure of a 5th century B.C. Greek youth. Bombs laid bare an intact Norman chimney in England, and also a tessellated Roman floor in an almshouse, which had long been covered.

**BIBLIOGRAPHY.**—*American Journal of Archaeology*; *Antiquaries' Journal*; *Antiquity*; *Bulletin of the American Schools of Oriental Research*; *College Art Bulletin*; *Geological Magazine*; *Geographical Journal*; *Illustrated London News*; *Journal of Near Eastern Studies*; *Man*; *Museum News*; *Nature*; the *New York Times*; *Science*; *Türk Tarih Kurumu (Belleten)*.  
(R. J. B.)

**Western Hemisphere.**—Despite the war there were numerous archaeological investigations undertaken in the western hemisphere during 1945. Although none of these investigations was carried out on a large scale, many of them contributed significantly to new world prehistory. There were no large expeditions, yet many relatively small research projects offered promise of solution to problems of considerable magnitude. The following summaries of archaeological activities are arranged by area.

*Eastern North America.*—Dr. A. R. Kelly of the national park service directed a brief surface and test-pit survey of the Jessup Bluff site located within the southern boundaries of the Ocmulgee National Monument near Macon, Ga. This site yielded implements of chipped stone, fragments of soapstone vessels and the following pottery types: *Swift Creek Plain*, *Swift Creek Complicated Stamp*, *Napier Complicated Stamp*, fibre-tempered ware, and a small checked stamp ware. This site seemed to belong to the early Swift Creek period of central Georgia.

Under the direction of Glenn A. Black of the Indiana Historical Society, a party of students from Indiana university carried out excavations in the middle portions of the famous Angel site in Vanderburg county, southwestern Indiana, and conducted an archaeological survey of the Wabash drainage. The Angel site is a large village and ceremonial centre of the Middle Mississippi type. These archaeological investigations were undertaken over a period of four-and-one-half months.

During the first part of 1945 the Ohio State Archaeological and Historical society installed the archaeological exhibits in the Fort Ancient museum which is a part of the Fort Ancient memorial. The new museum, located on the portion of the memorial which contains the Anderson Village site (component), houses one of the most complete collections of artifacts relating to the Fort Ancient aspect (culture).

The exhibits deal with such activities of Fort Ancient culture as the village, agriculture, hunting and fishing, household life, personal and social life, manufacturing processes, burial customs, pottery, and the utilization of animal life. The museum also contains a large collection of artifacts, skeletal material and faunal remains, notable among which is the extinct Carolina parakeet.

During May, June and July 1945, the Illinois State museum sponsored the excavation of a large Hopewell burial mound near Havana, Ill. The excavations, supervised by Richard MacNeish, were undertaken at the invitation of the Illinois Power and Light company who planned to level the site for building purposes and whose officials recognized the possible scientific importance of the mound.

This mound, one of a group, some of which were excavated in 1928 by the University of Illinois, was 150 ft. long, 100 ft. wide and 25 ft. high. At the base of the mound there were extended burials accompanied by copper beads, perforated bear teeth, large beads of conch shell, and a rectangular gorget of polished stone. Beneath the mound there were postholes whose pattern indicated a rectangular structure with rounded corners. Tests of the extensive village site beneath and around the mound showed three feet of cultural debris in which there were Central Basin pottery types overlain by typical Illinois Hopewell pottery types and some pottery styles perhaps intermediate in type between Central Basin and Hopewell.

In early June and again in early October test excavations of the Weaver site in Fulton county, Illinois, were made by students and faculty of the department of anthropology of the University of Chicago. This large village site contained cultural refuse to a depth of five feet, and numerous dwelling levels manifested by hearths, burned floors, and postholes. Pottery and other artifacts were abundant in the cultural detritus. Stylistic trends of the pottery showed a transition from Hopewell types to Woodland types reminiscent of the Maples Mills focus.

The archaeological record from the Havana village and the Weaver site is extremely important because it seems to present evidence accounting in part for the development and disappearance of the Hopewell complex in Illinois.

In April the department of anthropology of the University of Chicago sponsored a brief survey of an historic site near Starved Rock on the Illinois river. The excavations were undertaken by Richard MacNeish and Donald Wray. This site, believed possibly to have been a Kaskaskia village mentioned in late 17th century French reports, was tested by means of trenches that revealed Indian cultural materials associated with trade objects of European manufacture. The pottery from this site is an Upper Mississippi style somewhat resembling Oneota pottery and pottery from the upper levels of the Fisher site in Will county, Illinois.

Continuing his researches in the Manitoulin district of Ontario, Dr. Emerson F. Greenman of the Museum of Anthropology of the University of Michigan spent the summer months in contour mapping and a search for new sites. Excavations were continued in four sites which are geologically datable by their association with old beach levels of the post-glacial stages of the Great Lakes. The most ancient of these sites is perhaps 10,000 to 15,000 years old.

A secondary project was tracing the Mackinac-French river route to Montreal used by Frenchmen and Indians in the 17th century. In the Killarney part of the route some of the channels then used are now dry because of the subsidence of the Great Lakes caused by the uplifting of the land. Data on these dry channels were expected to be of assistance to geologists in assessing the rate of uplift and in ascertaining the age of old beach levels. The chronological information thus obtained might be applied to cultural associations of these beaches.

A prehistoric Indian site in Macomb county, Michigan, was excavated for the Cranbrook Institute of Science under the direction of Paul Cooper of the department of anthropology of Columbia university. The cultural remains from this site were indicative of the Youngs focus (Woodland pattern).



Members of the Detroit Aboriginal Research club excavated a mound on the north shore of the Detroit river. This mound, now within the boundaries of Fort Wayne, an army post, was partly dug by Henry Gillman in 1870. Artifacts recovered from the site are indicative of middle Woodland culture.

One of the most significant contributions to North American archaeology was the excavation of an Old Copper site in Grant county, Wisconsin, by the Milwaukee Public museum. Although the presence of the Old Copper culture had been suspected for many years, it was not until the summer of 1945 that a site was discovered.

The fact that an assemblage of heavy tools and weapons of copper with a characteristic patination had never been associated with any culture in the relative chronology of the upper Great Lakes region had led W. C. McKern to suggest that there was an Old Copper industry which antedated the known cultures of the area. Robert Ritzenthaler's excavation of the site in Grant county confirmed McKern's hypothesis.

Investigation of the site revealed bundle burials, scrapers and notched projectile points of chipped stone, and tools and weapons of copper. The metal complex of the Old Copper culture included socketed knives and spearheads of several varieties; crescent-shaped knives; harpoon heads; socketed axes or adzes (popularly called "spuds"); awls; pipes; chisels; various styles of knives with tangs; and spearheads with various styles of tangs. Pottery and other traits of later cultures were lacking.

Under the direction of Dr. Charles R. Keyes a group of students from the Cornell (Iowa) Summer school excavated three rock shelters in Spring Hollow at the Palisade State park, Iowa. Data from two of these shelters would aid in the solution of problems connected with the Maquoketa aspect of the Woodland culture pattern.

During the summer of 1945 the Robert S. Peabody Foundation for Archaeology of Phillips academy, Andover, Mass., resumed excavations at an ancient village on Grassy Island in the Taunton river. The site, once inundated by a rise in sea level, is now covered by a layer of marine peat from two to five feet thick. About 1,000 stone artifacts had been excavated from the old village. Analysis of the marine peat might enable an estimate of the age of the site. The work at this site was undertaken by Frederick Johnson of the Peabody foundation and Hugh M. Raup of the Arnold arboretum, Jamaica Plain, Mass. Early publication of a report of these investigations was planned.

A number of small sites in the Shawsheen river valley were extensively tested for the Peabody foundation, Andover, by Riply P. Bullen. A tentative stratigraphy was formulated. The stratigraphy involves both changes of artifact types and events of possible geologic significance.

Various research projects were carried out by members of the chapters of the Massachusetts Archaeological society. These projects included excavation of a contact period site at Winnecunnet Lake and aboriginal steatite quarries at Westfield and North Wilbraham.

In Connecticut, C. C. Coffin excavated a coastal Algonkian shell midden near Milford and Gordon H. Rowe investigated a historic period site, particularly rich in ceramic remains, at Juniper Point in Brantford.

The Archaeological Society of Connecticut organized a project for studying the mineralogy and technology of chipped-stone artifacts in Connecticut.

*Western North America.*—During the summer months Dr. Helge Larsen of the American Museum of Natural History excavated artifacts and skeletal material from ancient Aleut sites in the Aleutian Islands, Alaska. The sites were large midden deposits on Amaknak Island (Dutch Harbor) some of which contain the earliest archaeological remains and physical types known in the southern Alaskan area.

A survey of pictographic and petroglyphic material in eastern Washington was undertaken by H. Thomas Cain and Arden R. King for the University of Washington. The area particularly studied was the central and upper Columbia valley and its tributaries. An adjunct to this survey was the mapping of all archaeological sites discovered. A large pit-house site was found in the Columbia valley 12 mi. north of Grand Coulee dam. Attempts were made to correlate archaeological sites with the locations of protohistoric villages.

A particularly interesting prehistoric site between Sunland and San Fernando, Calif., was excavated under the direction of Edwin F. Walker for the Southwest museum. This site appeared to be indicative of some prehistoric ritual comparable to the Mourning ceremony of some of the historic Indian tribes of California. The archaeological remains consisted of a deposit about 38 ft. long, 14 ft. wide, and 6 to 32 in. deep, containing fragments of stone bowls; mortars; pestles; cairn-like piles of manos, broken stones and boulders; stone knives; tobacco pipes of soapstone; arrow and spearheads; bone awls, gaming-pieces of bone; beads of olivella and abalone shell; soapstone beads; bone barbs for harpoon heads; gorgets; hammerstones; clusters of human skull fragments; fragments of cremated human bones; red, white and yellow paints; and Hohokam pottery from Arizona. The red on brown Hohokam pottery made in Arizona during the 7th, 8th, or 9th centuries after Christ serves to date the California deposit.

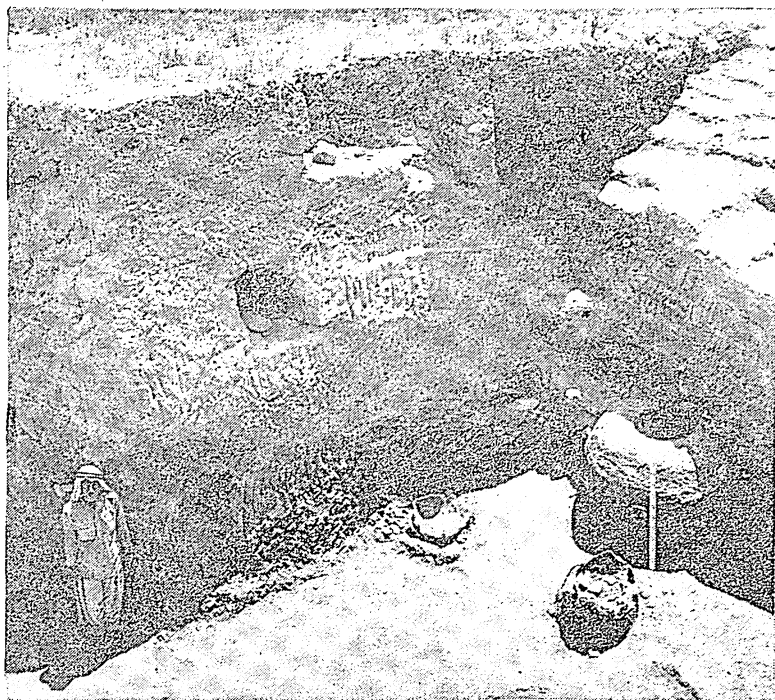
The Southwest museum sponsored a three-months' field season at the Borax Lake site in California. The excavations under the direction of Dr. M. R. Harrington produced some 1,700 specimens from a trench 70 ft. long, 6 ft. wide, and 6 to 10 ft. deep. Previous excavations at this site yielded Folsom points. Folsom artifacts discovered by Dr. Harrington include a Folsom point base found at a depth of 25 in., an unfinished Folsom point at a depth of 48 in., and a Folsom uniface flake knife at a depth of 77 in.

In general the finds most closely resembled those of Lake Mohave, although there were a number of scrapers, groovers and other artifacts that were equally suggestive of both Folsom and Lake Mohave types.

The Santa Barbara Museum of Natural History with the co-operation of the United States navy and the coast guard made an aerial survey of the Channel Islands off the coast of southern California. All of the Indian sites, both new as well as those recorded previously, were mapped.

In the course of three field trips to San Nicolas Island, the least known and most remote of the group, some 53 Indian village sites were visited. Collections were made from a number of these sites.

Evidence was found which indicated that the first Indian occupancy of San Nicolas Island was earlier than generally believed, although the cul-



LOWEST OF SIX successive building layers excavated at Tell Hassuna, northern Mesopotamia. Remains at this level were said to form the earliest trace of settled community life yet unearthed

ture change from oldest sites to most recent was not as obvious as that usually found on the mainland.

Some other characteristics which differentiate Nicoloño culture from that of the mainland or of other islands were the numerous remains of dogs of two or three varieties; a unique style of shell fishhook, found in large quantities; a number of diagnostic tools and ornaments made of bone; the scarcity of artifacts made of steatite; and the lack of shell ornaments.

Dr. Emil W. Haury of the department of anthropology of the University of Arizona and E. B. Sayles, curator of the Arizona State museum made an archaeological reconnaissance of the comparatively unknown and inaccessible area in the eastern part of the San Carlos Indian reservations south of the White mountains. Very few archaeologists had ever seen this part of Arizona.

In six weeks the expedition surveyed an area of about 700 sq. mi. Nearly 200 ruins were recorded and numerous samplings of potsherds were collected for later analysis.

The ruins ranged in type from pit houses to pueblos of several hundred rooms. Also there was at least one Hohokam ball court and a number of ancient agricultural fields on the slopes and ridges. These hillside fields had rows of rocks along the contours of the slopes, thus enabling maximum use of rain by slowly spreading it over the fields. Canal irrigation cultivation in the prairie areas seems to have been lacking.

The pottery types represented by the sherd collections indicated a long ceramic development—part of a cultural history—of perhaps 1,000 years ending at about A.D. 1400.

Cultural remains showed that the area was inhabited by Mogollon, Anasazi (Basketmaker-Pueblo) and Hohokam peoples.

These findings were extremely important. Future work in this area offered the probability of examining in detail the relative stages of development of three principal southwestern cultures—Mogollon, Anasazi and Hohokam. The department of anthropology of the University of Arizona and the Arizona State museum planned to inaugurate a 10- to 15-year research program in this area.

*Middle America.*—Continuing his investigations in Mexico for the Smithsonian institution and the National Geographic society, Dr. Matthew Stirling was in the field from the middle of February to the first of June 1945. Reconnaissance near Tapachula, Chiapas, revealed some new sites with interesting carved monuments.

The principal excavations were undertaken at Piedra Parada near the village of Ocozocuatla. The site consisted of a group of eight major mounds, the most interesting of which was a complex structure of superimposed pyramids of stone masonry. The primary pyramid possessed some unique architectural features. The exterior was decorated with a series of pseudo windows over which were awning-like forms of stone. In the centre of this structure there was a masonry-lined shaft with a stairway leading from the top to the bottom of the mound.

The other mounds at this site were built of earth. The group was expected to constitute the type site for this heretofore archaeologically unknown area. Ceramic materials excavated from the mound and a couple of nearby burial sites might reveal stratigraphy.

Exploration of a number of cave sites in the region produced pottery related to that of the mound site and to early Gulf Coast wares—polished black incised ware with red paint in the incisions, black bowls with over-fired rims, and negative painted pottery. A polished red ware found in considerable quantity was somewhat similar to that of the Colima region. One Colima-like dog effigy, that was cream-colored instead of red, was found.

These cave sites contained pottery in fabulous quantities. Outstanding examples were two caves, each of which contained 3,000 to 4,000 whole



vessels, but only 50 from each site could be transported.

Examination of a newly discovered site on the Rio Chiquito (a tributary of the Coatzacoalcas) in southern Vera Cruz revealed remains that equal or even surpass those of the famous La Venta site. The new site, longer than La Venta, contains an unknown number of mound constructions and stone monuments. Monuments observed during a brief survey included a stone figure of the Olmec tiger god with a human body and a head in the classic Olmec style; a stone figure of a seated woman holding a cylindrical bar on her lap; a seated woman of stone holding in her arms an infant with a human body and the head of a jaguar; and two tremendous stone heads bigger than any at La Venta and superior in execution. A stone aqueduct seen by the expedition was made of hollowed-out troughs of basalt fitted together and covered with flat slabs of the same material. There was also a large stone ball like those found in Costa Rica. The preliminary data suggest that this was a major Olmec site.

The Instituto Nacional de Antropología de México continued its numerous and varied investigations. After several years as rector of the National university, Dr. Alfonso Caso returned to his archaeological work with the institute. Early in the year he conducted excavations at the field school at Oaxaca. Dr. Caso planned to excavate a probable Olmec site near Minatitlán. An excellent human figure of stone found at this site was sculptured in the Olmec tradition.

Dr. Ruben de la Borbolla journeyed to La Venta to prepare plans for moving the La Venta monuments to Mexico City. The site at La Venta had become an oil field and the monuments might be damaged if allowed to remain there. Removal of the monuments to Mexico City was being financed by Petroleos Mexicanos.

The Instituto Nacional de Antropología continued explorations at Xochicalco in Morelos and at Monte Alban in Oaxaca.

The program at Monte Alban included restoration of part of the site, excavation of two mounds in the southern part of the main plaza, and the excavation of Mound X which contains an excellently preserved temple. The work was under the direction of Alfonso Ortega Martínez, Jorge R. Acosta and Hugo M. Koerr.

Additional plans called for an archaeological survey of the Oaxaca valley by Martínez and Acosta and for exploration of Mixtec tombs at the site of Coaixtlahuaca in the state of Oaxaca. Coaixtlahuaca is the site of a famous pre-conquest city and is believed to have been especially noted for fine work in gold and jade.

A six-months' survey of the coast of Tamaulipas was begun in the late autumn by Richard MacNeish of the department of anthropology of the University of Chicago. This part of northern Mexico is archaeologically unknown and might be important in the solution of such problems as the relationship between cultures of the southeastern United States and Mexico, and the northern boundaries of Mexican cultures.

Investigations in Yucatan and Honduras by members of the staff of the Carnegie institution were discontinued because of World War II. In Guatemala, however, some interesting salvage operations were undertaken by R. E. Smith of the Carnegie staff. Excavations in a midden exposed by a roadcut produced a large collection of potsherds. These belonged to a fine incised ware with beautiful designs incorporating human and animal figures.

During the winter A. L. Smith and C. Tejeda surveyed the northwestern highlands of Guatemala in search of sites believed to have been occupied at the time of the Spanish conquest or shortly before.

Tests of the sites and architectural studies were made at Zaculeu, Aguacatan and near Sacapulas. Some buildings were found to be in an excellent state of preservation.

**South America.**—Dr. Cornelius Osgood of Yale university prepared a summary of the archaeology of British Guiana based upon his survey of the region in Sept. 1944. The culture represented in sites near the Avuka river in the northwestern part of the area was similar to that of the Barrancas region of the lower Orinoco valley of Venezuela. A different culture was found in sites on the Demerara coast. These coastal sites contained pottery decorated by rough incising and appliqué techniques.

A report of Dr. Osgood's survey of the principal South American museums with anthropological collections appeared in *Acta Americana* for 1945.

In Venezuela Walter Dupouy, director of the Museo de Ciencias Naturales in Caracas, excavated an archaeological site near Puerto Cabello.

A burial cave in Jamaica was explored for the Institute of Jamaica by C. B. Lewis.

Dr. Alfred Métraux made an archaeological survey and collected specimens for the Smithsonian institution.

An archaeological survey of sites in the vicinity of Port-au-Prince was undertaken by Dr. Kurt Fisher of the Bureau D'Ethnologie of Haiti.

Dr. Wendell C. Bennett of Yale university continued preparation of a report of his surveys and excavations in Ecuador, undertaken in the summer and autumn of 1944. A number of mound groups in the Ibarra region were examined and artifacts were collected from the surfaces of some of these sites. The mounds were round, square or oval, and generally were made of heaped-up earth and stone. Some of the mounds had ramps.

In the Cuenca basin (province of Azuay) of the southern Ecuadorian highlands, there were 18 sites examined and 10 of these were excavated. Five of the excavated sites yielded pottery of the Cerro Narrio styles. Associated with these styles were some new wares: decorated, polished black; decorated, polished brown; and incised ware. These sites were related to those at Cañar (previously reported upon) but have greater temporal depth and show more local variation.

Other Azuay sites contained simple thick wares which showed certain Incaic influences.

**BIBLIOGRAPHY.**—"Notes and News," *American Antiquity*, vol. 11, no. 2 (Oct. 1945, pp. 133-139). (G. I. Q.)

**Archery.** In February the 18th annual Olympic Bowmen league contest between teams representing different archery clubs was held (indoor shooting at 30 yards), with 454

participating. The winners in this event were the men's team representing the Akron Archers of Akron, O., and the women's team representing the Cleveland Archery club of Cleveland, O.

The 16th annual women's intercollegiate archery contest between teams representing colleges having women students (about 500 participating) was held in May, as was the sixth interscholastic competition between teams representing high schools or secondary schools. The intercollegiate event was won by the University of Connecticut, Storrs, Conn., and the interscholastic event by the Bloomfield High School, Bloomfield, N.J.

In August the fourth nation-wide target shoot was held, in which 805 archers took part. W. J. Everman of New Carlisle, O., took first honours among the men, with a York round score of 138-874 and an American round score of 90-710. Top place among the women went to Mrs. S. Robert Leaman of Bird-in-Hand, Pa., with a National round score of 72-534 and a Columbia round score of 72-608. Jimmie Tandy of Richmond Heights, Mo., and Rita Dispenziere of Bloomfield, N.J., were the winners in the junior division.

In September the fourth nation-wide flight shoot took place. In the regular style event Harry Drake of Lakeside, Calif., led the men with a shot of 541 yd. 7½ in., and Mrs. Verne Trittin of Salt Lake City, Utah, took first place among the women with a shot of 470 yd. 3 in. Frank Drake of Tacoma, Wash., won in the junior division with a shot of 372 yd. 9 in. In the free style event Mike Humbert of Springboro, O., shot an arrow 593 yd. 2 ft. 8 in.

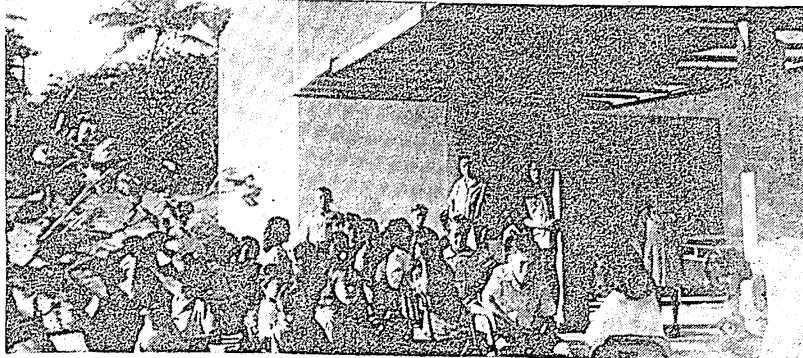
The National Field Archery association, which specializes in field archery, held a series of tournaments by mail. (L. C. S.)

**Architecture.** The end of World War II brought to architecture extensive planning and preparation of designs, but the few months of peace in 1945 brought little actual building. The effects of the global strife were too great to permit the immediate return to normalcy in architectural practice.

Material and manpower shortages, combined with a considerable rise in construction costs, delayed the execution of most projects. The accumulation of blueprints prepared in the war years as an aid to re-employment during demobilization remained temporarily unused. While building activity in the U.S. and the neutral countries was delayed only by the knotty problems of reconversion to a peacetime activity, the warring countries of Europe and the orient suffered from so large a destruction and disruption that all building other than that of an emergency nature remained at a standstill.

The great immediate need for housing throughout the world, and the urgency to make essential repairs to create bearable conditions of life in the war-torn countries tied down a large portion of the skilled personnel in architecture and construction.

Architectural accomplishment and changes in the character of design could only be evaluated in the plans, perspectives and models for projects that awaited execution. By and large, architectural thought aligned itself with the various concepts established before the war. While a great many designs still appeared in traditional forms due to the momentum behind the old established doctrines, modern architecture became recognized as the only logical means of expression for buildings that were to be in keeping with the times. A general progress in architecture was stimulated by the growth of science and technology, but the varied forms of architectural expression still reflected the diverse social and economic concepts confronting the world. Countries with differing social philosophies produced architectural designs of varied character, and even within nations where freedom of expression was practised architecture found simultaneously a reactionary or progressive expression.

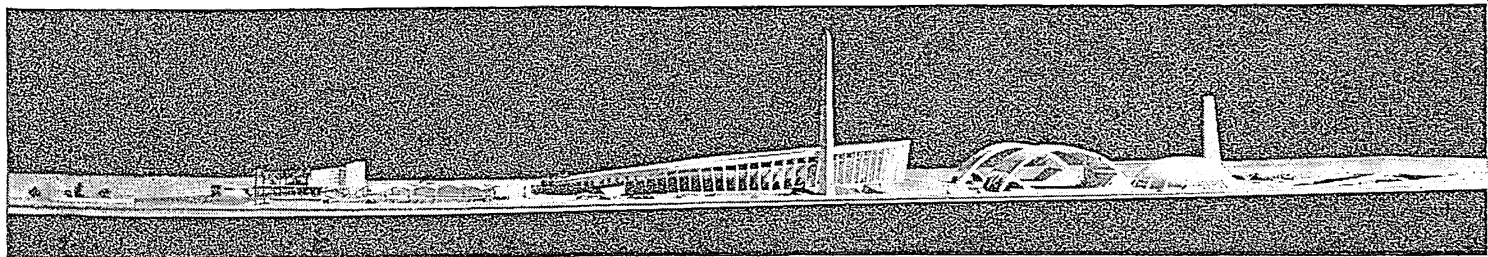
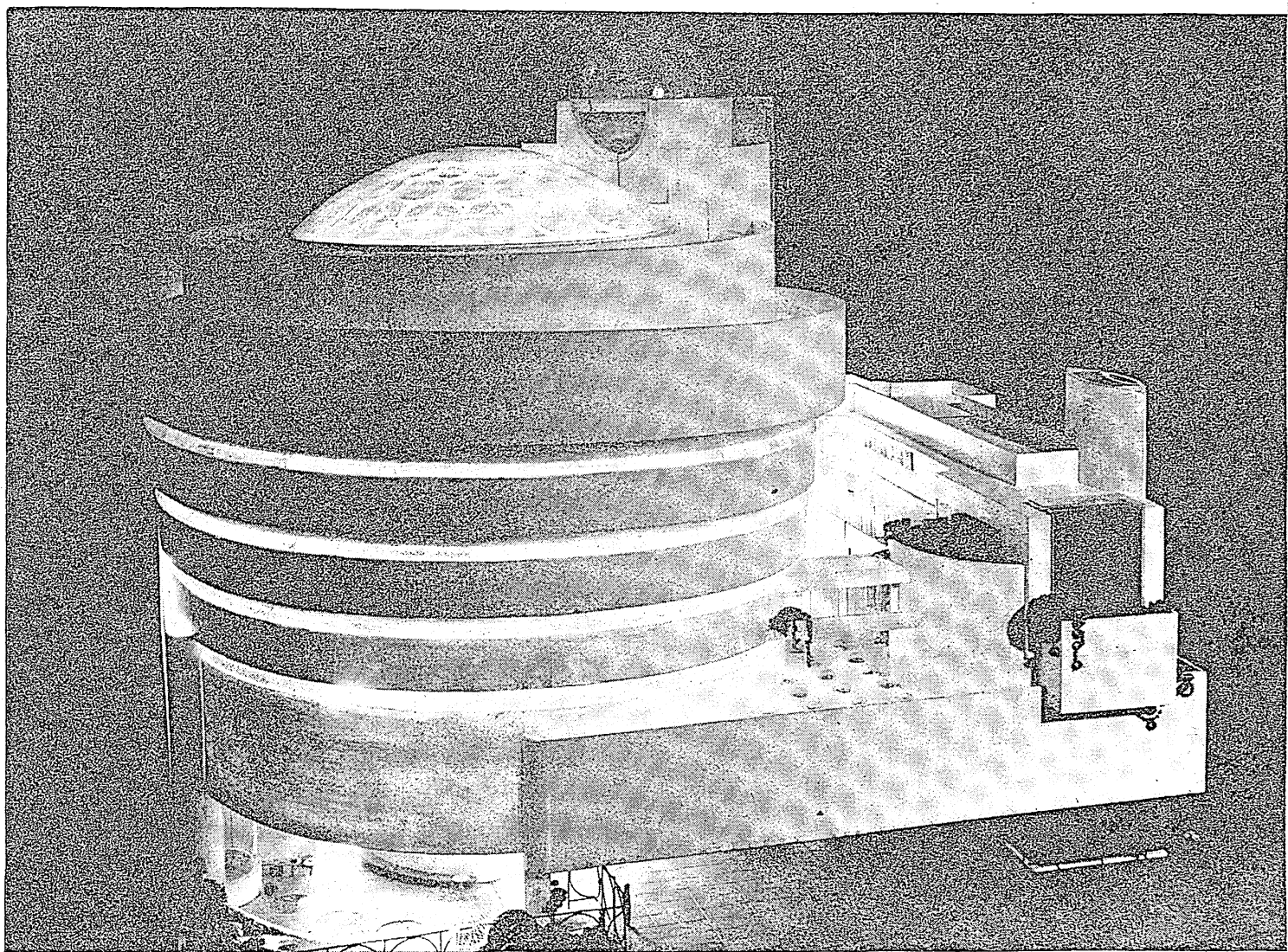
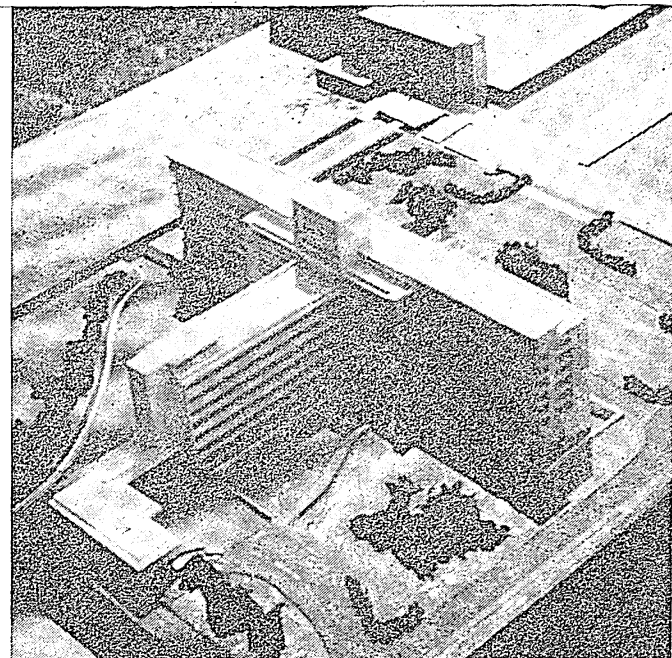


Above: OUTDOOR SCHOOL HOUSE designed by Richard J. Neutra as part of a huge building project under way in Puerto Rico during 1945. The rooms are oriented toward the prevailing breezes and equipped with centre-pivoted doors

Right: SCALE MODEL for one of 5 hospitals designed by Richard J. Neutra for the Puerto Rican building program being carried out in 1945. Plans also included more than 250 schools and 128 rural health centres for preventive medicine

Below: MODEL of the proposed Solomon R. Guggenheim Museum of Non-Objective Painting in New York city, as revealed by designer Frank Lloyd Wright on July 9, 1945. The poured concrete structure was to consist mainly of a continuous spiral ramp, graded at 3 1/2 in. to 20 ft., and topped by a glass dome

Bottom: VIEW of model of the proposed national stadium in Brazil, designed by Oscar Niemeyer Soares





The process of decentralization, which at the beginning of World War II had already manifested itself in a flight from crowded urban centres, became accentuated as a result of aerial bombardment. Architects and town planners were mindful of the need of more open spaces between buildings and a reduced density of population in the cores of cities and towns. Among the types of buildings planned, and in part undergoing construction, housing was most prominent. Medical institutions, airports for civil aviation, schools and public buildings were also in great demand.

**Design and Planning.**—The modern approach to architectural design was well established. The use of classic motives and the following of eclectic styles had disappeared in most cases. Classic proportions and the rigid rules of symmetry played a minor role in architectural thinking. There existed a sounder regard for the expression of the function of buildings in their design. In the arrangement of building plans flexibility, permitting adjustment to changing conditions, was stressed. Modern architecture was characterized by an abundant use of glass and a greater stressing of the horizontal lines in the arrangement of fenestrations and building masses. Buildings were designed for the stimulation and enjoyment of their occupants rather than for ostentation.

In residential design, living rooms were merged with the out-of-doors through walls of glass. Dining kitchens appeared frequently to make meal preparation more efficient and serving easier. Rooms served multiple purposes. Bedrooms at times doubled as living rooms. Separate dining rooms and libraries became infrequent. Laundries and kitchens were combined. The public demand centred about houses that were easy to operate under the shortage of servants; that reduced house-cleaning problems and at the same time offered greater comfort. Storage spaces were carefully designed with special provisions for the variety of equipment to be stored. Housing for the masses of the population demanding shelter required of designers skill in reducing costs and in prescribing a technique of building permitting rapid execution. Governments concerned themselves with the establishment of agencies dealing with urban redevelopment, with public and private low-rent urban and rural housing and with research in the building industry and in the financing of low-rent housing.

The design of school buildings reflected a progress in educational methods. School plants became larger and more diversified in the types of rooms provided to allow for the development of the "whole child" in mind, body and character. Health clinics, larger athletic facilities, and increase in the space assigned to libraries, shops and special rooms became noticeable. More schools were planned as single or two-story structures in a less permanent construction than as a multiple-story indestructible plant. The sites for schools became larger to provide for greater play areas.

To industrial building the war brought considerable progress. Workers' colonies in the neighbourhood of factories were provided and the workers' comfort in the plant received greater consideration. Recreation rooms, more spacious locker rooms and attractive cafeterias were provided. Windowless plants lost in popularity from the psychological objections that arose in the minds of the workers and the absence of a further need for blackouts. More industrial buildings were designed as semi-daylight plants, which provided windows merely for the contact with the out-of-doors but relied on artificial illumination to give the great amount of light needed for modern production methods. Commercial buildings were influenced in their design by the ever-increasing need for a greater flexibility. Office buildings, with fewer internal columns and floors spanning up to 60 feet, appeared. Stores became devoid of masonry obstructions at

their show windows, and in an increasing number of cases the entire shop was displayed to the passer-by rather than merely the show window. Medical institutions demanded large hospitals for the treatment of the war casualties. The need for a great rapidity in construction and safety from fire favoured one-story pavilion-type plans. In theatre design a trend toward smaller auditoriums was noticeable. The motion-picture industry envisaged prefabricated small theatres that could be produced in the United States and shipped to the various parts of the world.

**Materials and Methods.**—The construction methods used depended to the largest extent on the kinds of materials that were available, which were greatly affected by governmental limitations and new products grown out of the wartime conditions. Lumber became a material that was difficult to obtain. Wood was used with greater efficiency through the development of laminated construction, that is, layers of wood glued together for timber arches and plywood trusses. Great advance was made in the development of adhesives—phenol and urea resin glues—which permitted the bonding of wood to wood and wood to metals or other materials. New impregnated woods appeared which provided greater stability and, with certain forms of impregnation, fireproofness. Concrete was more frequently used; often movable forms were applied to reduce the material consumed in them and to increase the speed of construction. Thin concrete shells were often employed. Reinforced concrete was prestressed in some applications to save on steel and concrete. Prefabricated steel panels for both houses and industrial buildings were developed which proved to be better adapted to large-scale manufacture than either wood or concrete. For small-house construction site fabrication of building parts along the assembly-line methods was employed. A trend toward baseless houses manifested itself and a vast amount of experimentation resulted in improved methods of small-house foundation design.

In masonry construction the simplification of the sizes of the units of the material were an important development. In the United States a four-inch module was established as a basic unit of measure which was applied to permit a better integration in the dimensioning of the walls, windows and doors.

Plastics came into their own with an ever-increasing variety of materials and methods becoming available for building use.

Radiant heating, its advantages and its problems, became more fully recognized in the United States. Hot-air systems were added to the more common hot-water method of heating the floors, walls or ceilings of buildings. The mechanical core of the house which provides the installations for the kitchen, bathroom and house heating was manufactured as a single-packaged unit.

**Examples of 1945 Architecture.**—In the United States the attention of the government was focused on a housing bill drafted to provide for the consolidation of all government housing functions, to facilitate research in the building industry, and to provide for urban redevelopment and private and public low-rent housing for urban and rural areas. Insurance companies financed housing construction; the Metropolitan Life Insurance company through a series of contemplated projects might ultimately become landlord to 80,000 New Yorkers. The newspapers of New York city carried advertisements offering complete prefabricated houses for sale by department stores.

Many industrial concerns planned new research facilities. General Motors proposed to erect a "City of Science and Art," designed by Saarinen and Swanson, architects, for the purposes of improving their products and to explore the opportunities for serving human needs and aspirations in the postwar world.

Remarkable rapidity of construction was accomplished prior



to the end of World War II in the construction of industrial plants and housing facilities for the work on the atomic bomb. "Atom City" at Oak Ridge, Tenn., grew from virgin land to a bustling community of 75,000 within two years.

The architect, Frank Lloyd Wright, displayed a model for a building to house Solomon Guggenheim's collection of non-objective paintings in New York city. It proposed the use of a novel plan for museums in which a spiral ramp would act as the exhibition gallery.

A master plan for the rebuilding of the city of Toledo was displayed in the form of an elaborate model designed by Norman Bel Geddes. The exhibit followed in its aim the efforts of many a U.S. city to arouse public interest in the need for urban rehabilitation and to show the people who constitute the city the opportunities toward a better living that grow from civic improvements.

Private building enterprise and public effort in Great Britain joined in an effective working partnership to meet the urgent housing needs. The new Labour government viewed the temporary housing construction with considerable disfavour, and its future policy was being planned to concentrate all energies on permanent housing. In France the architect Le Corbusier (pseudonym of Charles Édouard Jeanneret) was chosen by the ministry of reconstruction to serve on a supreme council of city planning in the guiding of public works. His plan for the rebuilding of St. Die was given official approval.

Examples of Swedish architecture were featured in architectural publications as architectural work which remained reasonably unaffected by the war compared with other European countries. A new entertainment centre at Malmö combined the functions of a theatre, opera house and concert hall in a single ingeniously equipped structure.

Switzerland, like Sweden, appeared after five years of cultural estrangement and complete encirclement by warring nations with examples of modern architecture which continued to interest architectural thinking.

Brazil developed a contemporary architecture peculiarly suited to its local climate and customs and thus was included among the nations leading in architectural progress. (See also BUILDING AND CONSTRUCTION INDUSTRY.)

**BIBLIOGRAPHY.**—G. Nelson and H. Wright, *Tomorrow's House* (1945); D. Rosenman, *A Million Homes a Year* (1945); A. Bertram, *The House. A Summary of the Art and Science of Domestic Architecture* (1945); F. L. Wright, *When Democracy Builds* (1945); A. Sartoris, *Introduzione alla Architettura Moderna* (1944); L. Mumford, *City Development* (1945); U.S. Civil Aeronautics Administration, *Airport Planning for Urban Areas* (1945); E. Nicholson, *Contemporary Shops in the United States* (1945); D. G. Cooley, *Your World Tomorrow* (1944); Museum of Modern Art, *Built in U.S.A., 1932-44* (1944); E. M. Fry, *Fine Building* (1944); J. and M. Fry, *Architecture for Children* (1944); P. Zucker, *New Architecture and City Planning* (1944); J. H. Forshaw, P. Abercrombie, *County of London Plan* (1943); M. Colean, *The Twentieth Century Fund, American Housing* (1944); Great Britain, Central Housing Advisory Committee and Ministry of Town and Country Planning, *Design of Dwellings* (1944); Great Britain, Ministry of Health and Ministry of Works, *Housing Manual* (1944); L. Hilberseimer, *The New City* (1944); F. Violich, *Cities of Latin America* (1944); Periodicals for the year 1945, *The Architectural Review* (London); *Journal of the R.I.B.A.* (London); *The Architectural Forum* (New York); *The Architectural Record* (New York); *Pencil Points* (New York). (W. F. B.)

**Archives, National.** Established in 1934, the National Archives preserves and services the non-current records of the United States government that have administrative, legal, research, or other value in order that the recorded experience of the nation may be available to the government and the people for use in conducting their affairs.

By Dec. 31, 1945, the National Archives had in its custody more than 700,000 cu.ft. of records ranging in date from the Revolutionary War through World War II. Among them were about 400,000 maps and charts, 7,500,000 running feet of motion-picture film, 100,000 sound recordings and 1,200,000

photographic items. These records were received from congress, the White House, every executive department, most of the independent agencies, and several of the federal courts. They shed light on almost every aspect of the political, economic, social and institutional development of the United States.

Subject to a few necessary restrictions, materials in the National Archives may be consulted by anyone with a legitimate reason for using them. The central search rooms are open every day except Sunday. Records are also made available to the public through exhibits and publications. The German and Japanese surrender documents were among the records being exhibited at the end of 1945 and they were to remain on display indefinitely. Facsimiles of these surrender papers were published in 1945 in *Germany Surrenders Unconditionally* and *The End of the War in the Pacific*, and a brief guide to all the records in the archivist's custody, entitled *Your Government's Records in the National Archives*, was in press at the end of the year.

Current government regulations that have general applicability and legal effect are published by the National Archives in the *Federal Register*. The archivist of the United States also administers the Franklin D. Roosevelt library at Hyde Park, N.Y., which houses the papers and collections of the former president.

(S. J. Bu.)

## Areas and Populations of the Countries of the World.

The table that follows gives the area, population and population per square mile for the various countries of the world. For many countries it was difficult under conditions of 1945 to secure population data which were entirely satisfactory.

The latest available figures relate to different dates in different countries; and in some cases different dates connote different areas.

The table gives figures for practically the entire world, however, with a minimum of overlap or similar complication and with a sufficient degree of accuracy to serve as a source of general information with respect to the relative importance of the several countries.

Areas and Populations of the Countries of the World

Name of Continent and State	Area (in Square Miles)	Population (000's omitted)	Population per Square Mile
World total . . . . .	51,461,741	2,229,858	43.3
Africa . . . . .	11,704,284	167,183	14.3
Belgian colonies and mandates . . . . .	923,202	14,400	15.6
British colonies, dependencies, and mandates . . . . .	3,335,573	53,817	16.1
Egypt . . . . .	386,100	17,423	45.1
Ethiopia (Abyssinia) . . . . .	347,490	9,300	26.8
French colonies and mandates . . . . .	4,264,335	44,700	10.5
Italian colonies . . . . .	998,108	3,580	3.6
Liberia . . . . .	46,332	2,500	54.0
Portuguese colonies . . . . .	801,653	9,418	11.7
Spanish colonies and dependencies . . . . .	128,654	1,076	8.4
Tangier . . . . .	232	80	344.8
Union of South Africa . . . . .	472,605	10,889	23.0
Asia (excl. of U.S.S.R.) . . . . .	10,533,080	1,179,061	111.9
Aegean Islands (Italy) . . . . .	1,043	122	117.0
Afghanistan . . . . .	250,965	7,000	27.9
Arabia . . . . .	1,004,131	7,120	7.1
Bhutan . . . . .	19,305	250	13.0
British colonies, dependencies, and mandates . . . . .	202,000	16,136	79.9
Burma (Great Britain) . . . . .	233,591	16,824	72.0
China and dependencies (incl. Formosa) . . . . .	4,494,892	471,179	104.8
French colonies . . . . .	286,227	24,274	84.8
India . . . . .	1,581,410	388,998	246.0
Iran (Persia) . . . . .	634,362	15,000	23.6
Iraq . . . . .	116,602	3,700	31.7
Japan (proper) . . . . .	147,490	73,114	495.7
Korea . . . . .	85,331	24,326	285.1
Nepal . . . . .	54,054	5,600	103.6
Netherlands Indies . . . . .	735,164	71,534	97.3
Philippines (U.S.) . . . . .	114,290	16,711	146.2
Portuguese colonies . . . . .	8,888	1,455	163.7
Siam (Thailand) . . . . .	200,000	15,718	78.6
Syria and Lebanon . . . . .	76,065	3,700	48.6
Turkey (in Asia) . . . . .	287,270	16,300	56.7

Areas and Populations of the Countries of the World (Continued)

Name of Continent and State	Area (in Square Miles)	Population (000's omitted)	Population per Square Mile
Europe (excl. of U.S.S.R.) . . . . .	1,934,053	387,389	200.3
Albania . . . . .	10,811	1,106	102.3
Andorra . . . . .	193	6	31.1
Austria (1937 area) . . . . .	32,434	6,650	205.0
Belgium . . . . .	11,980	8,307	693.4
Bulgaria . . . . .	42,741	6,676	156.2
British possessions . . . . .	116	291	2,508.6
Czechoslovakia (1937 area) . . . . .	54,244	17,461	321.9
Danzig . . . . .	734	391	532.7
Denmark (excl. of Greenland) . . . . .	17,143	3,999	233.3
Finland . . . . .	134,324	3,887	28.9
France . . . . .	212,741	41,980	197.3
Germany (1937 area) . . . . .	181,474	67,317	370.9
Great Britain and Northern Ireland, United Kingdom of . . . . .	94,521	48,324	511.3
Greece . . . . .	50,193	7,336	146.2
Hungary (1944 area) . . . . .	49,693	12,105	243.6
Iceland . . . . .	39,768	124	3.1
Ireland (Eire) . . . . .	26,641	2,951	110.8
Italy . . . . .	119,696	44,533	372.1
Liechtenstein . . . . .	77	11	142.9
Luxembourg . . . . .	1,004	301	299.8
Monaco . . . . .	1	24	...
Netherlands . . . . .	12,741	9,130	716.6
Norway (including Svalbard) . . . . .	149,035	3,002	20.1
Poland (1945 area) . . . . .	74,984	22,590	301.3
Portugal (incl. Azores and Madeira Isls.) . . . . .	35,598	7,954	223.4
Rumania (1944 area) . . . . .	91,934	16,070	174.8
San Marino . . . . .	39	15	384.6
Spain (incl. Canary Isls.) . . . . .	194,981	26,491	135.9
Sweden . . . . .	173,359	6,523	37.6
Switzerland . . . . .	15,830	4,343	274.4
Turkey (in Europe) . . . . .	9,267	1,570	169.4
Vatican . . . . .	1	1	...
Yugoslavia (1940 area) . . . . .	95,756	15,920	166.3
U.S.S.R. in Europe and Asia (1945 area) . . . . .	8,366,114	193,235	23.1
Oceania . . . . .	3,308,338	11,186	3.4
Australian colonies and mandate . . . . .	188,818	1,019	5.4
Australia . . . . .	2,974,514	7,286	2.4
British colonies and mandates . . . . .	18,733	400	21.4
Caroline, Marianas and Marshall Isls. (former Japanese mandates) . . . . .	811	131	161.5
French colonies and mandates . . . . .	8,881	100	11.3
New Hebrides (Anglo-French) . . . . .	4,633	50	10.8
New Zealand . . . . .	105,212	1,723	16.4
United States possessions . . . . .	6,736	477	70.8
North America . . . . .	8,578,160	196,867	22.9
British colonies . . . . .	21,190	2,516	118.7
Canada . . . . .	3,694,591	11,812	3.2
Costa Rica . . . . .	19,305	725	37.6
Cuba . . . . .	44,015	4,779	108.6
Curaçao (Netherlands) . . . . .	386	114	295.3
Dominican Republic . . . . .	19,305	1,970	102.0
French colonies . . . . .	1,197	574	479.5
Greenland (Denmark) . . . . .	31,284	17	0.5
Guatemala . . . . .	42,471	3,451	81.3
Haiti . . . . .	10,039	3,000	298.8
Honduras . . . . .	59,459	1,173	19.7
Mexico . . . . .	760,231	21,673	28.5
Newfoundland and Labrador . . . . .	162,934	305	1.9
Nicaragua . . . . .	57,145	1,070	18.7
Panamá (excl. Canal Zone) . . . . .	28,573	666	23.3
Salvador, El . . . . .	13,127	1,935	147.4
United States . . . . .	3,022,387	138,923	46.0
United States possessions . . . . .	590,521	2,164	3.7
South America . . . . .	7,037,712	94,937	13.5
Argentina . . . . .	1,078,377	14,131	13.1
Bolivia . . . . .	420,849	3,596	8.5
Brazil . . . . .	3,286,097	43,500	13.2
British colonies . . . . .	95,370	367	3.8
Chile . . . . .	286,486	5,315	18.6
Colombia . . . . .	439,768	9,964	22.7
Ecuador . . . . .	275,936	3,171	11.5
French colonies . . . . .	34,750	37	1.1
Paraguay . . . . .	153,282	1,072	7.0
Peru . . . . .	482,239	7,396	15.3
Surinam (Netherlands) . . . . .	60,234	189	3.1
Uruguay . . . . .	72,201	2,203	30.5
Venezuela . . . . .	352,123	3,996	11.3

(L. E. T.)

**Argentina.** A federal republic in southeastern South America, the second largest on the continent. Area, 1,079,965 sq.mi.; pop. (Dec. 31, 1944 est.), 14,130,871. The population is estimated to be 97% of European (mostly Spanish and Italian) descent. The total of foreign-born population in 1940 was 2,355,900. The capital is Buenos Aires (pop., Dec. 31, 1944 est., 2,485,355), the continent's largest city and Argentina's most important port. Other important cities, with official pop. ests. (March, 1944), are Rosario (521,210); Avellaneda (399,021); Córdoba (339,375); La Plata (256,378); Tucumán

(169,566); Santa Fé (149,926); Bahía Blanca (121,055); Mendoza (100,429); Lomas de Zamora (100,000). Under the constitution of 1853 (the oldest in any Latin-American state) Argentina includes 14 provinces and 9 territories. Although many constitutional features were in abeyance in 1945, the president is nominally elected indirectly for a six-year term and the bicameral congress includes a senate of 30 and a chamber of deputies of 158. President in 1945: Edelmiro Farrell.

**History.**—Argentina continued to be a storm centre in 1945, the principal developments involving the failure to be invited to attend the Inter-American Conference on Problems of War and Peace (*q.v.*) at Mexico City in February-March; the subsequent endorsement of the principles of the Act of Chapultepec and the Argentine declaration of war against the axis; the mounting political crisis; and the temporary ouster of Vice-Pres. Perón in October and his re-entrenchment in power a few days later.

Argentina's request on Oct. 26, 1944, for a special conference of American foreign ministers to consider the inter-American attitude toward Argentina had been a startling and embarrassing diplomatic development. After prolonged discussions in various capitals, the governing board of the Pan American Union voted on Jan. 7, 1945, to defer the request indefinitely in view of the previous decision to hold a special conference on war and postwar problems. The United States state department simultaneously announced plans for such a conference at Mexico City in February. As a consequence, Argentina withdrew its representation from the governing board of the Pan American Union for the time being. The conference at Mexico City, meeting Feb. 21-March 8, 1945, consciously subordinated the Argentine question to more general problems and placed it at the end of the agenda. Decisions as they involved Argentina provided in essence for extending an opportunity to Argentina to adhere to the steps taken at Mexico City; and, if Argentina consequently declared war on the axis, signed the United Nations pact and took other steps to demonstrate hemispheric accord, the understanding was that Argentina would be readmitted to the community of American states, presumably prior to the meeting of the United Nations Conference on International Organization (*q.v.*) at San Francisco in April 1945. Argentina resumed its seat on the Pan American Union on March 12 after an absence of two months. Pres. Farrell announced on March 27 that war had been declared against the axis powers in order to "identify the policy of the Nation with that of the other American republics." This was promptly followed by a request by Argentina to sign the Act of Chapultepec adopted at Mexico City; the act was signed at Mexico City by the Argentine chargé on April 4. The government in early April took steps to round up suspected axis agents in Argentina, close pro-nazi newspapers and confiscate enemy alien property. United States and other officials later expressed doubt as to the genuineness of some of these steps. The U.S. state department announced on April 9 that all American republics had agreed to resume "normal diplomatic relations" with Argentina. Pres. Truman on April 19 nominated Spruille Braden, U.S. ambassador to Cuba, as ambassador to Argentina; he was confirmed on May 7, arrived in Buenos Aires on May 20 and presented his credentials on May 21. After sharp debate in the opening days of the San Francisco conference, Argentina was admitted to membership despite continued reservations expressed by high U.S. officials about that government's actions, including a statement by Pres. Truman on June 2 that the U.S. was "not happy" over the Argentine situation. Argentina ratified the United Nations charter on Sept. 8.

Domestic politics reflected many changes in 1945. Vice-Pres. Juan D. Perón, alleged to be the dominant figure in Argentine



ARGENTINE CITIZENS, numbering an estimated 500,000, demonstrated in Buenos Aires on Sept. 19, 1945, demanding a return to constitutional democracy and the resignation of Juan D. Perón, then vice-president. The banner pictures democracy breaking the people's chains

affairs, told a meeting of industrial and financial leaders on Jan. 18 that he would not continue to endure their "sabotage of silence." The government on Jan. 29 published a detailed decree of Jan. 15, imposing very severe penalties for treason, espionage or sabotage. Increased democratic opposition began crystallizing in February and the following months were characterized by a wave of political arrests, exiles, charges and counter-charges and general unrest. Opposition leaders, concentrated principally in Montevideo, Uruguay, found it difficult to form a united front against the Farrell-Perón regime. The government on May 31 published a new party statute with various novel features including compulsory voting, a ban on "exotic ideologies," etc.; the statute subsequently aroused much criticism. Correspondent Arnaldo Cortesi published in the *New York Times* on June 1 a sensational dispatch charging dictatorial methods and corruption on the part of the government; repercussions were heard both in Argentina and elsewhere for several weeks. On June 16 a manifesto was published in Buenos Aires papers by 321 industrial and commercial organizations attacking the policies of the regime. Despite continuing disturbances, the government on Aug. 6 lifted the state of siege in effect from Dec. 16, 1941. Ambassador Braden, who, during his tenure in Buenos Aires, made several critical statements about the government, was promoted to the position of assistant secretary of state on Aug. 25, implying a more severe U.S. policy toward Argentina; he left Buenos Aires on Sept. 23.

Gen. Arturo Rawson, president of Argentina for two days in 1943, was arrested on Sept. 25 for alleged leadership of an attempted revolution. The government restored the state of siege on Sept. 26. Civilian leaders expressed little faith in Pres. Farrell's earlier announcement that elections would be held before the end of 1945. A coup led by Gen. Eduardo J. Avalos and Adm. Hector Vernengo Lima ousted Vice-Pres. Perón from his various posts on Oct. 9 and forced considerable governmental reorganization; Pres. Farrell remained in office. Perón on Oct. 17 succeeded in returning to power (though not to office) with the mass support of certain labour elements which had been backing him for the presidency. The government on Nov. 14 set Feb. 24, 1946, as the date for elections and in the

meantime Perón made his long-delayed formal announcement of candidacy.

**Education and Religion.**—Enrolment in 1943 was reported at 1,928,343 in 13,968 primary schools; 135,456 in 718 intermediate schools; and 37,586 in 6 universities. The literacy rate was 85%. Universities continued in 1945 to be centres of protest against the policies of the government. In religion Argentina is predominantly Roman Catholic; the attitude of the military government had been to establish closer relations with the Church. A pastoral letter issued on Jan. 26 by the cardinal primate and the archbishops condemned activities of Protestant denominations in Argentina. Giacomo Luigi Cardinal Copello on Feb. 15, 1945, attacked the "foreign influence" of motion pictures and books that "weaken the solidarity of the home." Pope Pius XII on Dec. 23 appointed a second cardinal for Argentina, Antonio Gaggiano, archbishop of Rosario.

**Finance.**—The monetary unit is the peso, valued in Dec. 1945 at from 23.64 to 26.81 cents (U.S.). The ordinary budget for 1945 balanced at 1,413,335,000 pesos (1944: 1,351,080,000). Ordinary revenues for 1945 were estimated late in the year at 1,370,300,000 pesos, and the deficit for the year, it was estimated, would reach 207,000,000 pesos; actual ordinary revenues for the first eight months of 1945 were 1,031,000,000 pesos (same period in 1944: 838,000,000). The government struggled with continued inflation in 1945; the cost-of-living index in September was 133.5 as against 100 in 1939 and 109.6 in September 1944. The national internal debt (excluding floating debt) June 30, 1945, was 8,941,000,000 pesos; at the same date in previous years it was: 1944, 7,673,000,000; 1943, 6,279,000,000; 1942, 4,880,000,000; 1941, 3,845,000,000. The external debt June 30, 1945, was 11,100,000 pesos in pounds; 144,300,000 pesos in dollars; and 83,400,000 pesos in Swiss francs. A new private issue of 1945-85 internal credit bonds totalling 500,000,000 pesos was authorized on Aug. 14 to cover the government's contribution to pension funds. The government in July announced plans for a large housing program, involving expenditure of 200,000,000 pesos annually for 20 years, at a cost of 7,000-10,000 pesos a house, to complement its slum-clearance program. A five-year plan of public works was decreed early in 1945 at a cost of 1,250,000,000 pesos as an unemployment-relief measure. Financial measures taken after the declaration of war included the blocking of axis cash accounts,



bonds and safety deposits and the setting up of control measures for their release. The stock exchange turnover in 1944 totalled 2,837,100,000 pesos (1943: 1,155,600,000). The share market was generally strong in 1944 and 1945 but was sensitive to war news. Gold and exchange holdings of the Central bank and commercial banks on Jan. 1, 1945, totalled 4,779,400,000 pesos, an increase of 1,013,000,000 pesos in one year. Buenos Aires real estate sales increased 25.6% in 1944 over 1943.

**Trade and Communications.**—Foreign trade in 1944 was characterized, as in 1943, by low-volume imports and low-quantity but high-value exports. Imports for 1944 were valued at 1,007,154,000 pesos, an increase of 6.9% in value and 7.0% in volume over 1943. Exports totalled 2,352,881,000 pesos, an increase in value of 7.3% and in volume of 15.3% over 1943. The record favourable balance in 1944 was 1,345,727,000 pesos. Meat exports constituted about one-eighth of the tonnage but about one-third of the value of all 1944 exports. The leading customers, in order, in 1944 were: United Kingdom, 871,200,000 pesos; United States, 521,300,000; Brazil, 219,800,000; the leading suppliers were: Brazil, 344,000,000 pesos; United States, 151,900,000; United Kingdom, 80,400,000. Other chief destinations of exports were, in order: Sweden, Spain, South Africa, Peru and Switzerland; other chief sources of imports were Sweden, India, Chile, Switzerland and Spain. Exports for the first nine months of 1945 were valued at 1,737,200,000 pesos (same period in 1944: 1,760,300,000 pesos) with a metric tonnage of 4,895,000 (same period in 1944: 4,676,000 metric tons). Imports for the first eight months of 1945 were valued at 693,800,000 pesos (same period in 1944: 653,000,000 pesos) with a tonnage of 2,575,000 (same period in 1944: 2,539,000 metric tons). The U.S. and Argentina concluded an agreement on May 9 for a large-scale purchase by the U.S. of linseed and vegetable oils in return for the supply of large quantities of fuel oils to supplement inadequate Argentine fuel resources. Argentina on Aug. 4 announced consummation of a trade pact with Sweden. The government late in 1945 gave notice of intention to end the Anglo-Argentine trade and exchange agreement of 1936, effective Feb. 21, 1946. Domestic trade was prosperous in 1944 and the early months of 1945. Argentine equip-

ment requirements for new plant capacity and replacements during the first 10 years after the war were estimated by U.S. officials in 1945 at \$1,167,000,000, of which they estimated \$645,000,000 would be supplied from the U.S.

Highway and railway mileages were estimated respectively at 253,115 and 28,775. An agreement with Bolivia was announced in June, aimed at extension of the railway between Yacuiba and Santa Cruz, Bolivia, and the construction of further highways to tap Bolivian oil fields; funds were to be provided by Argentina. Plans also were announced for highway construction in Entre Ríos and Corrientes provinces at a cost of 25,400,000 pesos to connect with the new international bridge over the Uruguay river. Air services continued to expand in 1945, the chief development being the commencement of work on a new Buenos Aires airport at a cost of \$8,000,000. Passenger and mail-plane service to Tierra del Fuego began. Argentina fell in line with other countries of the hemisphere in decreeing on June 10 that highway traffic should thereafter drive on the right side of the road. Cargo carried over Argentine railways in the first three months of the 1944-45 fiscal year totalled 14,566,000 tons (an increase of 9.3% over the same period in 1943-44); passengers totalled 58,752,000 (an increase of 17.2%), and revenues totalled 138,170,028 pesos (as against 103,478,861 pesos in the same period of 1943-44). In the first six months of the 1944-45 fiscal year traffic receipts of private railways gained 16.9% and those of state railways 9.1% as compared with the same period of the preceding year. Argentine arrivals of sea-going vessels in 1944 totalled 1,485 with a tonnage of 3,324,407 as against 1,334 ships with a tonnage of 2,765,393 in 1943. Plans were being considered late in 1945 for a new three-kilometre tunnel through the Andes to Chile to carry railway and Pan American highway traffic. The number of telephone exchanges Jan. 1, 1945, was 753 and the number of instruments was 493,055.

**Agriculture.**—Crop estimates for 1944-45, in metric tons, included: cotton, 72,300; sugar cane, 5,634,700; corn, 2,965,500; sunflower seed, 985,100; peanuts, 158,250; tobacco, 18,160; flaxseed, 841,500; tung oil, 2,100; grapes, 200,100; apples, 139,900; peaches, 128,700; pears, 118,000; wheat, 4,085,300; oats, 1,098,700; barley, 572,800; rye, 189,400. Slaughter of livestock in the first six months of 1945 included: cattle, 1,589,000; sheep, 3,987,000; hogs, 1,540,000. The hog population July 1, 1945, was estimated at 8,010,000 and the cattle population at 34,010,300; the number of cattle July 1, 1942, was estimated at 31,459,500. Grain shipments to Great Britain were being postponed by September because of the need to conserve the grain for use as fuel due to acute fuel shortages. A severe summer drought in January imperilled crop and livestock prospects. *La Prensa*, a leading Buenos Aires paper, late in January termed the crop situation an "agricultural disaster."

**Manufacturing and Mining.**—Industrial expansion in 1944 was accelerated by a shortage of imports. The same trend continued in 1945, aided by a government program to make Argentina economically self-sufficient. Industrial wages in the first eight months of 1945 were 9.9% above the same period in 1944; the index (on a basis of 1937=100) was 182.2. The important meat-packing industry was seriously hampered for many weeks beginning in April by a strike affecting almost 100,000 employees. The government in mid-year reported that at least 100,000 girls under 20 years were employed in manufacturing.

Petroleum production in the first six months of 1945 was 1,839,401 cubic metres; in all of 1944 it was 3,852,088; and in 1943, 3,948,412 cubic metres. Production is usually about two-thirds from state oil fields by the YPF (government petroleum agency) and one-third from private fields. The rank of metals in 1944, by value of production, was: tungsten, lead, gold, zinc,

"THE MYSTERIOUS STRANGER" was the term applied to Argentina's presence among the United Nations in 1945 by Daniel Bishop of the *St. Louis Star-Times*





THE DILIGENT QUINTUPLETS (left to right: Franco, Maria Fernanda, Maria Christina, Maria Ester, Carlos Alberto) at the celebration of their second birthday in Buenos Aires, in July 1945

tin, silver. The government was making plans early in 1945 to develop supposedly rich sulphur deposits in Los Andes province at a height of 16,700 ft. (See also FASCISM.)

BIBLIOGRAPHY.—Ysabel F. Rennie, *The Argentine Republic* (1945).  
FILMS.—*Argentina* (Encyclopædia Britannica Films Inc.).  
(R. H. FN.)

**Argentinita** (ENCARNACIÓN LOPEZ) (1905-1945), Spanish dancer, was born March 25 in Buenos Aires and went with her Castilian parents to Spain, where she studied dancing and became an interpreter of classical Spanish dances. At her first appearance, a critical Spanish audience thoroughly endorsed her technique. Soon Argentinita—the little Argentinian—became famous throughout Spain for her flawless footwork and castanet playing as well as for the excellence of her pantomime. In 1930, she made her debut in the United States in *The International Revue*, winning the applause of New York critics for her agile and fiery performance. In 1932, she returned to Madrid where with the late Garcia Lorca, the Spanish poet, she organized the Madrid ballet. In 1938, she toured the U.S. and Latin America. Argentinita and her ensemble appeared regularly as guest artists with the Ballet theatre in the fall and spring seasons at the Metropolitan Opera house. Her last appearance was at Carnegie hall in March 1945. She died in New York city, Sept. 24.

**Arizona.** The "Grand Canyon state" lies in the southwestern part of the United States. It borders Mexico on the south; the Colorado river forms most of the western boundary. Area 113,909 sq.mi. including 329 sq.mi. of water. Pop. (1940) 499,261, 65.2% rural and 34.8% urban. Native and foreign-born whites (including Mexicans) numbered 389,955 and 36,837 respectively; Negroes 14,993; other races (mostly Indians) 57,476. Estimated population (1944) 638,412. The capital is Phoenix with estimated (1945) population of more than 100,000; chief cities: Tucson (estimated 90,000); and (1940) Douglas (8,623); Mesa (7,224); Globe (6,141); Prescott (6,018); Bisbee (5,853); Yuma (5,325); and Flagstaff (5,080).

**History.**—The state officials in 1945 were: chief justices, Henry D. Ross (died Feb. 9) and Rawghlie C. Stanford; governor, Sidney P. Osborn; secretary of state, Dan E. Garvey; treasurer, William T. Brooks; attorney-general, John L. Sullivan; superintendent of public instruction, E. D. Ring. The regular session of the legislature met in Jan. 1945, and a special session was called by Governor Osborn in March. A measure was

passed providing for a single board of regents for the University of Arizona and the two state teachers colleges. Provision was made for a survey of the use and supply of underground water for irrigation; also provision for valuing gas and electric plants as a basis for rate-making.

**Education.**—The net enrolment for 1944-45 and the number of teachers in the public schools stood respectively as follows: elementary schools 93,058 and 2,751; high schools 22,074 and 931. In addition there were 50 private and parochial schools.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—In Oct. 1945 there were 25,165 persons receiving assistance from the state department of social security and welfare. The total appropriation to the department for 1945 was \$4,540,500. Other state appropriations for 1945: industrial school \$151,500; juvenile girl offenders \$90,000; pioneer home \$85,791; prison \$230,000; state hospital for the insane \$707,862.

**Communication.**—There was in 1945 a total of 3,824 mi. of state highway in Arizona; improved 3,661 mi., unimproved 163 mi. There were 2,208 mi. of railroads.

**Banking and Finance.**—National banks in June 1945: deposits \$246,828,310; loans and discounts \$46,125,957; U.S. government securities \$142,054,663; stocks, bonds and other securities \$2,282,311. State banks: deposits \$77,530,171; loans and discounts \$10,188,355; U.S. government securities \$51,574,739; stocks, bonds and other securities \$2,514,196.

**Agriculture.**—German prisoners of war were employed to pick cotton even after the close of World War II.

Table I.—Leading Agricultural Products of Arizona, 1945 and 1944

Crop	1945 (est.)	1944
Wheat, bu. . . . .	550,000	528,000
Oats, bu. . . . .	416,000	319,000
Sorghum grain, bu. . . . .	1,802,000	2,176,000
Corn, bu. . . . .	437,000	361,000
Cotton lint, bales . . . . .	127,000	136,000
Grapefruit, boxes . . . . .	4,500,000	3,750,000
Oranges, boxes . . . . .	1,240,000	1,150,000
Horses, head . . . . .	70,000	71,000
Cattle and calves, head . . . . .	892,000	959,000
Sheep and lambs, head . . . . .	645,000	672,000

**Manufacturing.**—Less than 10% of the population ordinarily is engaged in manufacturing. The most important industries produced food, textiles, metal and lumber; however, during World War II an aeroplane assembly plant and a Good-year plant employed several thousand, but closed with the war.

**Mineral Production.**—Owing to labour shortage the amount and value of copper for 1945 was below that of 1944, only 216,394 tons being produced the first nine months of 1945. The

Table II.—Mineral Production of Arizona, 1944

Products	Weight	Value
Copper, tons . . . . .	353,303	\$96,741,810
Gold, fine oz. . . . .	112,162	3,925,670
Silver, fine oz. . . . .	4,394,039	3,124,650
Zinc, lb. . . . .	58,154,000	6,629,556
Lead, lb. . . . .	33,414,000	2,673,120

same was true for gold and silver. Zinc and lead showed a relative increase, the nine months' production being 48,214,000 lb. and 31,406,000 lb. respectively. (H. A. H.)

**Arkansas.** Arkansas is an inland state in the south-central United States, admitted to the union in 1836. Area 53,102 sq.mi., 377 of which are normally under water.

Pop. (1940) of 1,949,387 amounted to an increase for the decade between 1930 and 1940 of 94,905, or a gain of 5.1%. The average of inhabitants to the square mile was 37 persons. On July 1, 1944, the bureau of the census estimated the civilian population of the state at 1,776,446. There were 53 towns and cities in the state having a total population of 431,910 urban and 1,517,477 rural. The Negro population was 506,770. Capital, Little Rock (pop. 1940, 88,039). Other cities: Fort Smith

36,584; Hot Springs 21,370; Pine Bluff 21,290; North Little Rock 21,137.

**History.**—The principal state officers during 1945 were: Ben T. Laney, governor; J. L. Shaver, lieutenant governor; C. G. Hall, secretary of state; J. O. Humphrey, auditor; J. V. Clayton, treasurer; Guy E. Williams, attorney general; C. A. Rankin, land commissioner.

The chief accomplishments of the Laney administration during 1945 were a reduction in state employees and total expenses; consolidation of all natural resource agencies into one, with resulting economy and efficiency; improved finances for public schools; and a new method of allocating state revenues to vital services which largely eliminated earmarking of special tax levies and assured continuous operation of necessary service during periods of reduced revenues.

**Education.**—Total expenditures, state and local, for public schools in the school year 1944-45 were \$20,635,862. Total attendance was: white 230,490; Negro 85,252; total 315,742. Teachers totalled 12,770, of which 6,872 were white elementary, 2,135 Negro elementary, 3,283 white high school and 480 Negro high school. The commissioner of education was Ralph B. Jones.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—The state in 1945 maintained 30 charitable and correctional institutions, including the state penitentiary farms, the state farm for women, girls' industrial school, boys' industrial school, Negro boys' industrial school, state hospital for nervous diseases, tuberculosis sanatoriums, school for the blind, school for the deaf, Confederate veterans' home and children's home and hospital. The legislature of 1945 appropriated \$4,770,900 for expenditure through the state welfare department in each of the fiscal years 1946 and 1947.

**Communications.**—Highways, local, state and federal, totalled about 75,000 mi. in 1945. About 7,700 mi. of the nearly 10,000 mi. on the state and federal system were surfaced with concrete, asphalt or gravel. Work was to start soon on a \$42,000,000 three-year construction program, with federal aid. Railway mileage was about 5,000 mi. Air service expanded during the year with addition of east-west and north-south service through the state crossing at Fort Smith.

**Banking and Finance.**—On June 30, 1945, there were 210 state and national banks, with total deposits of \$665,918,000.

The total bonded debt of the state on Dec. 31, 1945, was \$133,540,500. State treasury balances on Dec. 31, 1945, totalled \$47,654,685.53, of which approximately \$27,000,000 was invested in securities producing an annual income of approximately \$500,000.

**Agriculture.**—Sales of livestock and livestock products in 1945 were estimated at \$100,000,000. The value of livestock, including chickens, on farms on Jan. 1, 1945, was \$108,279,000. The latest U.S. farm census showed 206,527 farms with 17,781,582 total acres. Harvested acreage was approximately 6,300,000.

*Leading Agricultural Products of Arkansas, 1945 and 1944*

	1945	1944
Cotton, bales. . . . .	1,080,000	1,960,000
Corn, bu. . . . .	35,511,000	32,016,000
Rice, bu. . . . .	14,612,000	13,500,000
Soybeans, bu. . . . .	3,344,000	3,720,000
Peaches, bu. . . . .	2,967,000	2,646,000

The value of farm chickens including broilers produced in 1945 was approximately \$17,000,000.

**Manufactures.**—Lumber production in 1945 was estimated at 1,080,000,000 bd. ft.

Gross manufacturing production in 1945 was estimated at \$618,000,000. The comparable figure for 1944 was \$619,000,000. The Arkansas economic council reported 148 new industrial enterprises, and important expansions of old ones occurred

in 1945.

**Mineral Production.**—Mineral production for 1944 (severance tax records) included: barite 159,783 short tons; bauxite 3,169,592 long tons; coal 1,956,166 short tons; clay 53,060 cu.yd.; dolomite 22,017 short tons; glass sand 49,439 cu.yd.; gypsum 13,684 short tons; limestone 153,539 short tons; mercury 73 flasks; manganese 8,801 short tons; natural gas 57,946,053,000 cu.ft.; novaculite 655,480 short tons; petroleum 29,146,685 bbl.; quartz crystals 23,916 lb.; residue gas 509,047,000 cu.ft.; sandstone 293,516 short tons. (C. F. Bs.)

**Armies of the World.** The military need for censorship continued throughout most of 1945, and by the end of the year current data covering the statistics of this subject were not available. The article was therefore omitted. (For related topics *see* AVIATION, MILITARY; MUNITIONS OF WAR; SELECTIVE SERVICE, U.S.; WORLD WAR II.)

**Army Specialized Training Program:** *see* EDUCATION.

**Arnold, Henry H.** (1886- ), U.S. army officer, was born June 25 in Gladwyn, Pa. He was graduated from West Point in 1907 and served in the Philippines until 1909. He was the first aviator to use radio in reporting artillery fire observed from a plane. During World War I he headed the information service of the signal corps's aviation division. Gen. Arnold led a round-trip flight of army bombers to Alaska in 1934. He was named major general, chief of the air corps, 1938. After serving as deputy chief of staff for two years he was promoted to the rank of lieutenant general. When the army air force was put on an equal footing with the ground forces in March 1942, Lt. Gen. Arnold was placed in command. On March 19, 1943, he was made a full general, and late in 1944 he was named a general of the army, a newly created rank. Arnold advocated (June 24, 1945) U.S. retention of key island bases in the Pacific as vital to the defense of the U.S. in the event of a future conflict. He warned, Aug. 17, that the wars of the future would result in frightful extermination in which no country would be safe and disclosed at the same time several new secret weapons possessed by the air force. In testifying Oct. 19 before the senate military affairs committee, he recommended creation of a single department of national defense, with the air force made a co-equal of the army and navy.

**Arsenic.** Production of white arsenic in the United States in 1944 reached a new record high of 36,094 short tons, 16% above 1943, and 45% above 1940. In addition 9,965 tons were imported. Consumption declined from 51,083 tons in 1943 to 43,500 tons in 1944, of which 62% was used in insecticides and 18% in weed killers.

Mexico is the second largest producer, with 16,872 short tons in 1944, against 22,378 tons in 1943. A new plant in Peru recovered about 8,000 short tons in 1944. Accumulations from the recovery of arsenical gold ores in Sweden, totalling possibly as much as 350,000 tons, were expected to be available for European demands, lightening the load on the United States and Mexico. Canada has a small output, amounting to 1,577 short tons in 1943 and 1,314 tons in 1944. (G. A. Ro.)

**Art:** *see* AMERICAN LITERATURE; ARCHITECTURE; PAINTING; SCULPTURE; etc.

**Arteaga y Betancourt, Manuel** (1879- ). The cardinal archbishop of Havana, was born at Camaguey, Cuba, on Dec. 28. He was ordained in 1904 at Caracas, Venezuela, where his family had



emigrated for political reasons, and was educated at Guanabacoa.

In 1911 he returned to Cuba after having represented the Caracas archdiocese at the International Eucharistic congress in Madrid, Spain. Named archbishop of Havana in Dec. 1941, he was consecrated in Feb. 1942.

Archbishop Arteaga was a member of the Third Order of St. Francis and the Knights of Columbus and served the Havana council as chaplain. He received the Simon Bolivar Soles y Rayos decoration from Venezuela and the Order of Carlos Manuel de Cespedes from Cuba.

While occupying the see of Havana, he built the Good Shepherd seminary at Arroyo Arenas and a number of chapels and churches.

Archbishop Arteaga was one of 32 prelates named on Dec. 23, 1945, to become cardinals at a consistory on Feb. 18, 1946.

**Art Exhibitions.** A great variety of exhibitions was held during 1945 with special emphasis on American art. The Pennsylvania Academy Annual (Philadelphia) was unusually lively with top prizes going to moderns: Abraham Rattner won the Temple medal for "Kiosk," Stuart Davis the Scheidt prize for "Ultra Marine" and José de Creeft won the Widener memorial for his vigorous bronze head of Rachmaninoff. In the Nineteenth Biennial at the Corcoran Gallery of Art in Washington, D.C., Reginald Marsh's earthy "Strip Tease in New Jersey" took the \$2,000 Clark prize, and Zsissly (Malvin Marr Albright) received the second Clark prize of \$1,500 for his realistic "Deer Isle, Maine." At Carnegie's annual in Pittsburgh, Pa., top prizes went to Philip Guston for his big blue portrait, "Sentimental Moment"; to George Grosz for his war theme, "The Survivor"; and to Franklin Watkins for a character portrait of J. Stoddell Stokes. The National Academy (New York) showed no favorites in giving 10 of the 12 annual prizes to nonmembers. They also lined up with a new trend by inaugurating their first annual exhibition of drawings. Los Angeles, Calif., and Albany, N.Y., each held their drawing biennial. Chicago's American Annual was one of the best with most of the prizes going to the meticulous painters, Kenneth Hayes Miller, Paul Cadmus, Charles Sheeler and Frank Lanning. Pepsi-Cola staged a second "Portrait of America" with big prize money, \$2,500 to Paul Burlin for "Soda Jerker" and \$2,000 to Max Weber for "Colonial Table."

The Rhode Island School of Design in Providence put on a novel exhibition, "Old and New England," 103 pictures covering the period 1670-1835, contrasting the substantial qualities of Robert Feke, John Copley, Ralph Earl and Gilbert Stuart with the elegancies of England's William Hogarth, Sir Thomas Lawrence and Thomas Gainsborough. Chicago's Art institute, in conjunction with the Whitney Museum of American Art, revived the Hudson River school in a full-scale exhibition of American landscape from 1800-75. The Whitney museum organized the first comprehensive exhibition of the portraits (and two landscapes) of Ralph Earl (1755-1801).

The Cincinnati Art museum reversed the usual procedure of selecting exhibitions and asked 92 art critics throughout the country to choose two paintings each, the result to be known as the "Critics' Choice." A similar idea was followed for an exhibition at the 17th Regiment armory in New York city when 13 local critics were each asked to select ten paintings and two pieces of sculpture. Museum officials reported the results no more impressive than the average exhibition.

Stuart Davis, the contemporary U.S. abstract painter, was given a full-dress showing at the Museum of Modern Art, New York, and, in complete contrast, the Metropolitan Museum of Art arranged a one-man show of the work of William Sidney Mount, the 19th-century U.S. genre painter. This coincided

with the publication of a book on Mount compiled by Bartlett Cowdrey and Hermann Warner Williams, Jr. (assistant curator of painting at the Metropolitan museum).

The Albany Institute of History and Art organized and later circulated "The Negro Artist Comes of Age," thus emphasizing the growing importance of talent among the Negroes. A joint exhibition of the 19th-century Mexican landscape painter, José Maria Velasco, was arranged by the Philadelphia and the Brooklyn museums. Later in the season Brooklyn showed "Four Hundred Years of Landscape" covering the period from the 16th century to the 20th. A memorial show of the work of Russian-born Wassily Kandinsky, noted abstract painter, was held at the Museum of Non-Objective Paintings in New York. Buffalo's Albright Art gallery had a memorial show of work by the great French sculptor, Aristide Maillol.

Needlework was featured by the Virginia Museum of Fine Arts (Richmond) in "The Human Story in Needlework" and the Metropolitan Museum of Art likewise showed a superb collection of Tudor embroidery.

French Impressionists were splendidly shown at the Wildenstein gallery, New York, which held the largest show of the paintings by Claude Monet ever assembled. (This was for the benefit of the children of Giverny, France, where Monet spent so much of his time.) Later, Camille Pissarro was equally well shown. Chicago's Albright twins were accorded a two-man show at the Associated American Artists gallery, New York; not included was their "Picture of Dorian Gray" (done for the Metro-Goldwyn-Mayer motion picture) which was the chief drawing card of the Chicago annual. Andrew Wyeth had his best show to date at the Macbeth gallery (New York). Harry Shaw Newman revived John F. Kensett, scarcely remembered after his death in 1872, and the Rehn gallery (New York) featured Morris Kantor in semiabstract paintings of Monhegan, a new sort of treatment for this much-painted island.

The Encyclopædia Britannica Collection of Contemporary American Painting started a national tour with a gala opening at Chicago's Art institute, and showed, during 1945, in New York at Rockefeller Center; at the Boston Museum of Fine Arts; at the Corcoran Gallery of Art in Washington, D.C.; at the Dayton Art institute; and in December, at the Carnegie

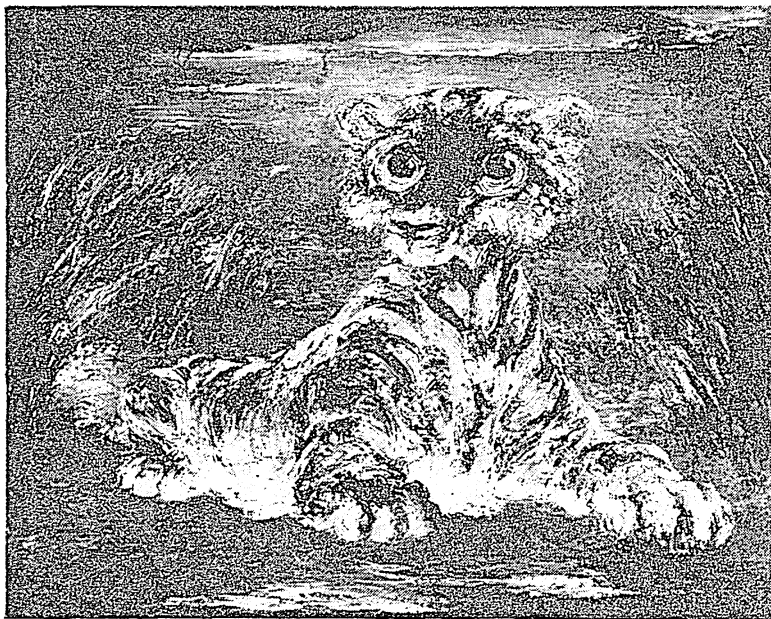
RUBENS' "HOLY FAMILY" and other masterpieces were found in an underground cave at Siegen, Germany, by troops of the U.S. 1st army in 1945. They were not part of nazi loot, but German collections hidden for safety.



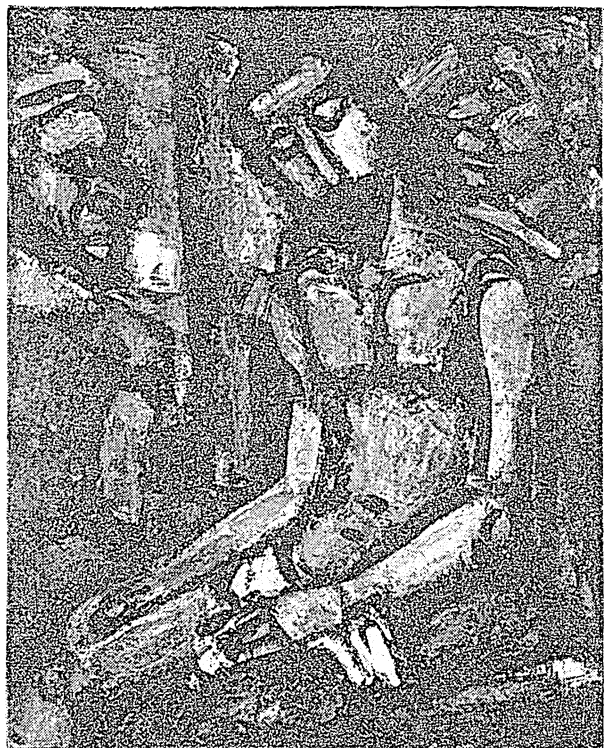


Left: HENRY VARNUM POOR'S "Carson McCullers" was first exhibited with the Encyclopædia Britannica collection of 20th century paintings by U.S. artists which opened on Sept. 16, 1945 at the Corcoran galleries, Washington, D.C.

Below: IVER ROSE'S "Sharp Drummer" was another painting shown for the first time at the Encyclopædia Britannica exhibit at Washington, D.C.



Left: "CUB AND INSECT" by Darrel Austin was included in the 1945 exhibit of the Encyclopædia Britannica Collection of Contemporary American Painting



Right: "CHRIST MOCKED BY SOLDIERS," an oil included in the large retrospective exhibit of Georges Rouault which opened at the Museum of Modern Art on April 4, 1945



Institute, Department of Fine Arts in Pittsburgh, Pa.

(F. A. Sw.)

## Art Galleries and Art Museums.

The Solomon R. Guggenheim Museum of Non-Objective Paintings announced the details of plans for a \$1,000,000 cylindrical museum to be erected in Central park at 89th street, New York. Frank Lloyd Wright designed this novel building whose exhibition galleries were to be in the form of a continuous spiral ramp. Provided in the plan are special facilities for air conditioning, lighting and many new features.

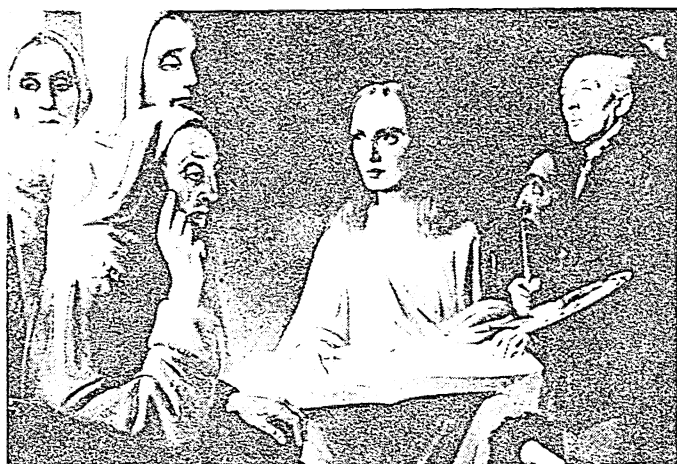
The Metropolitan museum reopened its sequence of galleries of Greek art, arranged chronologically with only the best material on display. This collection, by far the finest in the U.S., enabled the visitor to follow clearly the whole development of Greek culture. From John D. Rockefeller, Jr., the Metropolitan received the gift of a set of ten superb 18th century Gobelin tapestries woven in silk and wool after a 16th century Flemish set, known as the "Months of Lucas." It also announced its postwar building plans which provided for a \$10,000,000 expenditure over a five-year period. The new buildings were to cover an area 25% larger than the present set up and would provide for five separate units consisting of ancient art, oriental art, paintings, decorative arts and American art. This would constitute the most ambitious rebuilding plan ever undertaken by any museum and would allow for a logical and effective arrangement of the Metropolitan's great collections which was not possible under the crowded and confused situation.

After many months in war storage, the treasures of the Frick museum were reinstalled. Several of the pictures were cleaned with the result that the collection appeared under the most favourable possible conditions.

Important acquisitions were made by museums throughout the country. The Rhode Island School of Design in Providence purchased a notable 15th century "Portrait of a Young Priest" attributed to the Flemish master, Hugo van der Goes, and also acquired Pierre Auguste Renoir's well-known "Young Shepherd," a richly painted late work (1910) for which Alexander Thurneyssen posed. The Philadelphia museum purchased the collection of mediaeval and Renaissance art belonging to the late George Grey Barnard. This was his second collection, the earlier one having been purchased by the Rockefellers to form the nucleus of the Metropolitan's Cloisters. Philadelphia also purchased Charles Willson Peale's "Staircase Group," a unique early American painting of two boys realistically depicted going upstairs.

The Cleveland museum made two outstanding purchases: "La Citoyenne Crouzet" by Jacques Louis David, painted about 1795 (Rogers fund), and "La Vie," an important painting of Pablo Picasso's blue period (Hanna fund); it also purchased 25 superb Islamic objects. Indianapolis' John Herron institute acquired Georges Seurat's "Le Port de Gravelines," probably the last work of the French Neo-Impressionist that would ever come on the market, as all his important paintings were, in 1945, in the hands of museums. As the bequest of Herbert L. Pratt, the National gallery in Washington received Thomas Sully's "Portrait of Joseph Dugan," and, as the gift of Chester Dale, two paintings by George Bellows. Since Bellows died in 1925, these paintings became eligible under the National gallery's rule that pictures may be acquired not less than 20 years after an artist's death. "Both Members of This Club" is a vigorous fight picture of 1909 and the other Bellows, a portrait of Mrs. Dale, was done at Newport in 1919.

"A Madonna and Child" and "St. John" were acquired by the Toledo museum for the Edward Drummond Libbey collec-



HANS VAN MEEGEREN with his forged "Jesus Teaching in the Temple" by Vermeer. Painted before expert witnesses in 1945, it absolved him of collaboration charges based on his wealth and revealed a great art hoax. His money derived from the sale of other "Vermeers" to the Boymans Museum in Rotterdam, Hermann Goering, and other collectors

tion, and the Worcester museum purchased an Assyrian alabaster relief made during the reign of Assur-bani-pal (668-626 B.C.). The Art Institute of Chicago bought a fine Renoir "Seated Nude" and, as a gift from Honoré Palmer, received a rare 15th-century "Burgundian Crucifix" by Jacques de Baerze.

The Albright gallery in Buffalo purchased through the Knox fund four distinguished English portraits formerly in the J. P. Morgan collection. These included William Hogarth's "The Lady's Last Stake," Sir Joshua Reynolds' "Cupid as a Link," Sir Thomas Lawrence's "Miss Rosamond Crocker" and George Romney's "Lady Hamilton Reading a Newspaper."

Mr. and Mrs. Walter O. Briggs presented to the Detroit Institute of Art Paolo Veronese's "Mystic Marriage of St. Catherine," brought to the United States in the 1870s by a Boston collector. The City Art Museum of St. Louis acquired "The Blue Mandolin," an abstract painting by Georges Braque done in 1930. Yale university purchased a seascape by Alessandro Magnasco and received, from the estate of Herbert L. Pratt, Gilbert Stuart's portrait of Col. John Trumbull. Charles Burchfield's largest water colour, "The Great Elm," was given to Carnegie institute, Pittsburgh, by Mrs. James H. Beal, Jr. Both the University of Nebraska and the Wichita museum acquired important groups of American pictures including Thomas Eakins' portrait of Mary Hallock Greenewalt (Wichita).

**Art Treasures and World War II.**—A vast amount of destruction of architectural monuments in Europe took place as a result of bombing and land mines. The extent of the damage was not yet fully known at the close of 1945, but a careful survey was being made by the American Commission for the Protection and Salvage of Artistic and Historic Monuments. They did work of inestimable value in putting temporary roofs on bombed structures, thus saving frescoes and other artistic objects from further damage by exposure to bad weather. Italy suffered badly, but fortunately the majority of the paintings in the museums had been removed to places of safety. Near the north Italian town of Vicenza, \$10,000,000 worth of art objects were found which had been removed from museums in Florence and Rome. Several important paintings were ruined when a bomb destroyed the Florentine villa of Bernard Berenson, the great art connoisseur and collector. One of the greatest losses was the destruction of the frescoes in the Campo Santo at Pisa.

In Germany numerous caches were discovered not only of its own art treasures, but of some \$2,000,000,000 worth of loot



from the rest of Europe. In a salt mine near the village of Merkers in the Thuringian forest, 1,000 cases of paintings and sculpture were found. A \$200,000,000 collection of works of art was uncovered in a copper mine near Siegen in Westphalia. The most valuable assemblage of all was discovered in Neuschwanstein castle (erected by the mad King Ludwig II of Bavaria in 1869). Here were many treasures from French private owners such as the Kann, Stern and Rothschild collections in Paris. All of these were destined for the private museum of Hermann Goering.

Though there was considerable damage in Normandy, France suffered relatively few losses. Most of the city of Caen was destroyed, but fortunately its two famous abbey churches were preserved. The contents of the Louvre in Paris were hidden in various castles throughout France and never became known to the Germans. By the close of 1945, the treasures were all being put back and the "Mona Lisa," the "Venus of Milo" and the "Victory of Samothrace" once more occupied their usual places.

Many historic buildings in England were destroyed, but St. Paul's cathedral in London survived, even though almost everything around it was wrecked. A direct hit on the British museum caused the loss of thousands of books, but no art objects were damaged as they had all been removed for safekeeping. In fact, no important painting or object of art was lost by any museum in England due to the fact that removal to war storage had been so effectively carried out. The greatest treasures were placed in Welsh mines specially equipped for the purpose; objects of lesser importance were placed in remote country houses.

(F. A. Sw.)

**Arthritis.** Arthritis of the spine, sometimes called rheumatoid spondylitis, is a chronic progressive disease of the spine, the fundamental lesions of which occur in the small facing joints which give mobility to this structure. Contrary to general belief, it is a fairly common cause of chronic back complaints in young men. The early symptoms are frequently mislabelled as sciatica, backstrain, lumbago, kidney disease or the like. Calcium is deposited in the joints and eventually a completely stiff spine may develop. It was still uncertain at the close of 1945 whether this disease is the same as rheumatoid arthritis involving the other joints or a different disease. In one study it was found that this disease accounted for 18% of patients with chronic back complaints admitted to an army general hospital.

A group of patients with rheumatoid arthritis were found to have blood vessels which can be particularly easily constricted: in other words, the circulation in certain areas may be interfered with more easily than in normal persons. This may explain some of the features of the disease: why some persons are particularly predisposed to it or to flare-ups of the condition after emotional upsets and exposure to cold. A study of the changes in rheumatoid arthritis revealed the presence of nodules in the muscles and around the peripheral nerves. As a result it was concluded that rheumatoid arthritis is not a disease of the joints alone but is also a general condition with the nodular inflammatory lesions serving to explain the usual presence of pain, tenderness and muscle atrophy encountered in the disease.

Gold treatment is not effective in all patients with rheumatoid arthritis; it has been recommended that other types of treatment should be used for at least several months before gold salts are employed. Attempts were being made to develop a gold preparation which would be as effective as those which were available but which would not be so likely to cause dangerous toxic reactions. Several such preparations were being tested.

The evidence indicated that penicillin was completely without value in rheumatoid arthritis. X-ray treatment was employed in some cases and seemed to be a practical and efficient method of treatment. In those cases where this treatment was effective, results were lasting and usually developed shortly after the beginning of treatment. A synthetic drug known as neostigmine was tried in a variety of diseases involving the muscles in which there was spasm, tension and spasticity, paralysis or cramps. In six patients with chronic rheumatoid arthritis relief in various degrees was reported. This group is too small on which to base an opinion but the results were encouraging enough to warrant further investigation.

The provision of adequate institutional care for patients with chronic arthritis was a great need in almost all countries. State pensions for permanent incapacity for work due to chronic articular rheumatism were given to a large number of persons in Sweden. A review of this problem indicated a great need for an increased number of places in homes for chronic invalids and for the establishment of a dispensary organization for rheumatic patients. A similar problem existed in the United States where the number of beds available for patients with chronic arthritis was completely inadequate and where there was need for funds and institutions to care for patients afflicted with this disease.

**BIBLIOGRAPHY.**—Bernard I. Comroe, "The Use and Abuse of Gold Therapy in Rheumatoid Arthritis," *J.A.M.A.*, 128:848-851 (July 1945); Bernard I. Comroe, "Failure of Penicillin in Rheumatoid Arthritis," *Am. J. Med. Sc.*, 209:646-650 (May 1945); Herman Kabat, "Studies on Neuromuscular Dysfunction," *Pub. Health Rep.*, 59:1635-50 (Dec. 1944); Fredrik Sundelin, "Rheumatic Invalids in Sweden," *Acta Med. Scandinav.*, 114:529-556 (1943). (E. P. J.)

**Artillery:** see MUNITIONS OF WAR; WORLD WAR II.

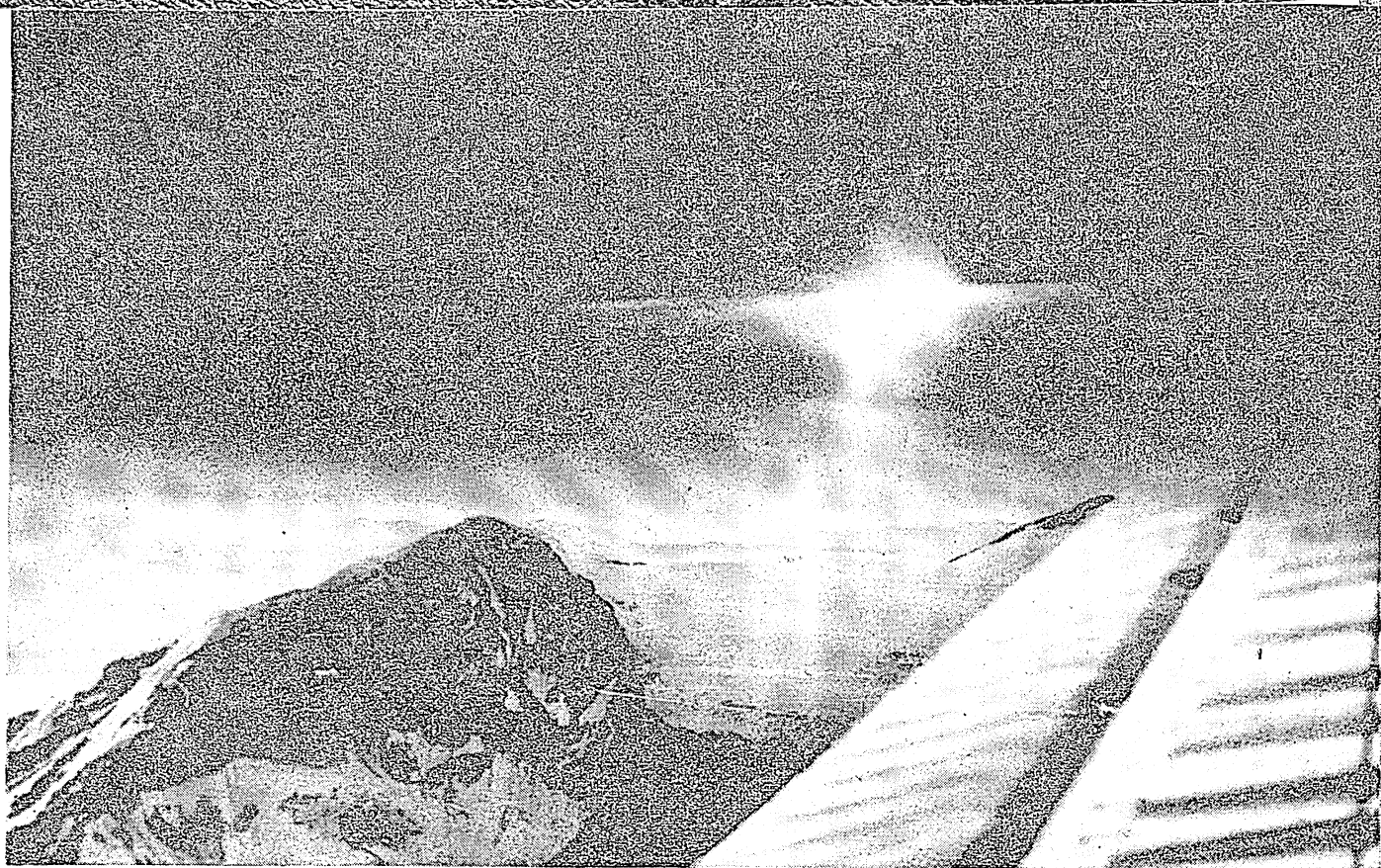
**Art Sales.** The Parke-Bernet galleries announced sales totalling \$6,165,920 for their 1944-45 season, an all-time record. This tops the previous year's figure which was considered exceptionally high. A greater number of buyers attended auctions, but there were fewer *émigrés*, so prominent during 1942-43 and 1943-44 seasons. Genre painting and various styles of the 19th century, long out of fashion, came back into popularity again. The largest individual sale—the estate of Mrs. J. Amory Haskell—brought \$375,354, and a close second was the William H. and Cornelius Vanderbilt collection at \$323,195. Two paintings tied for Parke-Bernet's top price, \$30,000, for a single picture—Fra Filippo Lippi's "Madonna" (Schinasi sale) and Jean François Millet's "The Water Carrier" (Vanderbilt sale). Other high prices in the Vanderbilt sale showed the renewed popularity of the Barbizon school and genre painting. Millet's well-known "The Sower" brought \$26,000 and Giovanni Boldini's "Ladies of the First Empire" went for \$11,000. Highest price in the Stotesbury sale, another of the season's prominent auctions, was \$22,000 paid for George Romney's "The Vernon Children."

French 18th century furniture and English and American silver continued to go for high prices and the original manuscript of Edgar Allan Poe's *Murders in the Rue Morgue* brought \$34,000, topping all sales of paintings.

The Kende gallery of Gimbel Brothers reported a season totalling \$3,635,275, which included such prominent collections as Jules S. Bache and Mrs. Frank G. Logan. Jacopo Robusti Tintoretto's "Baptism of Clorinda" in the Logan sale brought \$41,000, the highest price paid for any single object in any New York auction during the season. Frederic Remington's "A Dash for Timber" went for the amazing price of \$23,000.

The Plaza Art Auction Galleries had their best season to date with sales totalling \$1,607,457. Though they had no spectacular individual sale, they reported that prices on all types of





PARTIAL ECLIPSE of the sun, on July 9, 1945, as photographed from a plane over Mt. Ranier near Seattle, Wash. The eclipse was total in a narrow path from Idaho through Montana and into Canada, Greenland, Norway, Sweden, Russia and Siberia

YO, ScO, MgO, O<sub>2</sub>. Previously discovered compounds which were identified were OH, NH, CH, CN, SiH, MgH, C<sub>2</sub>, TiO, CaH, AlO, and ZrO. For 14 other compounds, which had been considered present by other observers, Babcock found no evidence. He pointed out that his list of identifications was not complete, for the number of unidentified molecular absorption bands in the sunspot spectra was greater than the number identified.

*Planetary System.*—Four comets were discovered during 1945, all of them being telescopic objects. Three were discovered by D. du Toit in South Africa, and in each case the observations yielded only a preliminary parabolic orbit. The fourth comet was discovered independently by C. L. Friend and L. C. Peltier. In addition to these, four previously known periodic comets were rediscovered during the year.

Photometric measures with a photocell and infra-red filter revealed a hitherto undiscovered infra-red radiation in the night sky. This intense radiation was discovered by Joel Stebbins and A. E. Whitford at the Mount Wilson observatory in the course of photometric observations of stars and nebulae. The new radiation was found to be far more intense than the ordinary auroral radiation which gives the familiar green line at 5577Å. It was judged to be atmospheric because it showed a variation with zenith distance, because it usually decreased in intensity through the night, and also because of its marked and irregular variation from night to night and from season to season. Exceptional intensity of this radiation on two nights gave the impression of an infra-red auroral display, but there was no correlation with magnetometer readings such as is usually found during brilliant auroral displays. By the use of the photocell with selected pairs of filters Stebbins and Whitford determined the wave length of this radiation as  $10,440 \pm 25\text{Å}$ . According to P. Swings this radiation is undoubtedly of molecular origin, probably being traceable to the (O, O) band of nitrogen. Swings suggested that during the day nitrogen molecules, and compounds containing nitrogen atoms, may be dissociated into

nitrogen atoms by absorption of solar radiation in the far-ultra-violet. These nitrogen atoms may tend to recombine during the course of the night, mainly in three-body collisions with the third body a nitrogen molecule which is a major constituent of the atmosphere at any altitude. Thus two nitrogen atoms and a normal nitrogen molecule combine in a three-body collision to yield one normal and one excited nitrogen molecule, the excited molecule thereafter emitting the observed infra-red radiation. Swings expressed the opinion that this suggested mechanism of emission was the only explanation of the intense night-sky emission near 10,440Å having sufficient plausibility.

*Stars.—Special Stars and Stellar Structure.*—The intrinsic luminosity of novae is an important datum in the study of these stars and a quantity difficult to determine. A new investigation of this problem by D. B. McLaughlin, based on all available observations, threw new light on the problem. The determination of absolute magnitudes of novae may be accomplished in several ways. The most reliable determinations have been effected by coupling observed angular rates of expansion of the nebular shells with the velocities of the gases observed with a spectrograph. Intensities of interstellar absorption lines in novae spectra, and residual velocities of these lines when interpreted as due to galactic rotation, yield further data on luminosities. Luminosities of novae in the Andromeda nebula and the greater Magellanic Cloud, whose approximate distances are known, are roughly determinate. McLaughlin used all these methods to obtain reasonably reliable luminosities for 30 common novae. He found that a definite relation exists between these luminosities and the rates of decline of brightness of the novae, the brightest novae showing the most rapid decline in brightness. This "life-luminosity" relation he found well determined for the common novae, so that a reliable prediction of the luminosity of a common nova could be made from its light curve. The supernovae, however, do not agree with this relation. This fact lends added weight to the belief that a supernova owes its explosive outburst to a different sort of mechanism than that which produces the outburst in a common nova.

In 1939 a study of the spectra of planetary nebulae by I. S. Bowen and Arthur Wyse led to the suggestion that the chemical



composition of these objects was essentially the same as that of the sun. This question was re-examined by L. H. Aller and D. H. Menzel. They made an extensive and intricate theoretical investigation of the relative abundances of the lighter elements, and by means of their more elaborate discussion, they arrived at substantially the same conclusion as that reached by Bowen and Wyse. They concluded that a mass of gas of chemical composition similar to that of the sun, when expanded to the low density of a planetary nebula and exposed to ultra-violet radiation, would give the sort of spectrum observed for these nebulae.

**External Galaxies.**—The similarity of the Andromeda nebula to our own galaxy was further demonstrated by star counts in the nebula made by C. K. Seifert and J. J. Nassau. These star counts show the nebula to be roughly elliptical in shape and agree well with isophotal contours obtained from photometric studies of nebular photographs. The thickness of the nebula was estimated from counts of high-luminosity stars to be about 200 parsecs. This agrees with estimates of the thickness of our galaxy made by J. H. Oort. Seifert and Nassau find an absence of highly luminous stars in the outermost envelope of the Andromeda nebula.

**Phenomena Visible in 1946.**—*Jan. 3, 1946. Partial Eclipse of the Sun.*—Visible in southern Indian ocean and southern Pacific ocean. Maximum eclipse 0.55 sun's diameter.

*May 30, 1946. Partial Eclipse of the Sun.*—Visible in southern Pacific ocean and near sunset in Chile and western Argentina. Maximum eclipse 0.89 sun's diameter.

*June 14, 1946. Total Eclipse of the Moon.*—Visible in Antarctica, Australia, the western Pacific ocean, southern and central Asia, the Indian ocean, Africa and Europe; the ending also visible in the south Atlantic ocean and extreme eastern part of South America. Duration of total eclipse 1 min. 32 sec.

*June 29, 1946. Partial Eclipse of the Sun.*—Visible in Scandinavia, Russia, and Siberia. Maximum eclipse 0.18 sun's diameter.

*Nov. 23, 1946. Partial Eclipse of the Sun.*—Visible in United States and Canada, Yucatan, Honduras, northern South America, the West Indies and the north Atlantic ocean. Maximum eclipse 0.78 sun's diameter.

*Dec. 8, 1946. Total Eclipse of the Moon.*—Visible in the Arctic ocean, northwestern North America, northern and western Pacific ocean, New Zealand, Australia, Asia, Europe, Africa, and the eastern Atlantic ocean. Duration of total eclipse 58 sec.

**BIBLIOGRAPHY.**—George Z. Dimitroff and James G. Baker, *Telescopes and Accessories* (1945); J. E. Spurr, *Geology Applied to Selenology* (1944); John Q. Stewart, *Coasts, Waves and Weather for Navigators* (1945).

**FILMS.**—*Earth in Motion; Exploring the Universe; Moon; Solar Family* (Encyclopædia Britannica Films Inc.) (N. L. P.)

**ATC:** see AIR TRANSPORT COMMAND.

**Athletics:** see TRACK AND FIELD SPORTS; etc.

## Athlone, 1st Earl of

(ALEXANDER AUGUSTUS FREDERICK WILLIAM ALFRED GEORGE CAMBRIDGE) (1874– ), British statesman, was born April 14 at Kensington palace, the third son of the 1st duke of Teck. Educated at Eton and the royal military college, Sandhurst, he served in Matabeleland, Southern Rhodesia, in 1896 and saw action during the Boer War. During World War I he was mentioned twice in dispatches, and in 1917 he was created 1st earl of Athlone. He was governor general of the Union of South Africa from 1923 to 1931. In 1936 he was appointed personal aide-de-

camp to the king. He was appointed 16th governor general of Canada April 3, 1940, on the death of Lord Tweedsmuir. In opening the Canadian parliament in Jan. 1944, he urged all nations allied in the war to seek to ensure an enduring peace through a world organization.

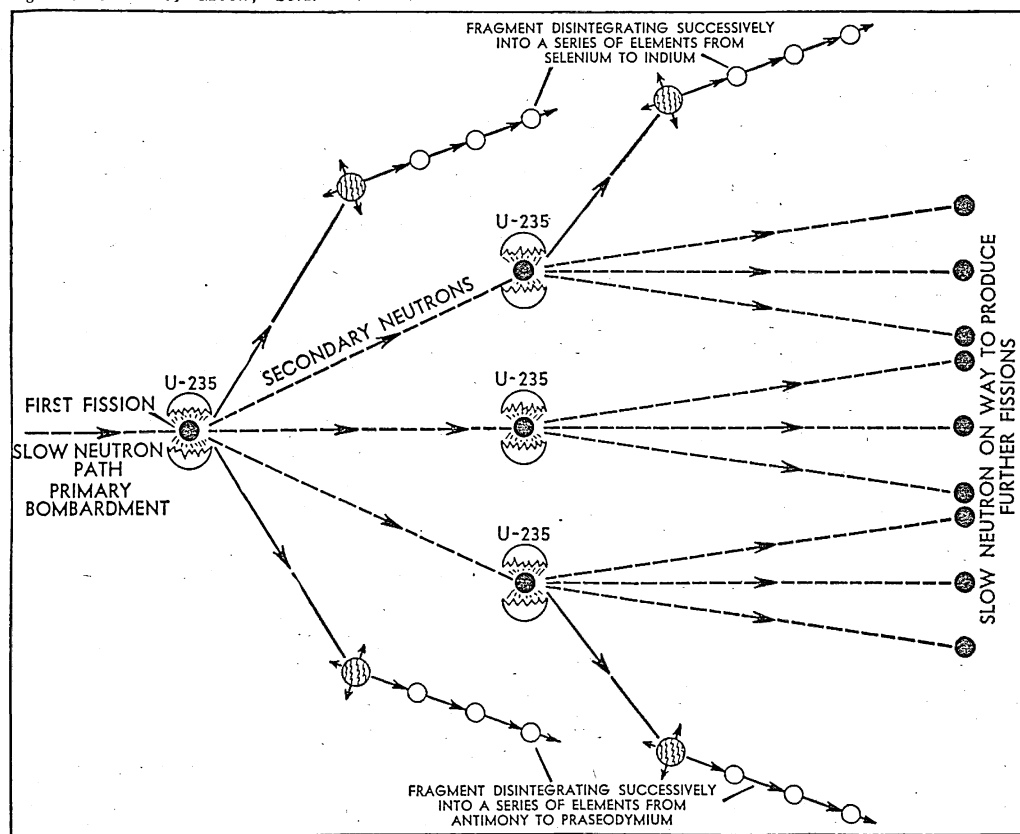
The earl was scheduled to give up his post as governor general in the spring of 1946 to Field Marshal Sir Harold R. L. G. Alexander, whose appointment was announced by King George VI, July 30, 1945.

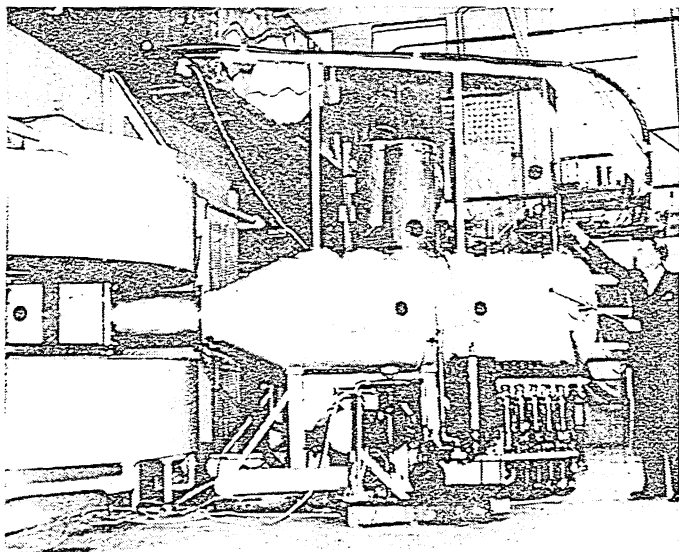
**Atomic Bomb.** Atomic bomb is the name given to a bomb which obtains its explosive violence from the release of atomic energy, or more exactly, the conversion of matter into energy by an atomic transformation known technically as nuclear fission. No comparable weapon has existed in the history of the world. The first one dropped had more power than 20,000 tons of T.N.T.

Based on the discovery of uranium fission by O. Hahn and F. Strassman in Germany in 1939, the atomic bomb was perfected in the United States during World War II as a joint venture of the United States, British and Canadian governments. The first bomb was exploded in a test on the New Mexico desert on July 16, 1945. Two atomic bombs were dropped on Japan from U.S. aeroplanes, the first on Hiroshima on Aug. 6, 1945 (Japanese time), the second on Nagasaki on Aug. 9 (Japanese time). Japan surrendered on Aug. 14. Former Prime Minister Winston Churchill estimated that by shortening the war, the atomic bomb had saved the lives of 1,000,000 U.S. soldiers and 250,000 British soldiers.

The release of atomic energy is one of the greatest triumphs in the history of science, perhaps the most significant development in the progress of mankind after the discovery of the use of fire. It has equally vast potentialities for good and for evil.

Simplified diagram of a fission chain reaction. A slow neutron enters the uranium isotope U-235, destroying its equilibrium. The unstable isotope splits into two initial fragments each of which decays rapidly into a whole series of radioactive and stable elements, and a considerable excess of neutrons. The fast neutrons freed by fission are slowed by moderators (not shown in diagram), strike other atoms of U-235, and the action spreads rapidly





THE CYCLOTRON, an atom-smashing machine based on the multiple acceleration of nuclear particles, was invented by Dr. E. O. Lawrence (right) and used in the experimental work on nuclear fission

Used in another world war, it would result in the destruction of civilization. But in its peaceful application to industry, transportation and other activities, it promises the start of a new era, the Era of Atomic Energy, capable of becoming the most glorious period in the history of mankind.

**The Einstein Equation of 1905.**—The train of events that led to the bomb may be said to have started with the discovery of radioactivity by A. H. Becquerel in 1896 and the pioneer investigations of the subject by Lord Rutherford at the turn of the century. The possibility of the conversion of matter into energy entered scientific discussion as the result of an equation written by Albert Einstein in 1905. One consequence of the theory of relativity is that the mass of a body increases with an increase in its rate of motion. Einstein extended this fact into the mathematical equation for the equivalence of mass and energy. Gradually it became evident that matter ought to be converted into energy under certain conditions.

Up to this time physicists had regarded matter and energy as forever separate and distinct. The law of the conservation of matter held that it was possible only to alter the form of matter, not to create or destroy it. The law of the conservation of energy made the same statement with regard to energy. Einstein's theory of equivalence made it necessary to merge these two into one. This was done by regarding the particles of matter as forms of concentrated energy, a view that had been suggested earlier by Sir Oliver Lodge and others.

The Einstein theory of equivalence states that  $E=mc^2$  where  $E$  is the energy in ergs,  $m$  the mass in grams, and  $c$  the velocity of light in centimetres per second. Since the velocity of light is very large, this means that a very little matter would become a very large amount of energy. Calculations showed that 1 kilogram (2.2 lb.) of matter, if converted entirely into energy, would become 25,000,000,000 kilowatt-hours of energy, an amount equal to all the electric power generated in the United States in two average months. By contrast, the combustion of 1 kilogram of pure coal produces 8.5 kilowatt-hours of energy.

**Atomic Structure.**—Because of our familiarity with ordinary phenomena, we tend to forget that they are all atomic in nature. Lord Rutherford first advanced the theory of an atom with a central nucleus. Niels Bohr developed the further theory that electrons revolve around this nucleus like planets around the sun. According to present theory, three particles enter into the composition of atoms, namely, the proton, the neutron and the electron. Protons and neutrons occur in atomic nuclei. Elec-

trons compose the "cloud" of particles surrounding the nuclei. The proton possesses a positive electric charge, the electron an equal but negative charge, the neutron none. Ordinary chemical reactions do not involve changes in the atomic nucleus but only the combination of atoms into molecules. However, the release of atomic energy does involve nuclear changes.

The simplest atom, that of ordinary hydrogen, has a nucleus consisting of one proton. In all other atoms the nucleus is composed of protons and neutrons. The number of protons in the nucleus determines the total positive charge on the nucleus and is known as the atomic number. The sum total of protons and neutrons is known as the mass number. Atoms of the same atomic number but different mass numbers constitute isotopes of the same chemical element.

**The Release of Energy.**—One might expect the weight of a nucleus to be equal to the combined weights of a corresponding number of protons and neutrons. But this is not the case. As a result an arbitrary scale was adopted in which the atomic weight of oxygen is taken as 16. In every case the atomic weight of a nucleus is less than the combined weights of the number of protons and neutrons composing it. This "mass difference," as it is called, is the result of the crowding of the particles into the nucleus. On the basis of the Einstein equation of 1905, this loss of mass which would occur on bringing a number of protons and neutrons together to form a nucleus should be transformed into energy.

The ordinary electrical force or Coulomb force which acts between charged particles causes protons normally to repel each other and has no effect upon neutrons. It is obvious that without some other force, the nucleus of the atom could not hold together. Another and vastly stronger force comes into play at the infinitely small distances within the nucleus of the atom. It is an attractive force acting on both protons and neutrons and is known as the "binding force." It is usually expressed as the binding force per particle and is equal to the "mass difference" of the particular nucleus divided by the number of particles composing it. Investigation has shown that the binding force per particle is not the same for every element. It varies irregularly for the first 10 elements in the periodic table, then rises rapidly to a flat maximum around nickel (elements of about mass number 60). It then gradually decreases for the succeeding elements.

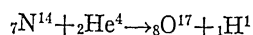
Now it is apparent that any transformation of a nucleus to another in which the binding force is greater will produce a further loss of mass and its consequent transformation into energy. It became evident to physicists, therefore, that there are two ways in general to obtain the release of atomic energy. One is by the synthesis of the very light nuclei into heavier ones. The other is by the breaking down of the heaviest nuclei. Astronomers have demonstrated that the first method accounts for the generation of energy in the deep interior of the sun and stars but it does not appear possible to duplicate the conditions of temperature and pressure apparently necessary to sustain these reactions. The second method is that employed in the atomic bomb.

#### THE HISTORY OF "ATOM SMASHING"

A long chain of investigations in nuclear physics, known popularly as "atom smashing," led up to the atomic bomb. As in the case of every great scientific development, these steps were taken by many workers in many countries, demonstrating once again the truly international character of scientific progress.

**Lord Rutherford.**—The great pioneer in atom smashing was Lord Rutherford who had first advanced the nuclear theory of atomic structure. In 1919, by bombarding nitrogen with alpha particles emitted by radium, he succeeded in knocking protons (hydrogen nuclei) out of the nitrogen nuclei. The nitrogen was thus transformed into an isotope of oxygen, so that Rutherford

had accomplished the ancient dream of transmuting one chemical element into another. The equation for this reaction is written



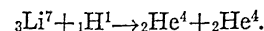
using the notation commonly employed in nuclear chemistry in which the subscript represents the atomic number and the superscript the mass number.

Rutherford's experiment started a wave of atom smashing in the laboratories of the whole world.

**The Giant Atom Smashers.**—It gradually became apparent that atom-smashing experiments required subatomic projectiles of greater energy than the alpha particles of radium. Accordingly physicists sought methods of accelerating streams of alpha particles (helium nuclei) or protons (hydrogen nuclei). One method employed electric transformers and vacuum tube rectifiers to obtain continuous direct current high voltages for this purpose. Much higher voltages, ranging up to 15,000,000 volts, were obtained with the electrostatic generator invented by Robert J. Van de Graaff in 1929. In the same year E. O. Lawrence invented the cyclotron, a device which imparts tremendous speeds to subatomic projectiles by whirling them around in a magnetic field.

**Einstein Equation Applied to Nuclear Phenomena.**—The first great success of the giant atom smashers came in 1932 when J. D. Cockcroft and E. T. S. Walton bombarded lithium with streams of protons. They found that a lithium nucleus combined with a proton and split into two helium nuclei. This nu-

clear reaction may be written



This reaction was accompanied by the release of energy. Calculations showed that the Einstein equation of 1905 applied to this reaction with great exactness.

**Discovery of the Neutron.**—About 1920 Rutherford suggested the problem of nuclear structure would be greatly simplified if there existed a particle with the mass of the proton but no electric charge. He proposed the name of the "neutron" for this hypothetical particle. In 1932 J. C. Chadwick demonstrated that what had been assumed to be extremely penetrating radiation in certain atom-smashing experiments actually was these very neutrons. It is not possible to exaggerate the importance of this discovery in the development of an understanding of atomic structure and behaviour.

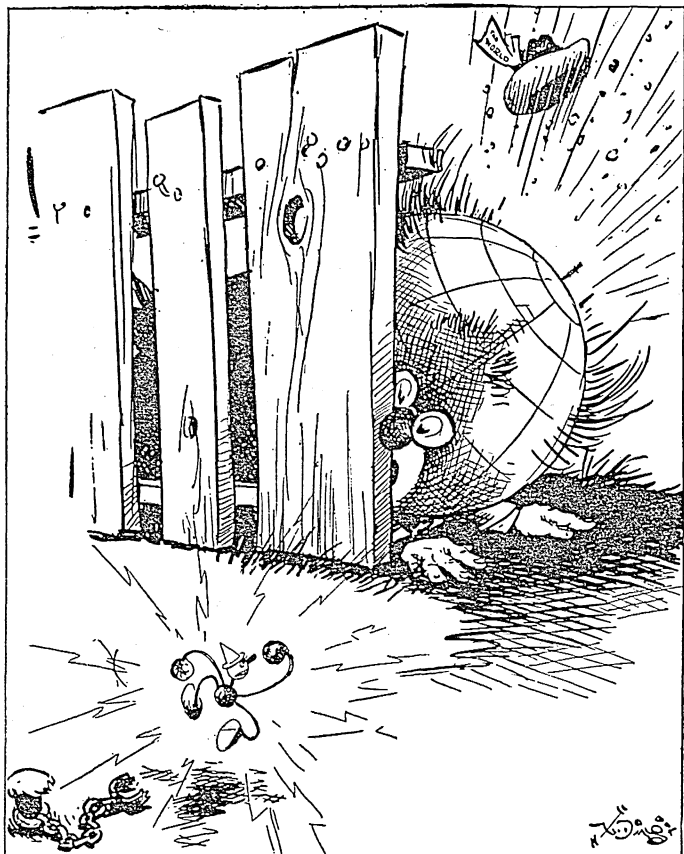
**The Deuteron.**—The existence of the neutron was verified when in 1932, Harold C. Urey, F. G. Brickwedde and G. M. Murphy discovered an isotope of hydrogen of twice the mass of ordinary hydrogen. Its nucleus consists of a combination of one proton and one neutron and this combination became known as the deuteron. Water in which ordinary hydrogen is replaced by this double-weight hydrogen or "deuterium" became known as "heavy water."

**The Positron.**—In 1932 Dr. Carl D. Anderson, investigating cosmic rays, discovered a subatomic particle equal to the electron in mass but of opposite electric charge. This particle became known as the positive electron or positron. It was subsequently shown that a collision between a positron and electron results in the annihilation of both and their transformation into

HIROSHIMA, scene of the first atomic bombing of Japan on Aug. 6, 1945. An area of 4.1 sq.mi., or 60% of the city, was laid waste when a single bomb, said to be equivalent in explosive power to 20,000 tons of T.N.T., was dropped by U.S. fliers







"THE ATOM IS ON THE LOOSE." Darling of the *N.Y. Herald Tribune* saw in 1945 a startled world threatened by the problem of controlling its own scientific achievement

energy. Conversely, it was found that under certain circumstances a ray of energy is transformed into a positron and an electron, a phenomenon known as "pair production," to the experimental facts of which the Einstein equation also applies.

**Artificial Radioactivity.**—In 1934 Irene Curie and F. Joliot discovered that many elements, when bombarded with subatomic particles, became unstable isotopes which subsequently emitted particles after the fashion of the radioactive elements. The name of "artificial radioactivity" was given to this phenomenon. Subsequent study showed that in many cases this is due to the transformation within the nucleus of a neutron into a proton and an electron with immediate emission of the electron. In other cases, a proton is transformed into a neutron and a positron with immediate emission of the positron.

**The Slow Neutron.**—In 1934 Enrico Fermi demonstrated that the ideal stream of projectiles for atom smashing were neutrons that had been slowed down by elastic collisions with light atomic nuclei while passing through water, paraffin, or some other suitable substance. Until then physicists had used streams of alpha particles or protons which had to batter their way into the nucleus against the repulsion of the positive charge on the nucleus. The neutron was not subject to this repulsive force and Fermi's studies showed that if it were moving slowly, it had a better chance of sticking in the nucleus, a phenomenon named "neutron capture" which is often followed by disruption of the nucleus. One of Fermi's most spectacular achievements was to use this phenomenon of neutron capture to transform uranium (atomic number 92) into a previously unknown element of atomic number 93. This was the first of the so-called transuranic elements. However, this experiment gave puzzling results which were not explained until the discovery of fission.

One might wonder why power plants for the release of atomic energy were not built in the 1930s. The answer is that the known methods were too inefficient. More energy was expended

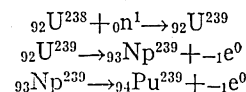
in producing streams of subatomic particles than was subsequently released from the bombarded atoms. Many physicists were sceptical of the situation ever becoming otherwise. It was realized that the release of atomic energy required a so-called "chain reaction," which, once initiated, would sustain itself. Combustion, for example, is a chain reaction. A fire, once ignited, continues to burn, the combustion of each bit of fuel raising the neighbouring bit to the temperature of combustion.

**Uranium Fission.**—The turning point in the quest for atomic energy came in Jan. 1939, eight months before the start of World War II, with the announcement by O. Hahn and F. Strassman that barium was one of the products when uranium was bombarded with neutrons. The significance of this discovery was communicated by Lise Meitner and O. R. Frisch, refugees from Germany in Copenhagen, to Professor Bohr who was preparing to visit the United States. Arriving in the U.S. on Jan. 16, Bohr discussed the theory with Einstein, J. A. Wheeler and others. It meant that the uranium atom had split into two nearly equal fragments, an atomic transmutation from the end of the periodic table where the binding force is least to the centre of the table where it is greatest. Calculations showed that such a "fission" of the uranium atom should release an incredible amount of energy, nearly 200,000,000 electron volts. It meant that one pound of uranium would produce by fission as much energy as the combustion of 20,000,000 lb. of coal.

Both Bohr and Fermi discussed uranium fission at a conference on theoretical physics in Washington on Jan. 26, 1939, and Fermi made the further suggestion that neutrons might be released during the process. Here then was the possibility of a chain reaction of the type needed for the wholesale release of atomic energy. These suggestions threw the meeting into an uproar while those physicists whose laboratories contained cyclotrons rushed to the telephone to initiate by long-distance calls experiments seeking to confirm this phenomenon of fission.

Subsequent theoretical studies by Bohr and Wheeler indicated that slow neutrons did not cause fission in ordinary uranium or U-238, so-called because its mass number is 238, but in U-235, an isotope of mass number 235, present in ordinary samples of uranium to the extent of 1 part in 140. Gradually the many riddles presented by fission were solved and by June 1940 the basic facts concerning the release of atomic energy were known throughout the scientific world.

One important result of these studies was the discovery that with neutrons of certain speeds U-238 exhibited a high probability for neutron capture, becoming an unstable isotope, U-239, which by emitting a beta particle became a new element, No. 93, to which the name of "Neptunium" was given. But this was also unstable and by emitting another electron became element No. 94, named "Plutonium." The reaction may be written



where Np is neptunium, Pu plutonium,  ${}_0\text{n}^1$  the neutron and  ${}_{-1}\text{e}^0$  the electron.

It was also found that fission took place in both thorium and protoactinium with fast neutrons.

**Possibility of Chain Reactions.**—It was realized that the setting up of a chain reaction depended upon the number of neutrons released by the initial fissions and their subsequent fate. A neutron might escape without accomplishing any effect, it might take part in nonfission capture, or it might cause fission. The ratio of neutrons causing fission to the other neutrons is known as the multiplication factor. For a chain reaction it must be greater than 1. It was also realized that the size and shape

of the mass of uranium would be a factor in bringing about a chain reaction.

Physicists therefore foresaw two possibilities. One was the setting up of a chain reaction in ordinary uranium, a mixture of U-234, U-235 and U-238, employing slow neutrons for the controlled release of atomic energy for power purposes. The other was the creation of a chain reaction of explosive character in pure U-235 or plutonium with fast neutrons. This would be an atomic bomb. It was believed that the controlled reaction would require at least several tons of uranium whereas the critical size of the bomb would be between 1 and 100 kilograms.

A complication in obtaining the controlled reaction arose from the fact that fission releases high-speed neutrons whereas slow neutrons are the most desirable for producing fission. The suggestion was made that the uranium be mixed with some other substance of a character such that the neutrons would be slowed down by elastic collisions with its atoms. Hydrogen, deuterium, beryllium and carbon were suggested for this "moderator," as it was named. Fermi and L. Szilard proposed a superior method, namely, to embed lumps of uranium in a matrix of some moderator not unlike raisins in a cake. This construction came to be known as a "lattice" and the resulting structure as a "pile."

Construction of a bomb, therefore, required either the separation of pure U-235 from ordinary uranium or the construction of a uranium pile, not primarily for the generation of power but the transmutation of U-238 into plutonium which could then be separated by chemical means. The first sample of pure U-235 was isolated by Alfred O. Nier in Feb. 1940 by means of the mass spectrograph. Slightly larger amounts were produced shortly thereafter by K. H. Kingdon and H. C. Pollack.

#### THE ATOMIC BOMB PROJECT

The story of the production of the atomic bomb is in many ways as unique as the bomb itself. At the centre of the enterprise was a brilliant group of United States, British and refugee scientists. While engaged in one war in Europe and another in the Pacific, the United States marshalled the manpower and resources needed to complete in four years a project that otherwise might have taken half a century. The cost of the project, \$2,000,000,000, indicates its magnitude.

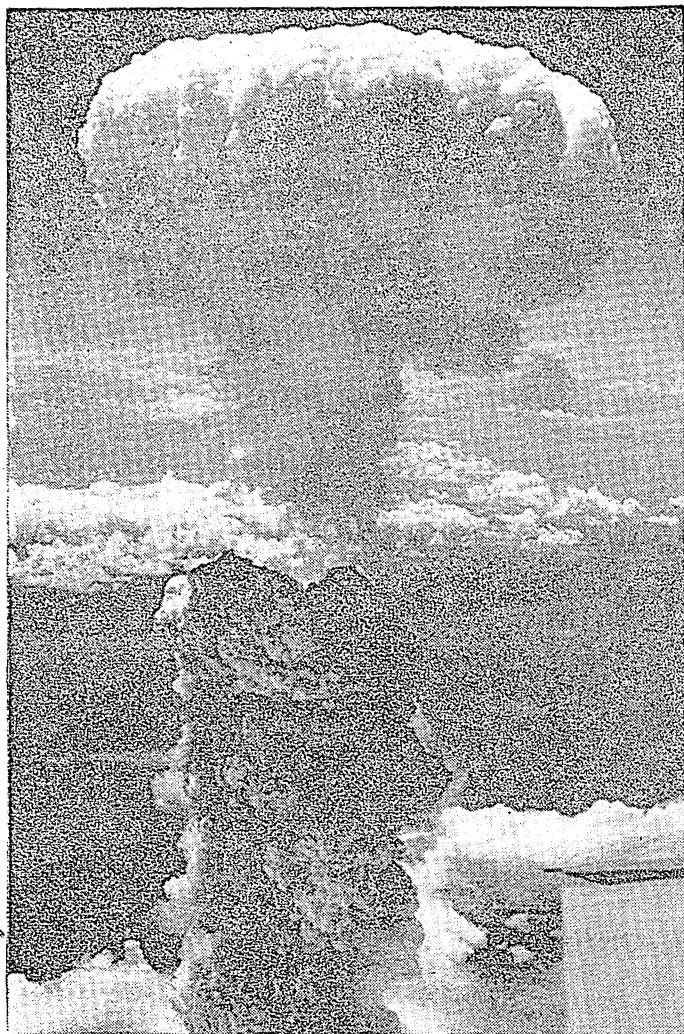
It is difficult to assign credit to all those who took part in the venture. The brilliant group of research scientists formed its heart. But later, as the project developed and vast plants had to be built and tens of thousands of workers employed, the co-operation of a large number of the nation's chief industrial corporations as well as that of the war department and other branches of the government was required. The decision to embark on the project had to be made by President Roosevelt himself, and he and his advisers, both civil and military, deserve the highest praise for their courage and foresight.

The first contact with the government was made by George B. Pegram of Columbia university who arranged a conference between Fermi and officers of the navy in March 1939. In July, L. Szilard and E. Wigner conferred with Einstein and later the three went to New York to talk with Alexander Sachs. Supported by a letter from Einstein, Sachs explained the importance of the problem to President Roosevelt who appointed an Advisory Committee on Uranium with L. J. Briggs, director of the national bureau of standards as chairman, to look into the problem. In Feb. 1940, a fund of \$6,000 was made available to start researches. Probably no one then realized that this was the beginning of a \$2,000,000,000 expenditure.



HIROSHIMA, viewed from the air after it was levelled by a single atomic bomb in Aug. 1945. Once a congested area of factories and houses, it was reduced to rubble by the destructive power of the new weapon





SMOKE rising 20,000 ft. in dense clouds above Nagasaki on Aug. 9, 1945, following the second atomic bombing of Japan

By this time it was well known that Hitler had embarked German physicists upon atomic bomb researches. The British were also studying the problem and in the fall of 1941 Urey and Pegram visited England to get first-hand information on what was being done there.

On Dec. 6, 1941, the project was put under the direction of a uranium section of the Office of Scientific Research and Development. Members of this section were James B. Conant, representing Vannevar Bush, the director of the Office of Scientific Research and Development; L. J. Briggs, chairman; G. B. Pegram, vice-chairman; A. H. Compton, program chief; E. O. Lawrence, program chief; H. C. Urey, program chief; E. V. Murphree, chairman of the planning board; H. T. Wensel, technical aide; S. K. Allison, J. W. Beams, G. Briet, E. U. Condon and H. D. Smyth. On June 18, 1942, the war department organized a new district in the corps of engineers to carry on the work of the atomic bomb. This was named the Manhattan District and on Sept. 17, 1942, Brig. Gen. L. R. Groves was placed in complete charge of all army activities relating to the project. A number of British scientists were transferred to the United States in 1943 and in August of that year a combined policy committee, representing the United States, Great Britain and Canada was set up.

Because there was no way of knowing in advance what method would succeed, it was decided to work simultaneously on several methods of isolating U-235 and also on the production of plutonium.

**Production of Plutonium.**—The first experimental pile was

set up at Columbia university in July 1941. It was a graphite cube about eight feet on edge and contained about seven tons of uranium oxide. At the end of the year the work on such piles was transferred to the University of Chicago where a considerable number of related problems were being studied by a group, under the direction of A. H. Compton, known cryptically as "The Metallurgical Laboratory." On Dec. 2, 1942, the first self-sustaining chain reaction pile was put into operation, thus establishing that such a pile was feasible for the controlled release of atomic energy for power purposes or the manufacture of plutonium.

It was felt that the time had arrived when a pilot plant for the production of plutonium could be built and it was decided to locate it on the site which had been acquired in the Tennessee valley and named the Clinton Engineer Works. This was a 70-sq.mi. tract on the Clinch river about 30 mi. from Knoxville, Tenn. A more isolated site was subsequently chosen for the full-size plants, a 1,000-sq.mi. tract on the west bank of the Columbia river, north of Pasco, Wash. This was named the Hanford Engineer Works.

An enormous number of engineering problems had to be solved in building the Hanford uranium piles. They were so designed that the uranium was employed in the form of rods encased in metal containers. These were inserted into the piles by automatic machinery governed by remote control since no one could safely enter the chamber where a pile was located. They were subsequently removed by similar means and transported to the plants where the plutonium was separated. These likewise had to operate by remote control because of the radioactivity of the fission products in the uranium rods. Heavy concrete walls were built as shields to protect workers from the radiations released by the uranium piles and separation plants.

**The Isolation of U-235.**—At the end of 1941 the problem of separating U-235 from ordinary uranium was assigned to two groups working under the direction of Lawrence and Urey. A method of separation by means of gaseous diffusion was developed by Urey and his group. This required the conversion of the uranium into a gaseous compound which was then permitted to diffuse through porous barriers. Since the rate of diffusion differs for the various isotopes, a separation was thus effected.

Lawrence and his group developed an electromagnetic method of separation which was essentially an extension of the mass spectrograph. It operated upon the principle that the amount by which a magnetic field bends the path of a stream of nuclei from a straight line depends on the weight of the nuclei. Huge plants employing both methods were built at the Clinton Engineer Works. Subsequently, in order to speed up the production of the electromagnetic plant, a thermal diffusion plant, using a method developed by P. H. Abelson, was built to make a preliminary separation of the isotopes.

**The Atomic Bomb Laboratory.**—For the final stages of the project, it was felt wise to establish an atomic bomb laboratory in an isolated place, both for the sake of secrecy and safety. A site was chosen at Los Alamos, N.M., on a mesa about 20 mi. from Santa Fe. J. R. Oppenheimer assumed direction of this laboratory in March 1943. A group of brilliant physicists, chemists, and authorities on explosives and weapons, recruited from all parts of the U.S. and including H. Bethe, R. R. Wilson, J. W. Kennedy, C. S. Smith, Capt. W. S. Parsons, G. B. Kistiakowsky, R. F. Bacher and E. Fermi among others, moved into the laboratory. Sir James Chadwick and Niels Bohr also spent much time at Los Alamos.

By this time researches had revealed that in a mass of either U-235 or plutonium of a certain critical size a fast neutron chain reaction would take place in which the multiplication of neutrons would be so rapid as to bring the reaction to the point of



explosive violence. The problem before the Los Alamos laboratory was to determine with great exactness this critical size and then to design a mechanism for bringing smaller masses of the material together quickly. The chain reaction would then cause the explosion. An obvious method of assembling the bomb was to load half of it into a gun and shoot it into the other half of the bomb which served as a target.

## THE EXPLOSION OF THE BOMBS

A total of three atomic bombs were set off prior to the surrender of Japan, one in a test in New Mexico, two in actual warfare.

**The Test.**—The first atomic bomb in the history of mankind was exploded at 5:30 A.M. on July 16, 1945, at the Alamogordo air base in the desert 120 mi. southeast of Albuquerque, N.M. The bomb had been placed on a tall steel tower while scientists and military experts occupied observation posts placed at distances ranging from 10,000 to 17,000 yd. from the tower. They had been instructed to lie down with their feet toward the tower and to protect their eyes from the blinding flash of the explosion. The skies were dark and it was raining. An occasional lightning flash illumined the sandy desert and the distant mountains.

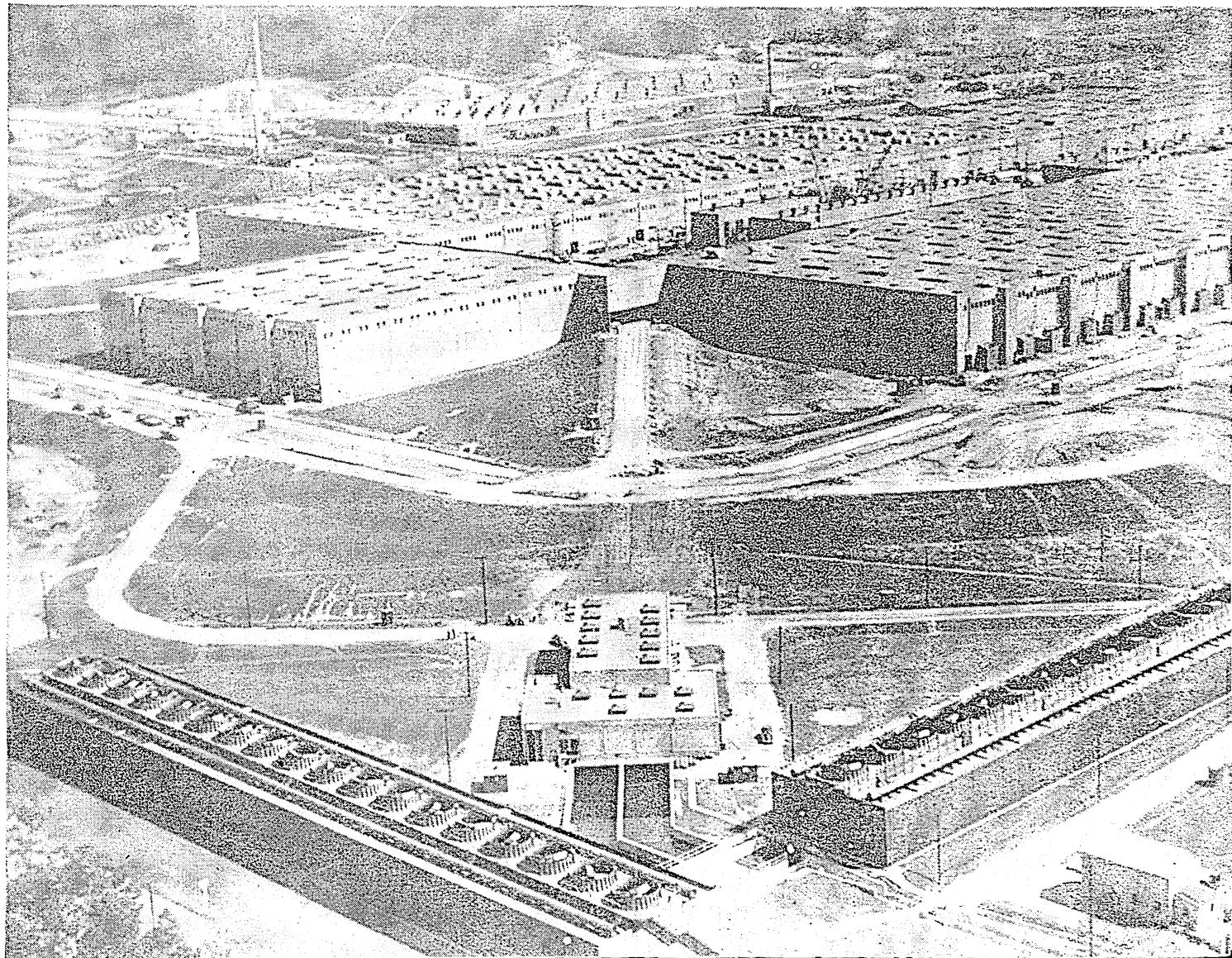
The explosion caused a flash that lit up the mountain peaks 10 mi. away. Then came a tremendous, sustained roar accom-

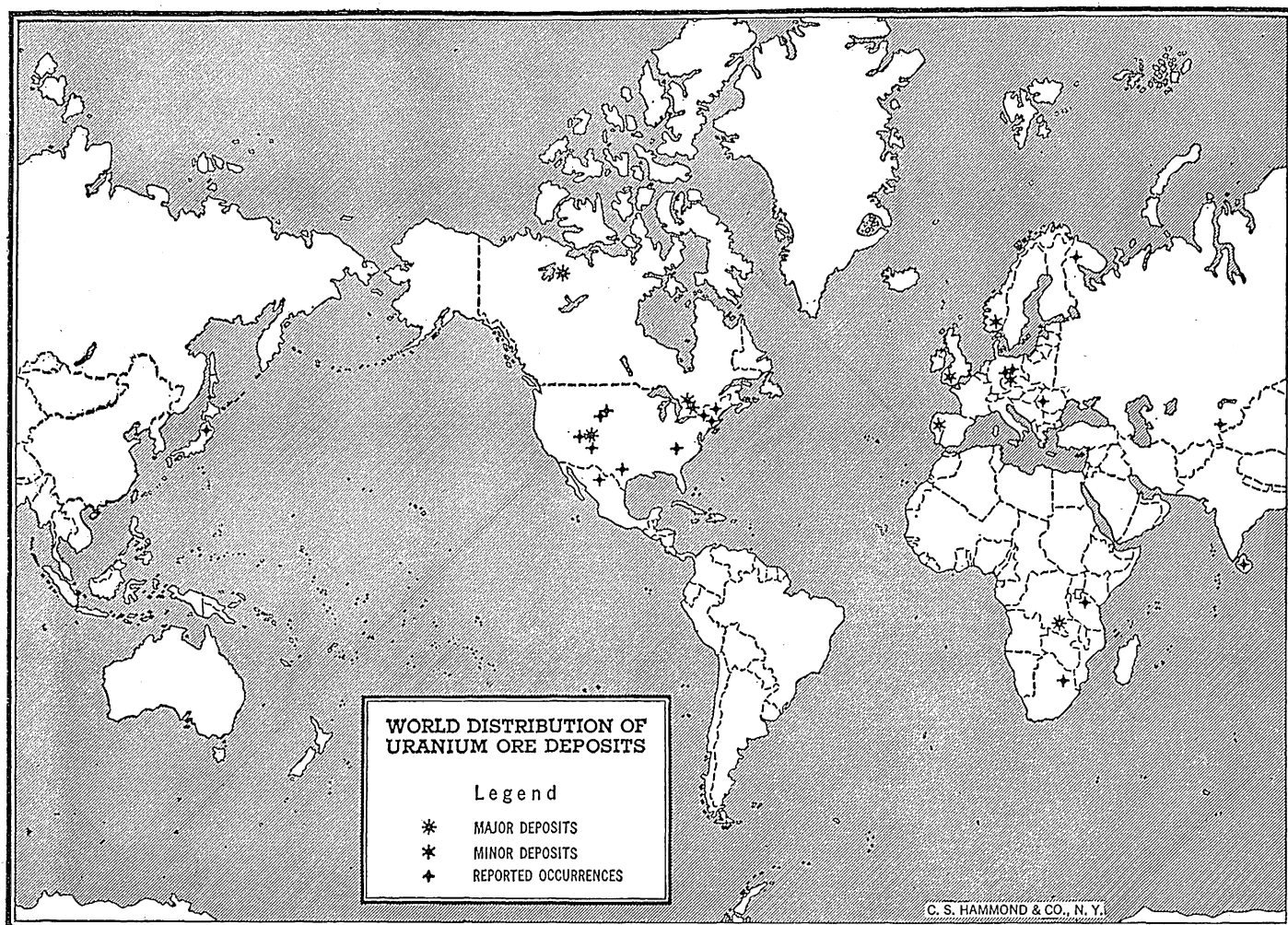
panied by a tornadolike burst of wind. Where the tower had stood there was a great boiling, surging cloud of many colours rising into the stratosphere, more than 40,000 ft. in height. When the cloud had disappeared, it was noted that the steel tower was gone. The heat of the explosion, estimated at several millions of degrees, had completely vaporized it. In place of the tower there was a huge crater, the floor of which consisted of a glass formed by the fusion of the sand.

**The Bombing of Hiroshima.**—The first atomic bomb to be used in warfare was dropped on Hiroshima, a Japanese army base and city of 343,000 inhabitants, at 9:15 A.M., Aug. 6 (Japanese time), 1945. The bomb was dropped from a B-29 Superfortress, the "Enola Gay." Col. Paul W. Tibbets, Jr., was the pilot and Major Thomas W. Ferebee the bombardier. Capt. Parsons, who had helped design the bomb, went along as the "weaponer." The flash of the explosion was seen by a reconnaissance plane 170 mi. away. Those in the "Enola Gay" reported that a black cloud rose over Hiroshima to a height of 40,000 ft. Aerial photographs taken after the smoke and dust had cleared away showed a scene of destruction unlike any before witnessed. The entire business section at the centre of the town had disappeared except for the skeletons of three concrete buildings. It was estimated by the Japanese government that the bomb killed 60,000 persons, wounded 100,000 and rendered an additional 200,000 homeless.

**The Bombing of Nagasaki.**—The second bomb to be used against Japan was dropped on Nagasaki at 12:01 P.M., Aug. 9 (Japanese time), from a B-29 Superfortress, the "Great Artist," piloted by Major Charles W. Sweeney. It was said that

OAK RIDGE, TENN., 59,000-acre site of the Clinton Engineer works, and largest division of the giant U.S. government atomic project. Oak Ridge's population, estimated at 78,000 in 1945, knew nothing of what it was producing. The site was chosen for its nearness to TVA power and water and its remoteness from the coast





the construction of this bomb was so superior to that used at Hiroshima as to render that model obsolete. This second bomb created a considerable crater. Its toll of human life was smaller due to the smaller population of Nagasaki. The Japanese government estimated that 10,000 persons were killed, 20,000 wounded, and an additional 90,000 made homeless.

#### THE FUTURE OF ATOMIC ENERGY

Following a message from President Truman on Oct. 3, 1945, a bill sponsored by the war department and known as the May-Johnson bill was introduced into congress. The purpose of this bill was to keep the atomic bomb a secret and to set up a commission charged with the administration and control of all research in the field of atomic energy and the formation of security regulations stipulating what might or might not be made public. The bill aroused the immediate antagonism of the great majority of scientists who had worked on the bomb and they made their opinions public through hastily formed organizations such as the Atomic Scientists of Chicago, the Association of Oak Ridge Scientists, and the Federation of Atomic Scientists. This sudden entrance of scientists into the arena of public affairs was unique in United States history.

**The Scientists' Viewpoint.**—The scientists were convinced that any attempt to keep the bomb a secret was futile because all the fundamental scientific facts were known throughout the world in 1940. They believed that the only result of the attempt would be to embark the world upon an international atomic bomb race certain to end in World War III and the destruction of civilization. Moreover, they regarded the proposed controls over scientific research as contrary to the basic principles of U.S. democracy and inimical to scientific progress.

The scientists advocated instead a policy of international cooperation with a return to the classic freedom of scientific research and the creation of an international inspection committee by the United Nations Organization charged with the task of seeing that no nation set up plants for the manufacture of atomic bombs or the concentration of fissionable materials in forms and amounts suitable for quick conversion into bombs.

After stormy debate the United States senate created on Oct. 26, 1945, a special committee to study the problem and appointed as chairman of the committee Senator Brien McMahon (Democrat, Conn.) who had expressed his opposition to the May-Johnson bill.

**International Action.**—Prime Minister Clement R. Attlee of Great Britain arrived in Washington on Nov. 11 for a conference with President Truman and Prime Minister W. L. Mackenzie King of Canada. In a joint statement on Nov. 15 they expressed their willingness to share, on a reciprocal basis with other members of the United Nations Organization, the practical application of atomic energy "just as soon as effective enforceable safeguards against its use for destructive purposes can be devised." However, they took the stand that immediate disclosure of the technical details of the construction of the bomb would defeat rather than ensure the attainment of the desired goal. They appealed to all nations to strengthen the United Nations Organization "to the end of banishing the scourge of war from the earth forever." The statement recommended the formation of a United Nations commission to formulate recommendations for the exchange of scientific information, the outlawing of the atomic bomb, and the establishment of an international inspection service.

**Defenses Against the Bomb.**—Scientists were convinced that there are no defenses against the atomic bomb itself, only against possible carriers. In the event of an atomic bomb race, a nation would have to ring its borders with radar stations on the alert 24 hours a day for an incoming rocket or aeroplane. Anti-aircraft guns would have to be constantly manned and pursuit planes ready to take to the air on a second's warning. But such a defense would have to be 100% effective to serve its purpose. If a city were attacked by 100 rockets carrying atomic bombs and the defenses stopped 99, the 100th would still be sufficient for the total destruction of the city. There would also exist the danger of bombs smuggled in by saboteurs. Scientists believed that in the event of an



atomic bomb race it would be necessary to abandon all large cities and spread the population throughout the countryside so that a bomb might destroy a village but not a city. Factories would have to go underground in deep mines or in tunnels under mountains.

**In Another World War.**—The atomic bomb converts about  $\frac{1}{40}$  of 1% of the mass of U-235 or plutonium into energy. Scientists foresee the possibility of the eventual production of far more powerful bombs, perhaps one converting 2% or 3% of some very common chemical element into energy by some process other than fission. Moreover, they visualize the combination of atomic bombs with many other types of offensive weapons, for example, rockets travelling in the stratosphere with supersonic speeds. They are convinced that the first 24 hours of World War III would see the complete destruction of the principal cities of the contending nations.

**Peacetime Possibilities.**—Physicists believed in 1945 that the development of uranium piles for the generation of power was possible in the near future. The simplest method might be to use the energy to heat water to steam which would operate turbine-generators for the production of electricity. Such piles would need extremely careful shielding to prevent the escape of neutrons and harmful radiations into the surrounding neighbourhood. The ability of such plants to compete with plants using coal would depend upon many factors, including the cost of mining uranium ores, etc.

Many physicists believed that such power plants might be made small enough to be installed in ocean liners but they did not see how they could be made sufficiently small for use in automobiles or aeroplanes. It is important to remember that scientists do not regard uranium fission as the final chapter in the story of atomic energy. On the contrary, it is only the first. It is entirely within the range of possibility that some day methods of releasing atomic energy, other than fission, which will convert larger percentages of the mass involved into energy may be discovered. Should the day come when such nuclear reactions as are known to take place in the stars and the sun can be duplicated, it will be possible to drive an ocean liner across the Atlantic on the atomic energy contained in a glass of water. It is possible, therefore, that in time atomic energy will cause as great changes in the life of the world as did the introduction of steam and the Industrial Revolution.

**Medical and Biological By-products.**—As is well known, the medical profession has long made use of both X-rays and radium in the treatment of many diseases including cancer. After the discovery of artificial radioactivity there was considerable research upon the use of radioactive isotopes both as a means of treating disease and as a tool for biological and medical research. Biologists have long wished for more exact information about the various metabolic processes in the living organism and the rates at which they take place. This is being obtained with the aid of radioactive isotopes which can be traced in the organism by their radioactivity. Biologists speak of such experiments as "tracer experiments." Radioactive forms of carbon, phosphorus, sodium, potassium, iodine, iron, etc., have been used in such experiments. The importance of uranium fission to the biologist and medical man comes from the fact that the fission fragments are highly unstable, undergoing many radioactive changes before they settle down into stable isotopes. The process, therefore, may put a greater volume of radiation and a greater variety of radioactive isotopes at the command of the biologist and medical man. This is bound to lead to many advances in biology and medicine. One hope is that a radioactive isotope may be found which is specific for cancer tissue; that is, an isotope which when taken into the organism will settle only in cancer tissue. Such a discovery might prove the cure for many types of cancers.

**The Years Ahead.**—The knowledge of atomic energy in 1945 may be compared with the knowledge of electricity in the time of Benjamin Franklin. Franklin proved that the destructive lightning bolt was electricity, but man at that time had at his disposal only the feeble static electric machine. There seems no reason to suppose that the conquest and utilization of atomic energy will not duplicate the history of electricity. (See also CHEMISTRY; METALLURGY; PHYSICS.)

**BIBLIOGRAPHY.**—Henry D. Smyth, *Atomic Energy for Military Purposes* (1945); David Dietz, *Atomic Energy in the Coming Era* (1945); Ernest Pollard and William L. Davidson, *Applied Nuclear Physics* (1942); Henry Semat, *An Introduction to Atomic Physics* (1939); Franco Rosetti, *Elements of Nuclear Physics* (1936); L. A. Turner, "Nuclear Fission," *Review of Modern Physics*, 12, 150 (1940). (D. Dz.)

**Attlee, Clement Richard** (1883– ), British statesman, leader of the Labour party and prime minister, was born in London of middle-class parents. After attending Haileybury college, Hertfordshire, and studying modern history at University college, Oxford, he lived in the East End of London, studying social conditions and earning his living as a docker. He joined the Socialists, was admitted as a barrister to the Inner Temple (1905) and in 1913 became a lecturer in social science at the London School of Economics, a post which, with five years' interruption for war service, he held until 1923. Returning from the war with the rank of major, he went back to London politics, being elected mayor of Stepney in 1919 and M.P. for Limehouse in 1922. After a brief term of junior office in the first Labour government, he went to India in 1927 as a member of the Simon commission. In the second Labour government (1929–31) he again held office, first as chancellor of the duchy of Lancaster, then as postmaster general. Having become deputy leader of the La-

bour party in the house of commons after the defection of Ramsay MacDonald in 1931 and leader after the death of Lansbury in 1935, he remained leader of the opposition until he joined Winston Churchill's National government in 1940, first as lord privy seal and from 1942 as deputy prime minister and temporarily secretary of state for the dominions. The victory of the Labour party in the general election of July 1945 automatically gave to Attlee the succession as prime minister. Two days after his appointment, having announced the senior appointments in his new government, he flew to Potsdam to complete the discussions of the Big Three in Churchill's place. In November he took the initiative in arranging a meeting at Washington with President Truman and Prime Minister Mackenzie King, the outcome of which was a joint plan for international control of the exploitation of atomic energy. (H. W. At.)

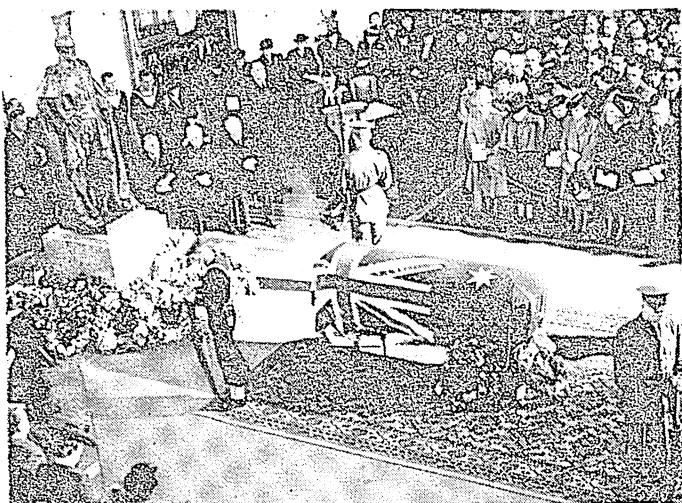
**Australia, Commonwealth of.** A self-governing member of the British Commonwealth of Nations, situated in the southern hemisphere between longitudes 113° 9' E. and 153° 39' E. and latitudes 10° 41' S. and 43° 39' S.; national flag, a blue ensign, with the Union flag in the quarter and six white stars in the field. Language, English. Religion, Christian (census 1933: Anglican 2,565,118; Roman Catholic 1,161,455; Presbyterian 713,229; Methodist 684,022; other Christians 603,914). Ruler, King George VI; governor general in 1945, the duke of Gloucester; prime minister, Joseph Benedict Chifley.

**Area and Population.**—Area 2,974,581 sq.mi.; pop. (est. June 30, 1944) 7,306,637. Chief cities (pop. Dec. 31, 1943): Canberra (capital) (12,200); Sydney (1,398,000); Melbourne (1,170,000); Adelaide (362,500); Brisbane (370,500); Perth (263,000); Hobart (70,800); Newcastle (120,000).

**History.**—*The Political Scene.*—Australia's great wartime prime minister, John Curtin, died on July 5, 1945. His successor, Joseph Benedict Chifley, aged 60, a former engine driver in the New South Wales state railway department, was sworn in as Australia's 16th prime minister on July 13. The most important and controversial legislation laid before parliament during the year was the banking bills and air lines bills. The former consisted of two separate bills, one providing for the regulation of the banking system and the other extending the functions of the Commonwealth bank. The banking bill was designed to secure the following objects: (a) to provide a legal framework uniform throughout Australia for regulating the banking system; (b) to safeguard depositors of banks from loss; (c) to provide for the co-ordination of banking policy under the direction of the Commonwealth bank; (d) to control the volume of credit in circulation, and bank interest rates; (e) to mobilize and provide machinery for the control of foreign exchange and the gold resources of the Australian economy. The main purposes of the Commonwealth Bank bill were, in short: (a) to strengthen the central banking functions of the Commonwealth bank; (b) to ensure that the financial policy of the Commonwealth bank should be in harmony with the main decisions of government policy and in the interests of the people of Australia; (c) to ensure the development and expansion of its general banking business by active competition with the trading banks; (d) to return control of the Commonwealth bank to the governor, assisted by an advisory council; (e) to assist developing small industries and enable the people to secure homes.

In July the Australian National Air Lines bill was introduced by the air minister. It provided that all interstate air lines should be nationalized and controlled by a commission which would have power to acquire compulsorily aircraft and other property (excepting land) and would be empowered to impose a fine up to £500 (\$1,600) for any person establishing or operating





FUNERAL SERVICES for Prime Minister John Curtin of Australia who died at Canberra on July 5, 1945. Mr. Curtin became leader of the Labour party in 1935 and prime minister in Oct. 1941.

a public air transport service in competition with the commission.

The bill met with severe criticism from many quarters but the government view was that the public ownership of air navigation was comparable with the existing government-controlled postal and railroad services.

Another important measure passed by parliament during 1945 was the Life Insurance bill which appointed an insurance commissioner with wide powers to investigate the affairs of companies and compelled some companies to improve policy holders' benefits and empowered the government to set up an insurance office if and when it was thought to be in the public interest. Among social legislation passed were bills increasing the rate of child endowment from 5s. to 7s. 6d. and increasing old age pensions from 27s. to 32s. 6d. a week. Bills were also passed providing war gratuities of £3 15s. for each month of overseas service and 15s. a month for home service after the outbreak of war with Japan. Gratuities were to be payable five years after the war and carry interest at the rate of 3½%.

As a memorial to President Roosevelt the commonwealth parliament decided that a special wing of the national library at Canberra should be dedicated to him and that over the entrance should be inscribed "The Franklin D. Roosevelt Library of American Literature."

**External Affairs.**—Diplomatic appointments announced during 1945 were: Lieut. Col. Roy Hodgson, minister to France; Alfred Stirling, high commissioner to Canada; Lewis R. MacGregor, minister-at-large to South America (with headquarters in Brazil).

Australia was represented at the San Francisco conference by the deputy prime minister, F. M. Forde, and the minister for external affairs, Dr. H. V. Evatt, both of whom had previously visited London to take part in discussions with other members of the British Commonwealth of Nations. In September Dr. Evatt again visited London to represent Australia on the council of foreign ministers.

**Public Finance and Economic Affairs.**—Disastrous drought conditions throughout the eastern and southern states during 1944 and the early months of 1945 were reflected in agricultural and pastoral returns. Wheat stocks in March 1944 amounted to 6,360,000 short tons but by the end of the 1945 season they had fallen to 180,000 short tons. In 1944 meat production was 1,160,000 short tons compared with 1,080,000 short tons in 1945. The wool clip for 1944-45 was high considering weather conditions with an outturn of 3,123,000 bales, but was not expected to exceed 2,800,000 for 1945-46. Good rains in mid-1945 re-

lieved the situation and every effort was made to achieve a maximum acreage of grain for the 1945-46 season.

Chifley, prime minister and treasurer, introduced the budget for 1945-46 on Sept. 7, 1945. He took the opportunity of making a brief review of war finance, revealing for the first time the main heads of war expenditure for the years 1939-45, which reached the total of \$6,755,200,000. Of this amount 34% was provided from taxation. Of the balance, \$2,870,400,000 was raised by public war loans; \$169,600,000 from war savings certificates; \$25,600,000 from interest free loans and \$1,372,800,000 from treasury bills and the use of treasury balances. Estimated war expenditure during 1945-46 would be \$1,152,000,000 compared with \$1,472,000,000 in 1944-45. Immediately after Japan's surrender action was taken to eliminate all but the most essential expenditures, but expenditure for pay and allowances would not show any reduction since, after discharge, members would receive deferred pay and be granted war service leave on full pay. Expenditure for purposes other than war and repatriation was estimated at \$423,648,000. \$1,088,000,000 of the total expenditure would be provided from revenue and the balance of \$486,400,000 from public loans. The chief feature of the taxation proposals was the decision to impose a social services tax of 1s. 6d. in the £ on taxable income. Income tax, however, was to be reduced from Jan. 1, 1946, so that the combined charge on individuals for income tax and social services would be on the average 12½% lower than for 1945. Certain concessions were also provided for in sales tax.

The government's policy during the transition period from war to peace was laid down under two heads. Internally every possible effort was to be made to avoid potential inflation by restoring peacetime production as quickly as possible. Many wartime controls had already been removed and a secondary industries commission set up to assist manufacturers in preparing plans for reconversion. On the other hand, price control was to be continued. Externally, Australia faced an acute shortage of dollars, and would be forced to exercise great care in the expenditure of other foreign exchange as well. It was likely that import requirements would exceed overseas earnings; hence the government was to maintain the machinery of exchange control and import licensing during the transition period.

**Education.**—In 1939: state schools 9,940; average attendance 744,095, teachers employed 31,199; private schools 1,863, average attendance 219,171, teachers 11,496; technical schools 94; total enrolment 101,155, teachers 3,276; business colleges 122, total enrolment 24,337, teachers 727; universities 8, total enrolment 14,236.

**Banking and Finance.**—Revenue (actual 1944-45) \$1,098,950,000; (estimated 1945-46) \$1,088,909,000; expenditure (actual 1944-45), ordinary \$478,291,000; defense \$1,471,987,000; estimated (1945-46), ordinary \$422,400,000; defense \$1,152,000,000. Public debt (June 30, 1944) \$7,573,945,000; notes issued (June 30, 1945) \$596,684,000; gold and sterling reserve (June 30, 1945) \$162,745,000; exchange rate £A1=319.8 cents U.S. (for purpose of converting statistics the figure of £A1=320.0 cents U.S. has been used).

**Trade and Communication.**—Overseas trade 1944-45 (civil merchandise): imports \$256,093,000; exports \$273,740,000. Communication and transport: (1941) roads, total mileage c. 455,000 mi.; railways open to traffic (1942-43) 27,223 mi.; airways (1942-43), distance flown 7,517,000 mi.; mails carried 1,660,000 lb.; motor vehicle registrations (March 31, 1945): cars 502,498; commercial vehicles 287,367; cycles 55,547; wireless receiving set licences 1,465,501; telephones, number of lines, 571,825.

**Agriculture, Manufacturing, Mineral Production.**—Production (in short tons): wool (1944) 582,000; wheat (1943-44)

3,285,000; oats (1943-44) 350,000; barley (1943-44) 190,000; maize (1943-44) 167,000; cane sugar (1943-44) 582,000; butter (1943-44) 175,000; gold (1944) 657,028 fine oz.; coal (1944) 15,075,000; manganese ore (1942) 10,107; silver lead ore (1942) 289,198; zinc and concentrates (1942) 315,875. Total value of production (1941-42): pastoral and dairying \$686,243,000; mineral \$132,022,000; manufacturing \$980,563,000. Labour and employment: employment in factories (1928-29=100) (Feb. 1945) 166.0; number (Feb. 1945) 717,000; unemployment (trade union returns) (Feb. 1945) 1.1%. Total output of factories (1942-43) \$2,721,115,000. (See also NEW GUINEA.) (W. D. MA.)

**Australia, South:** see SOUTH AUSTRALIA.

**Austria.** A republic in central Europe, area 32,369 sq.mi.; pop. (1934) 6,760,233 of whom more than 90% were Roman Catholics. In March 1938 the republic was annexed by Germany as a first step in Germany's plan for the domination of Europe. By the occupation of Vienna the aggressive militarism of Germany gained a strategic position from which the Danubian basin, the Balkans and even Italy could be economically and politically controlled.

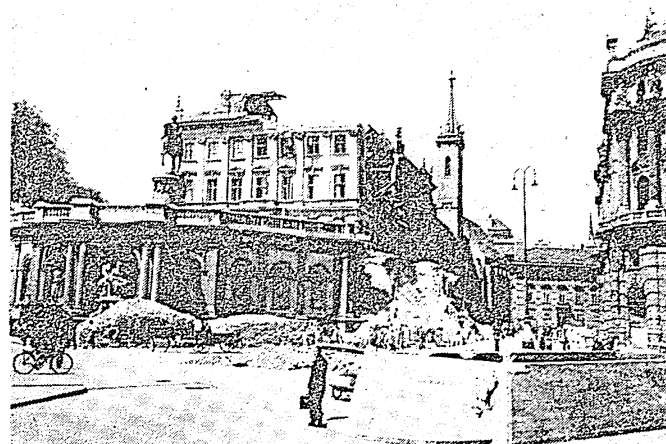
In an effort to avoid such a threat to the security of Europe, the United States, the soviet union and Great Britain pledged in Moscow in Nov. 1943 the restoration of the independence of Austria.

With the defeat of Germany in 1945, Austria was occupied by the soviet union, U.S., Britain and France, which set up an Allied council to establish an independent freely elected Austrian government. The country within its 1937 frontiers was divided into four zones: the provinces of Lower Austria and of Burgenland and the northern part of Upper Austria formed the Russian zone; the southern part of Upper Austria and the province of Salzburg, the U.S. zone; the provinces of Tirol and Vorarlberg, the French zone; and the provinces of Carinthia, including Ost-Tirol, and of Styria, the British zone. Similarly, the city of Vienna was divided into four zones. The Allied council and the inter-Allied governing authority of Vienna consisted of the ranking officers of the four participating nations. (See map of Zones of Allied Occupation of Germany and Austria, 1945, in the article GERMANY.)

As soon as Vienna was liberated and occupied by the Russians, a government was set up there, a coalition of the Social Democrats, the communists and the Catholic People's party. Dr. Karl Renner, a veteran Socialist leader, became chancellor. The communists, out of proportion to their actual strength, held the important cabinet posts of the interior and of education. By the end of Sept. 1945 a meeting of representatives of the various diets, meanwhile established in the provinces, was called together in an effort to broaden the Renner cabinet. As a result of the meeting the Austrian government was recognized by the Allies, and elections were held on Nov. 25. All except former members of the National Socialist party were allowed to participate in the election. In spite of the exclusion of former nazis, the elections resulted in a crushing defeat of the communists and in a victory of the conservative People's party. Of the 165 seats of the national assembly, 85 seats went to the People's party (1,574,537 votes), 77 seats to the Social Democrats (1,420,562 votes) and only 3 seats to the communists (175,471 votes).

As a result of these elections, Leopold Figl, the leader of the People's party, formed a new coalition cabinet with himself as chancellor. Dr. Renner was elected president of the Second Austrian republic on Dec. 20, 1945.

Austria's economic situation was extremely difficult. It was not helped by the fact that the Russian occupation forces dis-



THE STATE OPERA HOUSE on Vienna's Ringstrasse, showing part of the extensive damage sustained in the fighting prior to the city's liberation by Russian troops on April 13, 1945

mantled and removed many of Austria's important industrial undertakings, claiming them as part of German reparations. Among these industrial objects claimed by Russia were the important oil wells of Zistersdorf which had been greatly expanded under German occupation. The food situation in Austria, which was much worse than that in Germany, was alleviated by the U.N.R.R.A.

The Austrian government claimed the return of the German-speaking parts of Austrian South Tirol from Italy, which Italy had annexed after World War I. South Tirol, of strategic importance to Italy, was ethnographically and economically of vital importance to Austria. (H. Ko.)

**Autobiography:** see AMERICAN LITERATURE; etc.

**Automobile:** see AUTOMOBILE INDUSTRY IN RECONVERSION; MOTOR TRANSPORTATION.

**Automobile Accidents:** see ACCIDENTS; INSURANCE.

**Automobile Industry in Reconversion.** The year 1945 in the United States automotive industry was a year of reconversion from nearly 100% war production to peacetime activities.

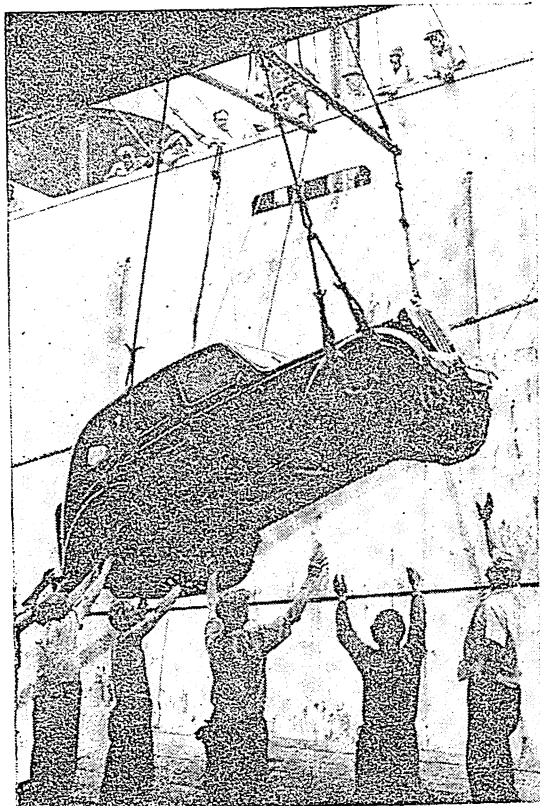
The year began with war production at a rate close to the peak of the entire World War II period due to the stimulus given by the German break-through at Ardennes. The relative emphasis on production of the various types of weapons and equipment had changed considerably at the end of the war as compared with the beginning.

From Jan. 1, 1945, to V-J day, Aug. 14, when nearly all war contracts were cancelled, approximately \$5,400,000,000 worth of war articles were delivered by the automotive industry to the U.S. and its Allies.

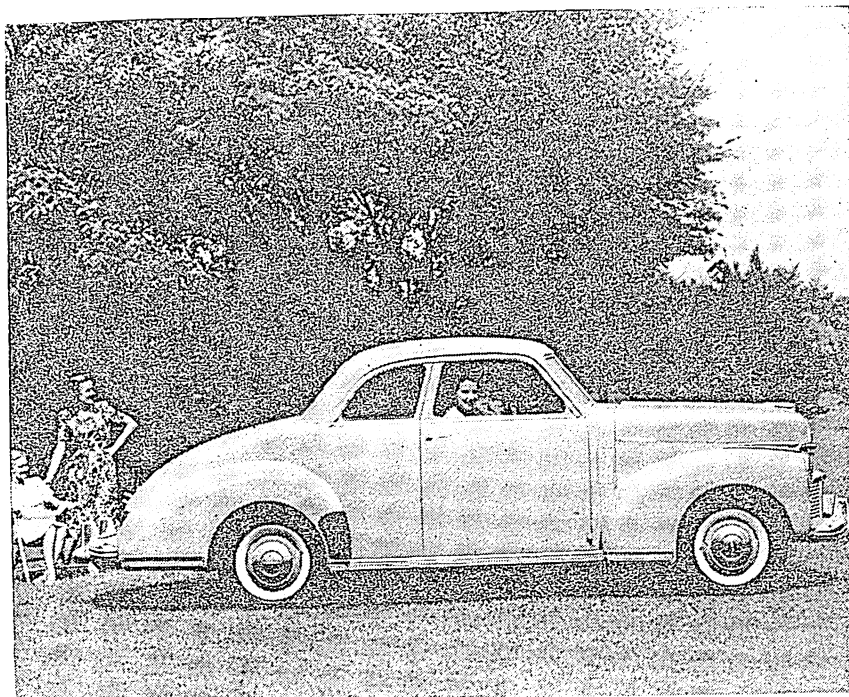
A comparison of the proportion of deliveries of each product group during 1945 and during the first quarter of 1942 is given in Table I.

Table I.—Comparison of Percentages of Deliveries of War Products, During 1945 and the First Quarter of 1942

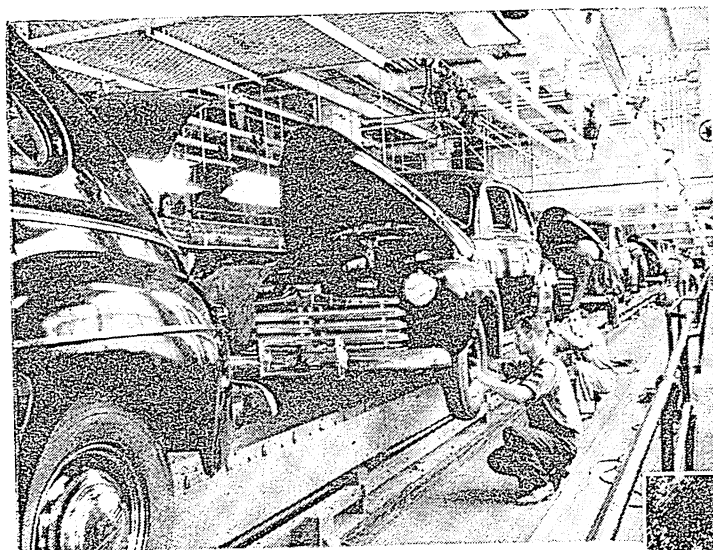
	1945	1st Quarter 1942
Aircraft, aircraft subassemblies and parts . . . . .	40.8	22.8
Military vehicles and parts . . . . .	28.0	49.8
Tanks and parts . . . . .	15.8	6.8
Marine equipment . . . . .	5.2	4.9
Guns, artillery and parts . . . . .	2.6	9.5
Ammunition and components . . . . .	3.7	3.8
All other war products . . . . .	3.9	2.4
Total . . . . .	100.0	100.0



Above: AN AUSTIN 4-door sedan is lowered onto a N.Y. pier on its arrival from Liverpool in July 1945. It was the first British postwar model sent overseas and marked the reopening of trade between Great Britain and the U.S.

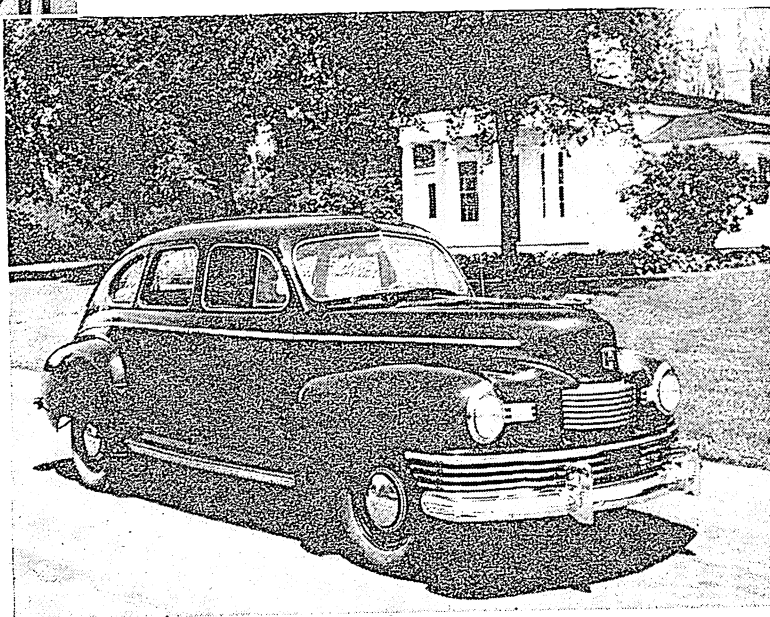


Above: STUDEBAKER CHAMPION, one of four body types in the series being produced for the postwar market at South Bend, Ind., during the latter part of 1945



Left: NEW FORD Super de Luxe cars starting to roll off an assembly line in Detroit, Mich., in Aug. 1945

Right: NASH "600" postwar car in the low price field, in production at Detroit, Mich. These cars were the first built by the Nash-Kelvinator Corp. after Jan. 1942





As World War II ended in 1945 it will be of interest to summarize the contributions of the automobile industry in the production of armaments during the war period. From Sept. 1, 1939, to the end of 1945, the U.S. automotive industry delivered nearly \$30,000,000,000 in war products, in the following classifications.

Table II.—Values and Percentages of Deliveries of Various War Products, Sept. 1, 1939, to Dec. 31, 1945

	Total Values	Per Cent
Aircraft, aircraft subassemblies and parts . . . . .	\$11,244,857,000	38.8
Military vehicles and parts . . . . .	8,591,143,000	29.7
Tanks and parts . . . . .	3,781,356,000	13.1
Marine equipment . . . . .	1,951,658,000	6.7
Guns, artillery and parts . . . . .	1,589,841,000	5.5
Ammunition and components . . . . .	907,535,000	3.1
All other war products . . . . .	903,610,000	3.1
Total . . . . .	\$28,970,000,000	100.0

Such huge dollar figures can, perhaps, be better visualized in terms of units, to the extent that unit figures were available in 1945. From Sept. 1, 1939, to Dec. 31, 1945, the U.S. automotive industry delivered to the U.S. government and the United Nations the units shown in Table III, in addition to munitions and miscellaneous war products not available in terms of units but shown in Table II in terms of dollars.

Table III.—Units of Deliveries of War Products from Sept. 1, 1939, to Dec. 31, 1945

Kind of Products	Units
Guns and artillery	
Carbines . . . . .	3,386,570
Machine guns . . . . .	1,439,810
Anti-aircraft . . . . .	156,100
Other types . . . . .	848,500
Total . . . . .	5,830,980
Engines	
Aircraft . . . . .	418,300
Tank . . . . .	161,230
Marine . . . . .	166,450
Total . . . . .	745,980
Military truck engines . . . . .	3,200,000
Total engines . . . . .	3,945,980
Combat vehicles	
Tanks . . . . .	48,750
Amphibian tanks . . . . .	5,100
Self-propelled artillery carriages (tank type) . . . . .	23,750
Armoured cars and other gun carriages . . . . .	113,560
Total combat vehicles . . . . .	191,160
Military vehicles	
Jeeps (included with military vehicles) . . . . .	2,600,000
Military trailers . . . . .	659,031
Total . . . . .	578,000
Complete aeroplanes	
Bombers . . . . .	16,035
Fighter aeroplanes . . . . .	5,800
Total . . . . .	21,835
Gliders . . . . .	4,288
Torpedoes . . . . .	2,000
Buzz bombs . . . . .	2,000
Gyrocompasses for navy . . . . .	5,500

This huge volume of fighting equipment produced by the automotive industry for the armies, navies and air forces of the United Nations was in no small measure expedited by the industry's special wartime organization, the Automotive Council for War Production. Through its efforts, advances in technology, improvements in plant layout, methods of saving or substituting for scarce materials, ways of reducing manpower requirements and information on available idle machine tool capacity were exchanged and made known to other manufacturers, so that victory might be achieved sooner than if no such co-operative efforts were undertaken.

Several months before the end of World War II, plans for quick reconversion to peacetime production were worked out in conjunction with government agencies so that the necessary paper work, clearing of plants of government-owned equipment and materials in process could be accomplished in the shortest possible time. This was followed by the making of plans by individual companies for the speedy acquisition of new machine tools to replace those worn out in war production or sold to other manufacturers of war products, the expeditious rearrange-

ment of company-owned machine tools and equipment and reconstruction of final assembly lines. This prereconversion planning enabled manufacturers to make the transition from war production to peacetime activity much more smoothly and quickly than otherwise would have been possible.

Shortly after the defeat of Germany the War Production board curtailed or cancelled some of the war contracts held by the various passenger car manufacturers, thus making possible a resumption of civilian automobile production on a small scale, while, at the same time, continuing production on those war contracts required to defeat Japan. Quotas of 241,916 automobiles during the six-month period ending Dec. 31, 1945, and 449,102 during the three-month period ending March 31, 1946, were allotted to the various manufacturers in proportion to prewar output but modified so as to take into account practical minimum operating rates. The total allotment of cars was limited by the amount of steel and other raw materials available in excess of war requirements and other necessary civilian articles scheduled for production.

Manufacturers made considerable progress on the partial reconversion, and in fact one company had produced several hundred automobiles at the time Japan capitulated and nearly all war contracts were cancelled. The cessation of nearly all war activity in the automobile plants made it necessary to begin physical reconversion over again, on a 100% basis, utilizing as much as they could of the partial reconversion under way.

Thanks to the timely planning for reconversion, the arrival of the war's end found the automobile plants and the government contract termination agencies prepared to meet the challenge with a minimum of confusion.

The huge volume of paper work involved in contract termination and settlement was almost completed by the end of 1945. The physical reconversion of the plants was achieved with equal expedition.

Despite this skill in the handling of the reconversion problems, a number of other factors arose to block achievement of the civilian production schedules planned shortly after the defeat of Japan for the rapid acceleration of new passenger car and truck construction. A survey by the U.S. War Production board indicated that passenger car manufacturers in mid-August 1945 had planned to turn out 500,000 new cars before Jan. 1, 1946. Actually only about 75,000 were built, averaging 22 cars for each of the 33,000 dealers in the U.S. But some manufacturers succeeded in turning out only a few hundred cars toward the end of the year, not enough to supply all their dealers with cars for display purposes.

Reasons for this lag in resumption of production on an increasing scale were to be found in shortages of materials such as glass and textiles; interruptions in the supply of components such as wheels, transmissions, gears, bearings, because of strikes in the supply plants; and work stoppages in the final assembly plants of passenger car manufacturers.

Reconversion of truck manufacturing plants was a relatively simple task compared with that of automobile and their body plants which literally had been torn apart for war production. Truck plants in the main, except for the combat vehicles produced in some plants, produced military vehicles which were similar to the civilian vehicles turned out prior to World War II. The problems concerned primarily termination and settlement of war contracts for work in process and inventories of materials that could not be used in civilian vehicle production. The physical alteration of the plants was negligible.

Even before the European phase of World War II ended, the War Production board had scheduled a relatively large number of civilian trucks for production in 1945. When Japan capitulated civilian truck output was well under way, but sched-

ules could not be achieved because of shortages of certain components such as transmissions, engines and axles.

A total of 315,000 civilian trucks was produced during 1945, in addition to the 353,000 military vehicles going to the armed services. Shortages of components because of strikes in parts-supplying plants limited production to 50% of what otherwise could have been built during the last few months of the year.

Civilian replacement parts production was continued throughout the war at a rate adequate to take care of the demand for essential replacement parts. At the war's end production increased moderately, making it possible to maintain service on the 30,000,000 aged motor vehicles still in operation.

Employment in the automotive industry was maintained on a higher level after V-J day than was anticipated earlier in 1945. The low point was September with a total of 423,000 production workers as compared with 693,000 in January, the peak month of the year. Employment declined steadily from January to September and then turned upward with 454,000 in October, the latest month for which official figures were available at the close of the year. Strikes in progress at the end of the year probably reduced employment below the September level.

Aggregate registrations of passenger cars in the U.S. totalled approximately 25,350,000 during the year ending Dec. 31, 1945. This is 4,157,000 below the highest prewar year 1941, and only 222,849 lower than 1944. New cars sold from inventories to consumers after Feb. 10, 1942, when production was discontinued, were 532,810, so that the total number of passenger cars scrapped during the war was in excess of 4,690,000 units. This large decrease in consumer inventories of rolling stock and the advanced age and generally decrepit condition of cars remaining pointed to a potential market such as the industry had experienced in no other period of its 50 years of existence.

Total truck registrations at the end of 1945 were 4,650,000, reflecting a gain of 137,000 units over the previous year, but a loss of 226,000 units from the prewar peak of 4,876,000 trucks

in 1941. One reason for the small decrease in trucks in use during the war was the conversion of passenger cars to commercial vehicles by making alterations of the bodies; another reason was the salvage of trucks from auto graveyards; and a third reason was that new civilian trucks were produced in limited volume throughout the war period. The total scrappage of motor trucks in use in the U.S. during the war period, from 1941 to 1945, was probably about 850,000 units. This estimate is arrived at by adding the total number of new trucks allocated to users in the U.S. from March 9, 1942, to Sept. 30, 1945, of 505,454 units, and the estimated retail sales during the last quarter of 1945, of 120,000 new trucks, to the reduction, of 226,000, in total registrations below 1941. The severe wear during the war and the above-normal average age of trucks in use indicated a potential postwar market greater than any other peacetime period. (See also BUSINESS REVIEW.)

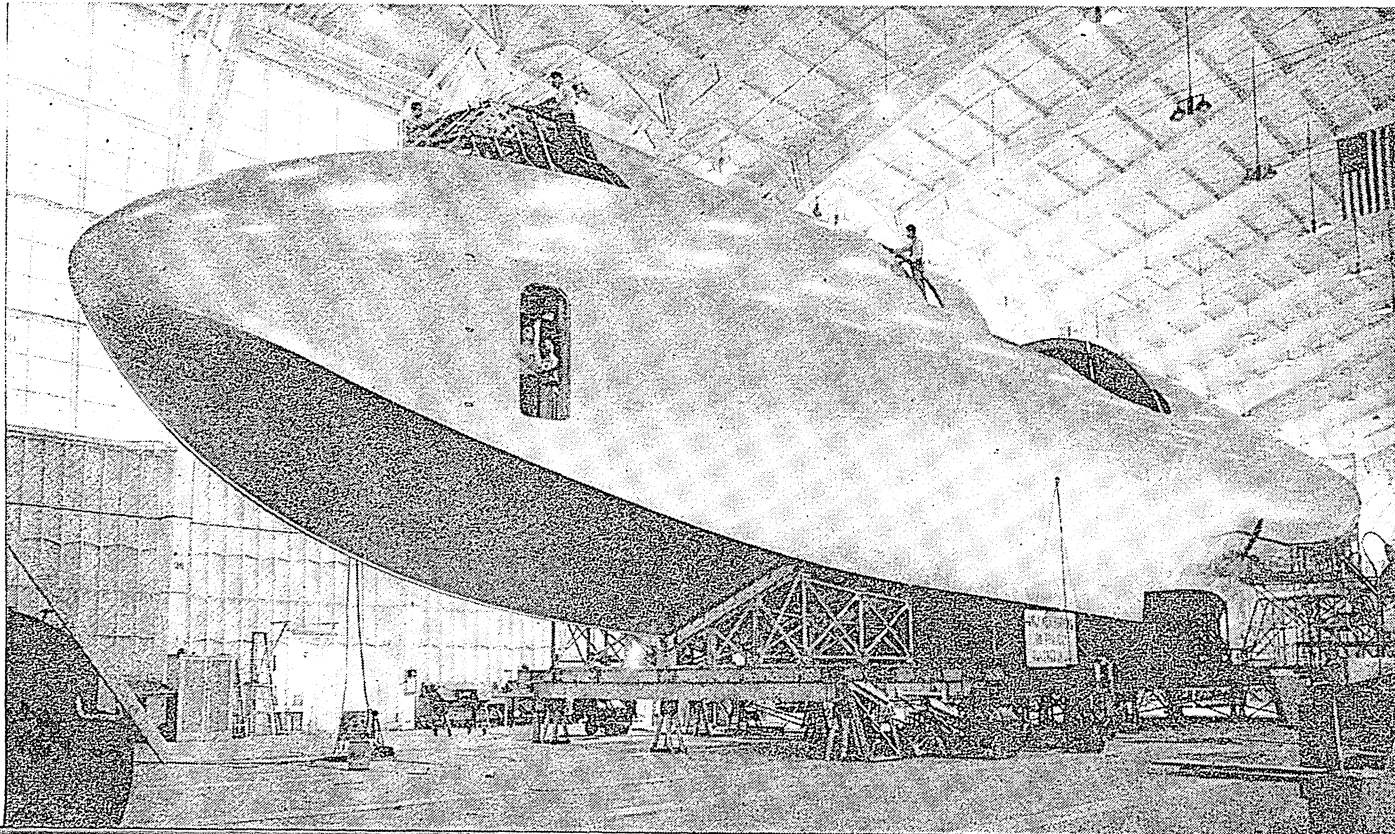
FILMS.—*Development of Transportation* (Encyclopædia Britannica Films Inc.).

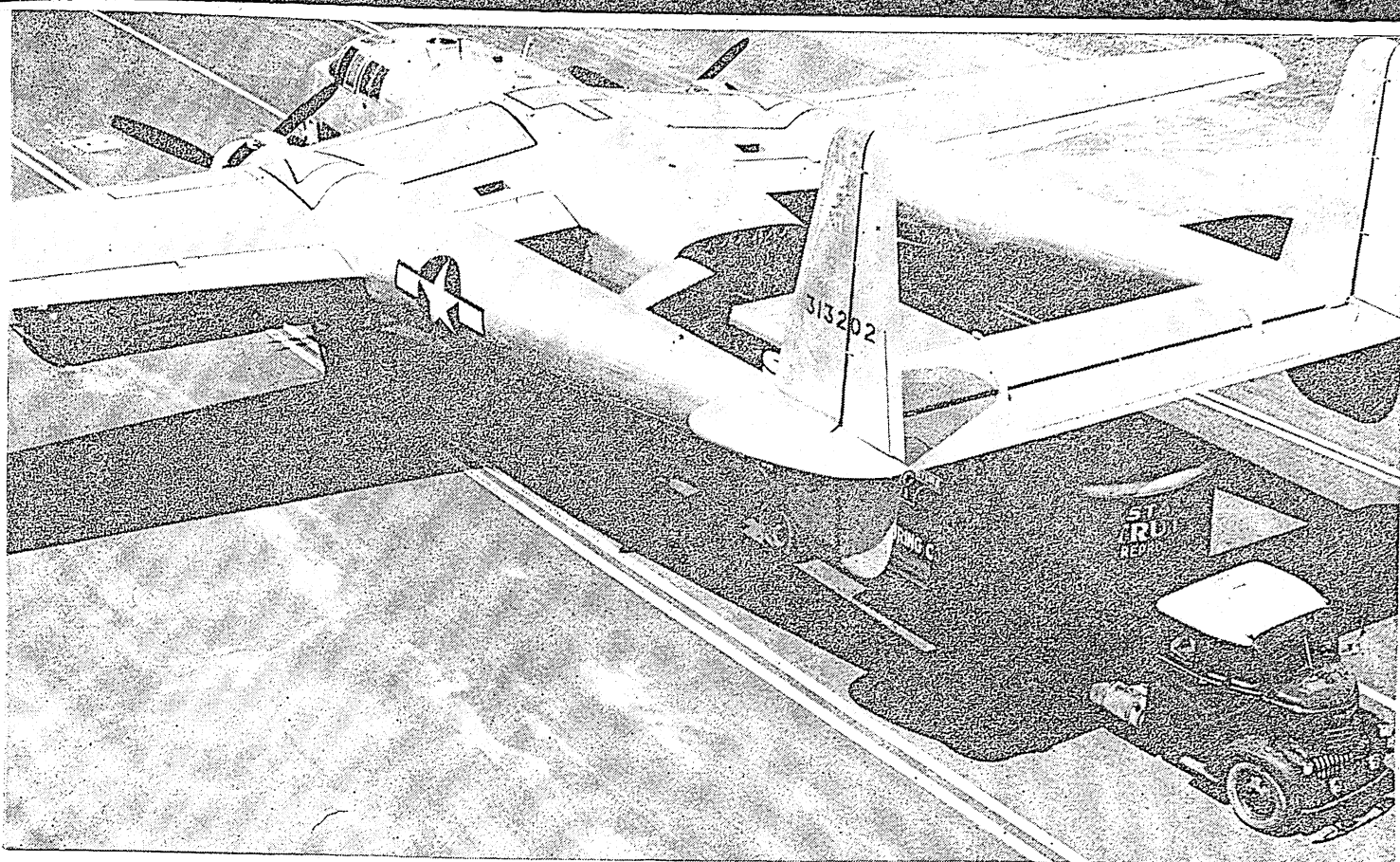
**Automobile Insurance:** see INSURANCE.

**Aviation, Civil.** After more than three years of war, during which all efforts were directed toward victory over the axis powers, U.S. civil aviation girded itself for the transition from war to peacetime operations. Although the task ahead was tremendous, aviation, looking back on its wartime achievements, could face the future with confidence.

The aviation manufacturing industry had repeatedly surpassed production schedules that at the time of announcement had seemed fantastic. After the outbreak of World War II, it had produced 304,705 military aircraft having an airframe weight of 2,817,736,000 lb. and a value of \$44,764,000,000. Commercial air lines, in the face of losses of personnel and equipment, not only continued to better their performance records in commercial operations, but in addition conducted contract operations of staggering proportions for the armed forces, speeding military personnel and supplies to all parts of the world. During the first 11 months of 1945 U.S. carriers in contract services flew 100,544,961 transport miles, 1,751,763,336 passenger miles and 399,928,428 ton miles. With the completion of the major part of the direct war operations in the early

HULL of the "Hughes Hercules," giant cargo seaplane under construction at Culver City, Calif., in 1945. Its specifications included eight engines of 3,000 h.p. each, wing-span of 320 ft., top speed of about 218 m.p.h., and capacity as a transport of about 750 persons





C-82 "PACKET," twin-engine Fairchild cargo transport first produced in 1945, is shown with its huge rear doors open for loading. Its freight capacity is 9 tons, or 88% of a railroad boxcar, and it features square cargo space and a level floor at truckbed height

part of 1945 it was revealed that in the course of those operations the air lines had flown 8,000,000,000 passenger miles and 850,000,000 cargo ton miles. The distance travelled was the equivalent of 26,000 trips around the globe at the equator.

Even private flying had contributed its share. Private pilots formed the nucleus of the Civil Air Patrol which did valuable work in coastal patrol, courier service and search flights; civilian pilots, through the operation of flying schools under contract to the army, trained hundreds of thousands of cadets for the air forces; women contributed their share by serving as pilots in the ferrying of military aircraft.

**International Air Transport.**—Despite extensive reductions in service, the army's air transport command, with its network of routes covering the world like a gigantic spider web, remained the largest international air transport operator. However, the commercial air lines, already familiar with the operations as a result of their war services, moved rapidly to fill the gaps left by the withdrawal of the army organization.

During 1945, U.S. flag lines carried approximately 460,000 revenue passengers for an estimated 493,000,000 revenue passenger miles on their international routes. Revenue miles flown were estimated at 32,000,000 and ton miles of mail and cargo were 4,625,000 and 8,336,000, respectively.

The pattern of postwar operations emerged when three air lines, Pan American Airways, American Airlines Overseas and Transcontinental and Western Air, were authorized to fly the Atlantic in scheduled commercial service. Operation of those routes was to link the United States by air with the principal centres of Europe, North Africa, the middle east and India. The Atlantic extensions raised the total international certificated route mileage of U.S. carriers to approximately 106,000 as compared with 57,804 in 1940.

By the end of 1945 P.A.A. and A.A.O. were operating daily flights each way between the U.S. and the British Isles and plans were underway for a steady extension of service over the entire

length of the routes. Although T.W.A. had not inaugurated service, a preview flight had been made and operation to Paris was expected to begin early in 1946. P.A.A. had dispatched survey flights preparatory to opening its India service and reopening its Pacific routes to the orient and Australasia.

In all the far-flung international operations, only four accidents occurred during the year. These resulted in two passenger deaths for a passenger fatality rate of 3.44 per 100,000,000 passenger miles. Proof of the maturity of the international service was given when one of the large insurance underwriting groups announced that passenger insurance could be obtained for travel on U.S. international lines to any part of the world at the same rates prevailing for domestic flights.

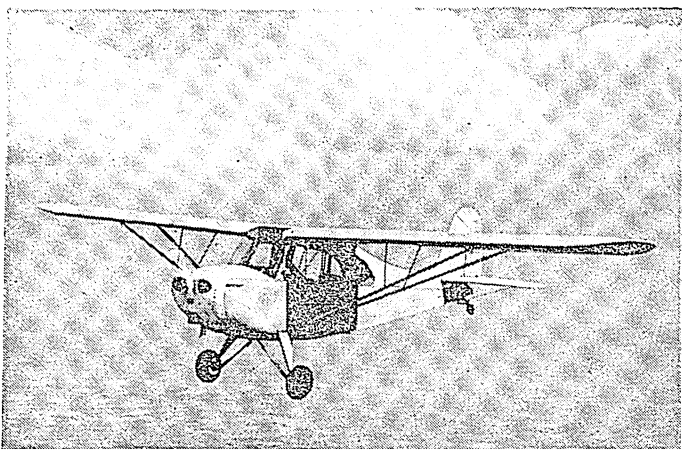
**Domestic Operations.**—Following the pattern of prior years, the domestic air lines again broke all previous traffic records. On the basis of official reports for the first ten months of the year, estimated revenue passenger miles flown totalled 3,525,619,866, an increase of 56.9% over the 2,246,894,489 revenue passenger miles in 1944. Revenue miles increased 51.9% from 144,240,440 in 1944 to an estimated 219,169,459 in 1945. Revenue passengers were estimated to have numbered 6,621,842 in 1945 as against 4,575,716 in 1944.

Mail, cargo and express hauled likewise showed substantial increases. During 1945 ton miles of mail amounted to 72,231,126 as compared with 51,143,837 in 1944, an increase of 41.2%. Comparative figures for ton miles of express and cargo carried during the two years were 24,505,243 in 1945 and 17,694,988 in 1944. This represented an increase of 38.4%.

Operating revenue for the first nine months of 1945 reached a total of \$158,231,842, the revenue being comprised of \$121,588,822 passenger, \$25,289,655 mail, \$8,575,623 express and freight and \$2,777,742 all other. During the same period of 1944, total operating revenue amounted to \$114,295,278. The total for 1944 consisted of passenger revenue of \$82,656,216, mail revenue of \$23,643,232, express and freight revenue of \$5,833,263 and other revenue of \$2,162,567.

Although operating expenses increased from \$86,909,815 in 1944 to \$125,464,485 in 1945, the great increase in gross operat-





THE "CHAMPION," low-priced private plane produced by Aeronca Aircraft Corp. during 1945. Its small size recommended it to sportsmen or miners for landing in inaccessible places

ing revenue permitted the carriers to show net operating revenue in 1945 of \$32,767,357 as compared with a net operating revenue in 1944 of \$27,385,463. For the 12 months ending Sept. 1945, the carriers had a total operating revenue of \$204,864,716 made up of \$155,373,296 passenger revenue, \$34,963,820 mail revenue, \$11,048,654 express and freight revenue and \$3,478,946 all other revenue. Operating expenses during the same period amounted to \$163,076,695, leaving a net operating revenue of \$41,788,021.

On Dec. 15 the domestic fleet reached a total of 402 transport planes, for the first time exceeding the 359 aircraft on hand at the time of Pearl Harbor. The load factor (percentage of seats occupied) and daily hours of aircraft utilization, both having nearly reached the saturation point during the war declined slightly, although a few individual carriers continued to show increases in both of those categories.

In October all priorities for air travel were abolished, but that move did not bring to an end the large-scale transportation of military personnel. At the request of the army, several air lines in August inaugurated the "Trans-Con" project, a contract service from coast to coast, carrying service men across the U.S. for discharge. By the end of December, 63,376 soldiers had been transported on this operation. Another move designed to speed the movement of returning military personnel was an order by the Office of Defense Transportation in December requiring the carriers to allot 70% of all eastbound seats from the Pacific coast to members of the armed forces.

Passenger fatalities in scheduled domestic operations increased from 50 in 1944 to 76 in 1945; however, as a result of the increase in the scope of operation, fatalities per 100,000,000 passenger miles flown decreased from 2.2 in 1944 to approximately 2.11 in 1945. This represented approximately 47,000,000 passenger miles flown per fatality in 1945 compared with approximately 45,000,000 miles in 1944.

The number of route miles in the domestic transportation network increased by 4,042 in 1945, bringing the total route mileage the air lines are authorized to operate by the Civil Aeronautics board to an all-time high of 66,979. Certificated stops rose in number to 406, with service actually being rendered to 319 and temporarily suspended at the remaining 87. It was estimated that 82% of the entire urban population lived within a 25-mi. radius of the certificated routes and 93% within a 50-mi. radius.

As 1945 closed there were 581 applications for scheduled domestic service before the Civil Aeronautics board. Of the applicants, 479 proposed to engage in conventional type service, 41 in pickup service and 61 in helicopter service.

**Foreign Air Lines.**—Faced with shortages of equipment and

gasoline, the foreign air lines struggled to rebuild their prewar networks and laid plans for extensive postwar expansion. Although frequency of service was necessarily limited, 1945 saw the reopening of service to most of the major cities of Europe. Even in Czechoslovakia, one of the last countries to be completely liberated, a new state-owned air line had inaugurated service throughout the country.

In England, British Overseas Airways corporation joined the struggle for world air trade. By the latter part of the year, B.O.A.C. had increased service on its England-Australia operation to two round trips per week and, in conjunction with South African Airways, had re-established through service on a weekly basis between the British Isles and the Union of South Africa.

K.L.M., Royal Dutch Airlines, re-established service under contract to the Netherlands government between Amsterdam and Batavia on a bi-weekly schedule. Losing no time in entering the international race, K.L.M. requested approval by the Civil Aeronautics board of its proposed routes between Amsterdam and New York and between Miami and Curaçao. Applications for transatlantic service were also filed by three Scandinavian air lines representing Norway, Sweden and Denmark who announced their intention of pooling resources for the operation.

The French air lines continued the expansion of their services in Europe and the French African possessions and laid plans for an operation to South America. Russia revealed that transport services had been resumed throughout most of the country and announced a proposed service extending east and west from Russia to the United States. S.A.B.E.N.A., the Belgian company which had concentrated its wartime efforts in the Congo, inaugurated a service from Africa to Europe.

In the western hemisphere, Trans-Canada Air Lines for the first time made its transatlantic service available to the public, although priorities still limited travel to passengers on essential business. Paced by development in Mexico and Brazil, the extensive network of air routes in Latin America continued to expand. By mid-year the approximately 50 air lines operating as common carriers in Central and South America were flying a total of more than 125,000 unduplicated air miles.

The French government assumed control of all air lines in that country during the year, and the British labour government disclosed its intention of nationalizing all British scheduled air transport services and all airfields needed for scheduled operations. Under the plan announced in England, three wholly owned government corporations would be established, one to conduct operations to the United States, the far east and the countries forming the commonwealth; the second to handle services to South America; and the third to direct internal

THE "ENSIGN," All American Aircraft's low-wing two-seat monoplane, first exhibited on Sept. 20, 1945. Designed for private business or recreation flying, it featured a Plexiglass enclosure and a practical cruising speed of 112 m.p.h.



routes and European services. A similar move in Australia was defeated when the high court declared invalid the provisions of a law that would have permitted nationalization.

**Production.**—After rising to the position of the largest industry in the world, the U.S. aircraft manufacturing industry, with the major part of its contracts cancelled after the cessation of hostilities, fell to the 15th or 16th industry in size in the United States by the end of 1945. From a war peak in March 1944 of 9,117 military aircraft with an airframe weight of 88,907,000 lb., monthly production decreased in 1945 to less than 300 planes with an airframe weight not totalling 2,000,000 lb. Cutbacks in production that had already begun at the first of the year turned into an avalanche at V-J day. On a single day in August, contracts totalling \$9,000,000,000 and including 31,000 military aircraft were cancelled. Industry employment which had exceeded 1,000,000 at the beginning of the year reached a low of 146,238 in Oct. 1945.

The number of military aircraft produced in 1945 numbered 47,815 as compared with 96,369 in 1944 and total airframe weight decreased to 540,800,000 lb. from the 1944 figure of 961,121,000 lb. Value of production was almost halved, with the total for 1945 estimated at \$8,320,000,000 as against \$16,339,000,000 for 1944.

**Private Flying.**—Given impetus by the removal of wartime restrictions and the release of thousands of trained pilots from the armed forces, private flying moved forward to a postwar boom of unprecedented proportions. Student pilot certificates issued during 1945 numbered 70,000 as compared with 51,000 in 1944 and only 30,000 in 1939. Private, commercial and air line pilot certificates in effect at the close of 1945 totalled 182,000. This compared with a total of approximately 115,000 in 1944. With the release of surplus small aircraft by the armed forces, the number of registered aircraft in the United States rose from approximately 28,000 in 1944 to more than 37,000 in 1945. However, the demand for personal aircraft still exceeded the supply and at the year's end private plane manufacturers estimated that they had back orders on hand for between 40,000 and 50,000 such aircraft.

**International Organization.**—The plan for international co-operation in civil aviation drawn up at the 1944 Chicago conference began to be executed in 1945 with the setting up in Montreal of the Provisional International Civil Aviation organization. Chosen to head the interim council of the body was Dr. Edward P. Warner, recognized both in the United States and abroad as one of the outstanding figures in the field of aviation. Although much of the initial work of P.I.C.A.O. necessarily consisted of the unspectacular task of establishing a working organization, progress had been made in starting on the important tasks assigned the organization. A substantial amount of work had been done by the statutory committees provided for by the Chicago conference, and at the close of 1945 P.I.C.A.O. announced plans for convening a number of regional conferences on air navigation matters in 1946. The total number of nations who had signed the interim agreement and thereby become members of the P.I.C.A.O. assembly reached 40.

**Government Activity and Aviation Problems.**—Although great progress was made during the year, pressing problems clouded the civil aviation horizon. In the international field several countries remained adamant in their opposition to the broad freedom of the air envisaged by the documents drawn up at the Chicago conference. Negotiations for the right to operate services to and through foreign nations continued to be handled on the basis of bilateral agreements between the countries concerned, and the questions involving rates, frequency of service and quantity of traffic carried remained for future solution. Another cause of worry in the international aviation picture was

the problem of continuing operation of the essential world-wide network of air navigation facilities set up by the U.S. army in the course of its wartime operations.

Other equally important problems faced U.S. aviation. Although all efforts to permit surface carriers to enter into the field of air transportation were blocked during 1945, the problem involved, going to the very heart of the United States postwar aviation policy, showed no signs of having reached a final settlement. Also requiring action were the questions of the shape the feeder-line system of the U.S. should assume, and the degree to which nonscheduled operators should be subject to government economic regulation. Consideration of those matters comprised an important part of the work of the Civil Aeronautics board during the year, and after extensive investigation and hearings both questions were under final consideration by the CAB at the end of 1945.

During the year the CAB completed the important hearings on the applications of U.S. carriers for international service and only those involving service across the Pacific and South Atlantic remained undecided. An important change in the airworthiness requirements for transport aircraft occurred when the CAB eliminated the fixed stalling speed limit previously in effect.

The increased emphasis placed upon private and nonscheduled flying by the Civil Aeronautics administration was highlighted by the appointment of an assistant to the administrator to recommend procedures for the advancement of this type of flying. This was followed by the naming of a private flying advisory committee made up of civilians from many parts of the aviation industry.

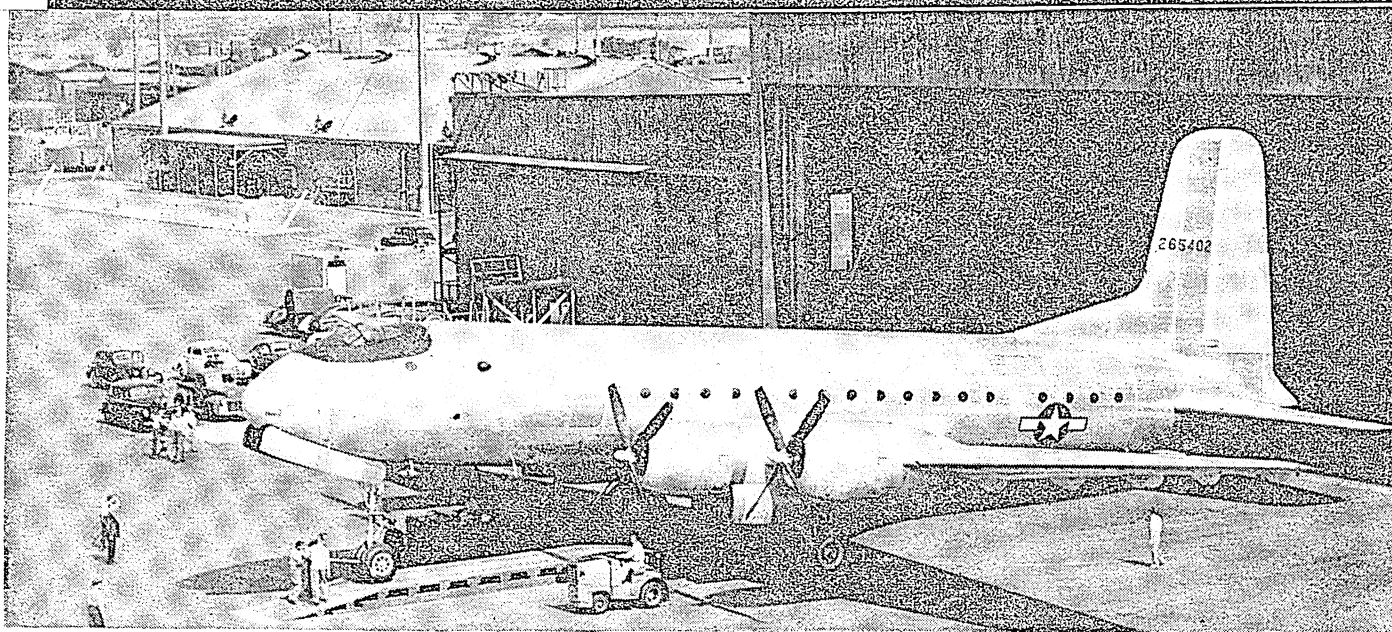
In addition to preparing and disseminating information on airport planning, standards and operation, the CAA assumed an important role in the disposition of surplus airports with the announcement by the Surplus Property administration that the CAA would take part in all negotiations for the disposal of such airfields. Aid for veterans, trained in aviation or desirous of entering the aviation field, was undertaken by the publication of surveys of postwar employment prospects in the aviation industry, and by the establishment, in conjunction with the army, of refresher courses to assist qualified army aeroplane and engine mechanics to obtain CAA certificates. (See also AIRPORTS AND FLYING FIELDS; AVIATION, MILITARY; PETROLEUM; POST OFFICE.)

FILMS.—*Airplane Changes Our World Map; Airplane Trip; Development of Transportation; Problems of Flight; Theory of Flight* (Encyclopædia Britannica Films Inc.). (G. M. M.)

**Aviation, Military.** U.S. Army.—In 1945 the United States army air forces reached its peak strength of World War II, having 80,083 aeroplanes of all types on Aug. 5, and more than 2,400,000 men and women on March 31. Of the aircraft, 43,284 were combat planes and by the end of May 1945 more than half of these were overseas. Prior to that time the European air forces had successfully completed their mission by driving the luftwaffe from the air and destroying the productive capacity of German industry. In Japan, meanwhile, the very heavy bomber forces were systematically reducing the Japanese manufacturing centres to ashes.

From Jan. 1, until the Japanese surrender on Aug. 14, the A.A.F. flew 678,352 combat sorties, a combat sortie being considered as one aeroplane on one combat mission. Of these sorties 438,192 were against the Germans and 240,160 against the Japanese. This brought the total for World War II to 2,354,124 sorties, 1,692,469 being flown in Europe and Africa, and 661,656 in Asia and the Pacific.

The mission in which the largest number of aeroplanes participated took place on Dec. 24, 1944, when 2,055 bombers and fighters struck behind the German lines in a single co-ordinated



DOUGLAS C-74 GLOBEMASTER, world's largest land plane, was test-flown on Sept. 5, 1945. The 4-engine supertransport has a maximum range of 7,800 mi., a speed exceeding 300 m.p.h. and a useful load capacity of 30 tons. It can circle the globe in 2 stops

attack to relieve the pressure on the ground forces in the Ardennes Bulge.

For an air force to be effective against ground targets, it must have superiority in the air. In gaining this superiority over the Japanese, the A.A.F. had destroyed 10,314 Japanese planes. In return, slightly more than 4,000 army planes were lost against the Japanese. Meanwhile, in gaining air superiority over the luftwaffe, army planes destroyed almost 30,000 German aircraft. During all the European missions the A.A.F. lost 18,418 of its own planes. Beside the battle for the skies and the strategic effort in Europe there was a brilliant campaign being waged in Asia.

In addition to launching its constant attacks on Japan, the very heavy bomber program, using B-29 Superfortresses, continued growing steadily. By the end of the war there were more than 2,800 very heavy bombers, of which more than 1,000 were deployed in the Pacific. With a far smaller numerical strength than that of the medium and heavy bombers, the B-29 forces on Aug. 1 made the most powerful raid of the war by dropping 6,871 tons of bombs on Japanese military and industrial targets. Soon afterward, a single B-29 of the 20th air force dropped an atomic bomb on Hiroshima, and dropped another a few days later on Nagasaki. The Japanese surrendered almost immediately, citing the air-borne atomic bomb as a weapon which could obliterate the Japanese nation. For the first time in history a nation had surrendered without a single enemy landing on its soil. (H. H. A.)

**U.S. Navy.**—The year 1945 found the United States navy with the world's most powerful naval air force. More than 100 carriers—1,171,000 tons of mobile air bases commanded the oceans. This force, capable of putting more than 5,000 planes into the air at once, proved that it not only could hit the enemy with overwhelming strength, but could stay and strike time and time again despite any opposition the enemy put up.

The final phases of the war which led to the capitulation of Japan included two major operations in which naval aviation prepared the way and then supported the landings. They were the invasion of Iwo Jima in February and of Okinawa in April.

Support of the Okinawa invasion consisted first of tactical bombing by carrier planes. The task force struck at airfields on Honshu, Kyushu and Okinawa, itself, to eliminate future air-borne resistance to the landing. In addition they hunted out several of the remaining units of the Japanese fleet and put them out of commission. In a four-day period carrier planes

destroyed 528 enemy planes, damaged 16 surface ships and either destroyed or damaged scores of hangars, factories and warehouses. While supporting the landing operations, the carrier task force knocked down 248 planes with a loss of two U.S. aircraft. The box score for the three-month Okinawa campaign totalled 2,336 enemy planes destroyed with a loss of 557 U.S. aircraft.

Preinvasion air operations had begun against Japan proper before V-J day. From July 10 through Aug. 15 the 3rd fleet attacking the homeland destroyed or damaged 2,804 enemy planes, sank or damaged 1,598 enemy supply ships, destroyed 195 locomotives and damaged 109 more. Industrial targets were also heavily hit. Japan was helpless to resist.

From March 1 to Oct. 1, 1945, 12 new carriers were completed. They included the U.S.S. "Midway," first of three 45,000-ton carriers. Three "Essex"-class carriers and eight escort carriers also joined the fleet.

New fighter planes introduced included the navy's first fighter to employ jet propulsion, the Ryan FR-1 (Fireball). Also announced were the twin-engine Grumman F7F (Tigercat), the compact highly-maneuvrable Grumman F8F (Bearcat), Goodyear's F2G (Corsair) and Boeing's F8B.

Two new land-based patrol planes, the four-engine Consolidated PB4Y-2 (Privateer) and the twin-engine Lockheed PV-2 (Harpoon) met the enemy and proved themselves during the last months of the war.

Disclosure of secret projects developed during the war included target drones, radio controlled and television directed operational planes and guided missiles. Prominent among the last group were the "Glomb" (a 4,000-lb. glider bomb towed behind a navy fighter, which is directed to the target by radio control and television), the "Gorgon" (a jet-propelled missile carried by a bomber and equipped with an automatic target-seeking device) and the "Gargoyle" (a jet-propelled 1,000-lb. armour-piercing bomb which, when released, automatically seeks and collides with a ship target).

Power plant developments included the announcement of the first U.S. designed and developed jet propulsion engine (the Westinghouse 19A and 19B) and the most powerful reciprocating engine yet to be installed in an aircraft (the 3,600-h.p. Pratt and Whitney R-4360).

Indicative of aviation's key role in naval strategy was the United States naval academy's decision to greatly expand the scope of its aeronautical training. As a result of this program, all future naval academy graduates whether they command submarines or shore stations were to be fully cognizant of the possibilities and limitations of airpower. (See also NAVIES OF



THE WORLD.)

(M. A. MR.)

**The World.**—The year 1945 marked the end of World War II. The military archives and industrial records of the enemy nations were captured and examined. For the first time in history it became possible to obtain answers to some of the questions concerning strategic bombing that had been the subject of so much controversy among military strategists. More than that, if possible, the year 1945 answered the many questions that had arisen concerning the most effective utilization of tactical air power. As the year 1945 closed new types of military aeroplanes, utilizing jet and rocket principles, began to make their appearance. They were expected to influence future aerial tactics sooner and to a greater extent than aerial strategy.

**The Air War in Europe.**—The year 1945 began in Europe as the battle of the Bulge entered its final and decisive stages. The luftwaffe made its last great effort on Jan. 1, 1945. There were 800 sorties flown on that day against Allied airfields. There were 127 Allied aircraft destroyed on the ground, and 133 damaged. However, the luftwaffe lost up to 200 aircraft, and that was more than it could stand. Not even the suicide tactics, adopted later in 1945, made the luftwaffe a potent military factor. In the two weeks' period from April 5-19, 1945, the Allied air forces destroyed 3,484 German aeroplanes on the ground and in the air, and thus eliminated the luftwaffe altogether as a military factor for the balance of the war.

The oil and ammunition position of Germany continued to deteriorate in 1945 as the strategic air offensive increased. Altogether approximately 225,000 tons of bombs were dropped on the German oil and armament industries, amounting to 9.3% of the total Allied bombing effort. In Jan. 1945 the production of all types of German military aeroplanes, except jets, was virtually discontinued, for lack of fuel to fly the aeroplanes.

The air offensive against the German transportation system was also continued in 1945. Altogether about 800,000 tons of bombs, or approximately 32% of the whole bombing effort in Europe, were dropped on the German transportation system. The efficiency of the system declined rapidly until it reached a low of 25% of preattack capacity in March. Coal deliveries declined from 25% of normal in February to 4% in April. As a result, the whole German economy, powered by coal, totally

collapsed in 1945.

An objective postattack analysis of the German defeat—which was ordered by the president of the United States, and carried out by a team of prominent civilian experts and industrialists, assisted by the military—reached the following conclusion:

Allied air power was decisive in the war in Europe. . . . In the air, its victory was complete; at sea, its contribution, combined with naval power brought an end to the enemy's naval threat, the U-boat; on land, it helped turn the tide overwhelmingly in favour of Allied ground forces. Its power and superiority made possible the success of the invasion. It brought the economy, which sustained the enemy's armed forces, to virtual collapse. . . . Even if the final military victories that carried the Allied armies across the Rhine and Oder had not taken place . . . the German armies, completely bereft of ammunition and motive power, would have had to cease fighting—any effective fighting—within a few months.<sup>1</sup>

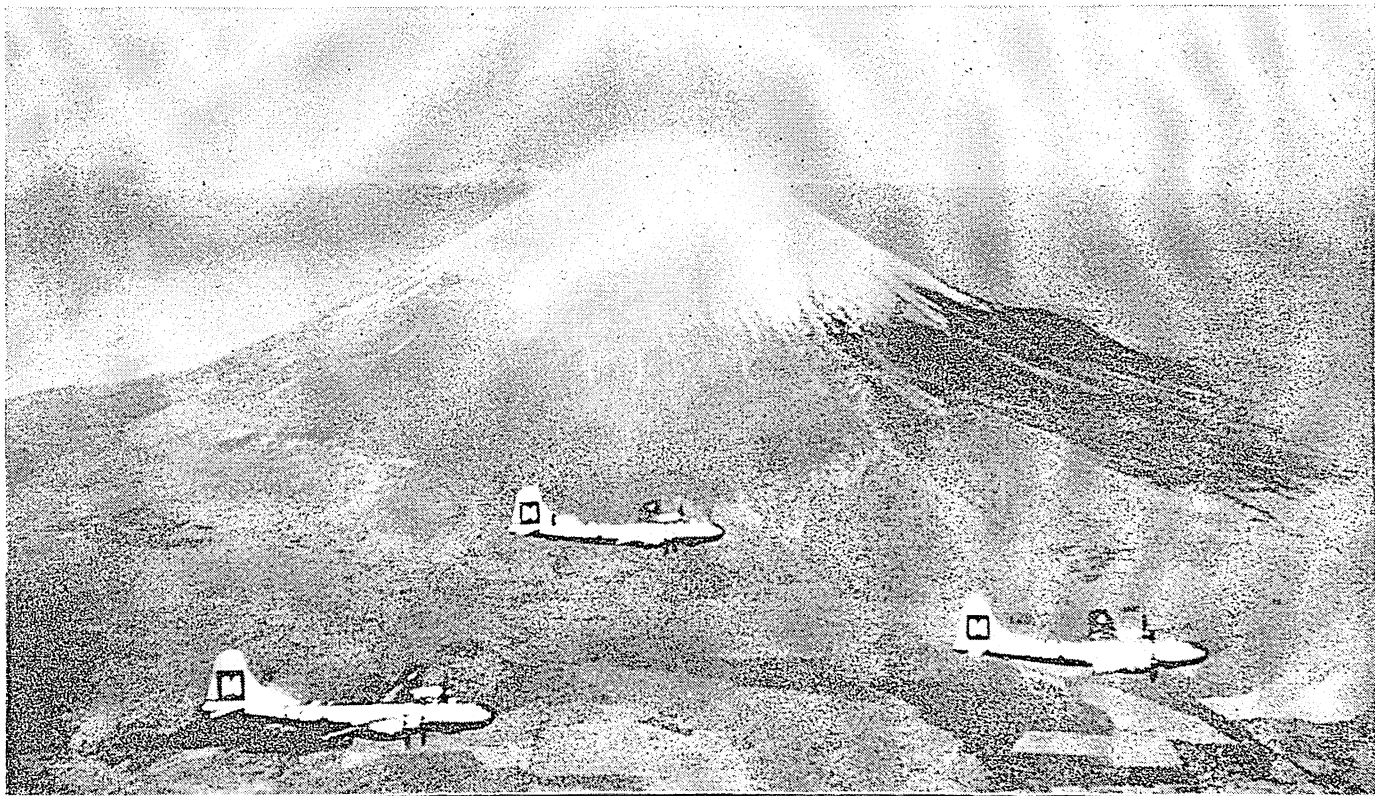
**The Air War in the Pacific.**—The unconditional surrender of Germany on May 7, 1945, sealed the fate of Japan. Allied plans called for increasing the bomb tonnages by four times at the end of 1945 and fivefold by the end of 1946. The land of the "Rising Sun" would have been buried beneath a veritable avalanche of aerial destruction in 1945 and early 1946 if the war had not ended when it did.

The results of the Allied attack on Japanese merchant shipping began to manifest themselves on a large scale in 1945. Japanese merchant shipping, in fact, was reduced from a gross tonnage of 5,000,000 at the beginning of the war to a low of 1,000,000 at the end of the war. Allied submarines sank the bulk of Japanese shipping, but the Allied air forces were sinking Japanese merchant vessels at the end of the war at a rate of about 1,000,000 tons per year. In addition to that, the strategic air forces, as a result of an extensive mining campaign beginning in March 1945, had damaged or immobilized 500,000 tons of Japanese merchant shipping. The blockade was so tight, at the end, that Japanese industry, for all practical purposes, was shut down, and the Japanese people were facing starvation in 1946.

The target systems that were heavily attacked in 1945, aside from merchant shipping, were the Japanese aircraft industry and Japanese industrial areas. The Superfortresses blasted and burned out 30,000,000 sq.ft. of the Japanese aircraft plant areas, mostly in 1945. This was approximately 30.6% of the total area devoted to that industry. In addition, B-29s destroyed two

<sup>1</sup>"The U.S. Strategic Bombing Survey," *Overall Report (European War)*, pp. 107 and 38 (Sept. 30, 1945).

THREE B-29 SUPERFORTRESSES photographed against Fujiyama during a bombing mission over Japan in 1945



vital propeller plants that were responsible for 70% of the output of propellers for combat aircraft. It was estimated that:

The combination of attacks on the aircraft industry and on urban industrial areas denied to the Japanese some 7,200 combat aeroplanes, which, in the absence of bombing, would have been produced by Aug. 1945. . . . It is thought that the damage to the propeller plants alone, without further attack on the aircraft industry, would have reduced Japanese aeroplane production by Nov. 1945, to a rate equivalent to 41% of Jan. 1945 production.<sup>1</sup>

The urban industrial areas that were attacked in Japan in 1945 consisted of the 66 principal Japanese cities. In all, more than 100,000 tons of bombs were dropped on these targets. More than 42% of the urban industrial areas thus attacked were destroyed by Aug. 1945. The number of people killed was estimated by the Japanese to be in excess of 250,000, and the number injured an additional 500,000. In addition, more than 2,000,000 Japanese homes were burned or demolished, and the Japanese themselves estimated that between 9,000,000 and 10,000,000 people were rendered homeless up to Aug. 1945. What the ultimate consequences to the Japanese people might have been had their emperor allowed this weight of attack to be quadrupled and quintupled in accordance with Allied plans is fearful to contemplate.

The hopelessness of the Japanese military situation was recognized by the Japanese in 1945. The prominent Japanese industrialists, military and naval strategists have all expressed their opinions that military air power made it impossible for the Japanese to continue the fight longer than they did. Rear Admiral Takata, deputy chief of military affairs, navy ministry, said: "Of land, sea and air forces, air by a wide margin contributed most to the defeat of Japan."<sup>2</sup> Lt. Gen. Tozoe, chief of staff, Japanese army air force, said, "The B-29s dealt the death blow to Japan proper."<sup>3</sup> Ryoza Asano, president, Nippon Steel Tube company, said, "We industrialists felt that air raids were going to finish the war, believing that Japan could not last until an invasion. Air attack sealed the fate of Japan."<sup>4</sup> Gen. Kawabe, commanding general, Japanese army air forces, said, "One of the biggest factors leading to the surrender was the bombing of the industrial cities of Japan. Our loss in the air lost us the war."<sup>5</sup> Gen. H. H. Arnold, commanding general, U.S. army air forces, said, "Fully recognizing the indispensable

<sup>1</sup> "Third Report of the Commanding General of the Army Air Forces to the Secretary of War," p. 41 (Nov. 12, 1945).

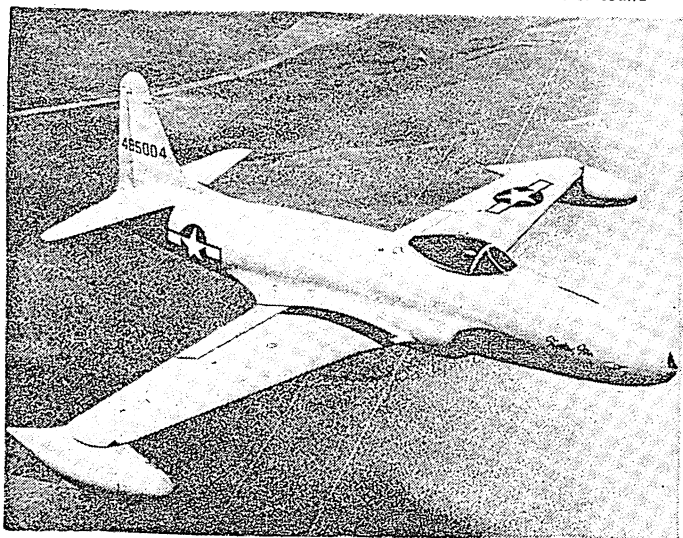
<sup>2</sup> *Air Force*, The Official Journal of the U.S. Army Air Forces, vol. 28, no. 12, p. 49 (Dec. 1945).

<sup>3</sup> Ibid.

<sup>4</sup> Ibid.

<sup>5</sup> Ibid.

THE LOCKHEED P-80 Shooting Star, newest and fastest jet-propelled fighter of the USAAF, was made public on Aug. 1, 1945. Kerosene-powered by a G.E. gas turbine engine, its speed is more than 550 m.p.h. and its ceiling more than 40,000 ft. At maximum ceiling, its speed approaches that of sound.



contribution of other arms, I feel that air power's part may fairly be called decisive. . . . The fanatical Japanese would never have offered to accept the crushing terms of the Potsdam ultimatum merely because of the odds against them. . . . Yet the Japanese acknowledged defeat because air attacks, both actual and potential, had made possible the destruction of their capability and will for further resistance."<sup>6</sup>

**Heavy and Very Heavy Bombers—Army.**—The aeroplanes that were used to fight World War II were, in a broad sense, the aeroplanes that were designed and developed prior to the outbreak of World War II. No U.S. army aeroplane was ever flown in combat in World War II that had not been designed and developed prior to Dec. 7, 1941. Improvements were made on older models to the point where the last in the series bore only a faint resemblance to the first of the series; but on the whole, the belligerent powers fought World War II with aeroplanes designed and developed between World War I and World War II. Even the German jets that saw combat in 1944 and 1945 were developed and approved for production by the German air ministry in 1938-39.

Both the Fortresses and Liberators had reached journey's end as heavy daylight bombers in 1945. The B-29 had proved itself to be such a superior aeroplane by all standards—speed, performance, range, altitude, firepower, armour, bomb capacity—that it was scheduled to replace the Forts and Liberators in both Europe and the Pacific. The B-29 Boeing Superfortress is powered by four Wright Cyclone R-3350 18-cylinder 2,200 h.p. engines. It has a span of 141 ft. 3 in., length 99 ft., height 27 ft. 9 in., and wing area of 1,736 sq.ft. Its weight is 135,000 lb., speed in excess of 350 m.p.h., a ceiling of more than 35,000 ft., and range of more than 3,300 mi. Stripped down, the B-29 can fly 8,000 mi. nonstop. It can carry a maximum bomb load of up to 10 tons, depending on the mission. Its armament consists of 10 or 12 .50-calibre guns and it is equipped with a General Electric central fire control system. It carries a crew of 11, including the flight engineer.

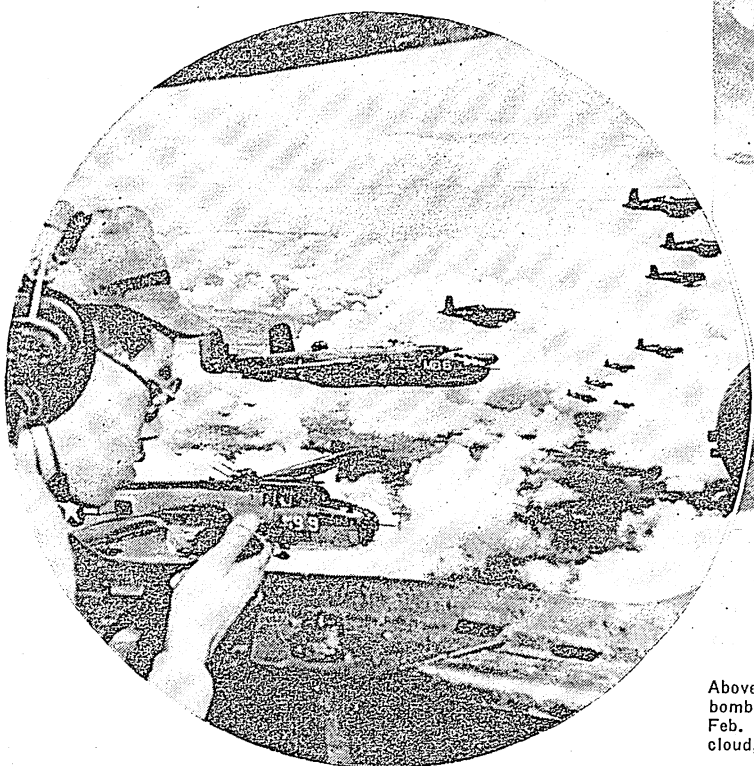
The XB-36, the Super-Superfortress, is the big daylight bomber of the future. It is the largest bomber aeroplane in the world. This 65-ton giant was expected to be able to take off from a U.S. base and fly nonstop to any place in the world. It develops more horsepower than two B-29s, and its guns are capable of firing 1½ tons of lead and steel per minute. The XB-36 was reported to be 163 ft. long from nose to tail. It carries a crew of 17, including relief personnel, and is even equipped with a small galley for the preparation of hot meals while in the air. The XB-36 is powered by six Pratt and Whitney radial, air-cooled pusher engines, each capable of producing in excess of 3,000 h.p. The big bomber is equipped with a retractable landing gear consisting of two single main wheels and a nose wheel. The wheels are the largest ever constructed, 110 in. in diameter. A single tire, weighing 1,500 lb., would support a fully loaded B-29. The XB-36 will fly 6 mi. above the earth as routine, and Tokyo to Washington nonstop flights will be normal.

Of the British bombers of the heavy type, the Lancasters and Halifaxes carried the main burden of the war. Both ships are in the 65,000-lb. class; both had maximum ranges of above 2,000 mi.; and both could carry bomb loads normally of up to 14,000 lb. The newest type British night bomber is in the 75,000-lb. class, the Lincoln I. It is powered by four Merlin 85 engines, has a span of 120 ft., length 76 ft. 2 in., height 19 ft. 6 in. and wing area of 1,408 sq.ft.

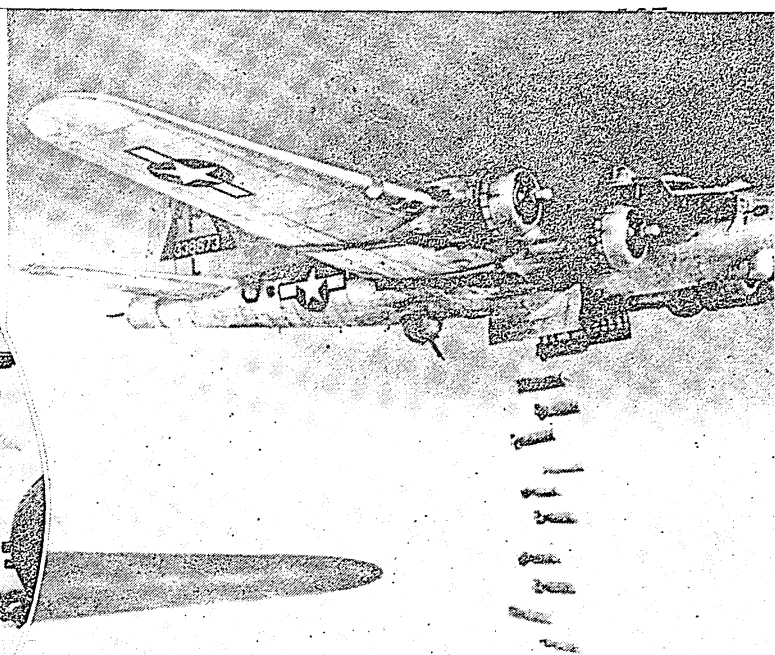
**Medium Bombers—Army.**—In the medium bomber field the outstanding aeroplanes in 1945 were the U.S. B-25 Mitchells, B-26 Marauders, A-26 Invaders and XB-42 Mixmaster; and the British Mosquitoes. B-25 Mitchells were used extensively by

<sup>6</sup> Arnold, H. H., Third Report ops. cit., p. 33.

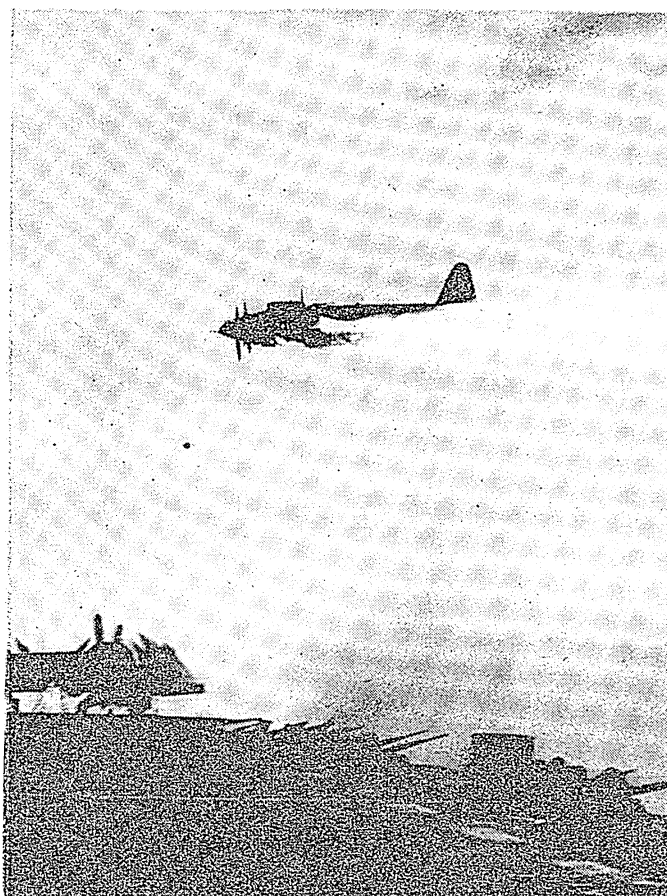




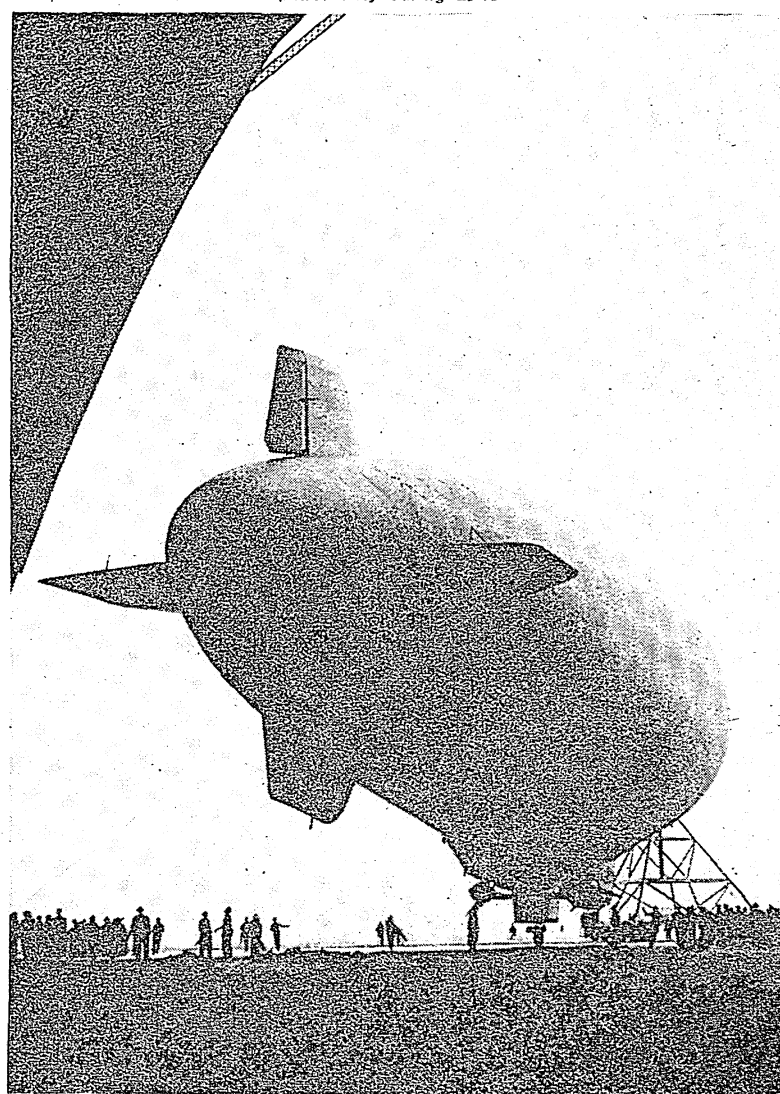
Above: 2ND LT. MINORU WADA, Japanese prisoner of war captured on Mindanao, guiding a Marine bombing mission on Aug. 10, 1945, to the "lost" 100th Japanese army command post concealed in the island jungles



Above: A B-17 FLYING FORTRESS unloading high explosive and incendiary bombs over Nuernberg, Germany, during a mission of the U.S. 8th air force on Feb. 20, 1945. More than 900 B-17s and about 700 fighters, flying through cloud, aimed for the railroad station and yards below

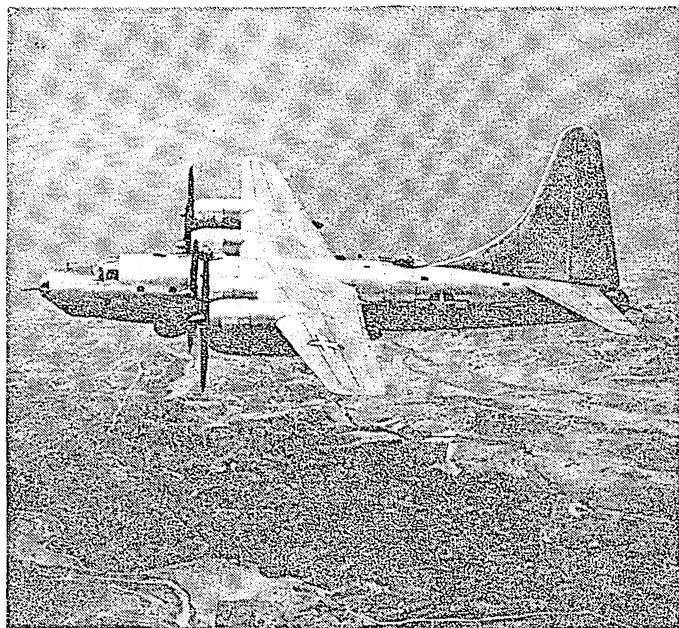


Above: JAPANESE suicide plane, already ablaze from a direct hit, passes over an escort carrier whose gunners remain poised for fresh attacks. Piloted by the "volunteer" Kamikaze corps, these craft were used in crash dives on U.S. ships in the Western Pacific in 1945



Below: THE M-1, new U.S. navy blimp, featuring a long 3-unit car so integrated to the envelope above as to provide maximum freedom of motion. Blimps were used for coastal patrol duty during 1945





VULTEE B-32 DOMINATOR, new 4-engine heavy bomber used in the Far East Air Forces was first publicized on July 30, 1945. The tail, which is 32 ft. high, allows great manoeuvrability and stability; the fuselage measures 83 ft. Bomb bays adjoin, and can carry longer bombs than the B-29

the U.S. in the Pacific theatre. They were the most versatile of the U.S. types, and were used for strafing, parachute frag bombing, skip bombing, torpedo dropping and medium altitude bombing. The B-26 Marauder was used extensively in the European theatre of operations. The A-26 Douglas attack bomber, the Invader, was a late development of the A-20. The A-26 was superior to any other U.S. twin-engine bomber at medium altitudes in 1945, and was used operationally in the 5th, 7th, 9th and 12th U.S. air forces.

The XB-42 Mixmaster was a tested but unproved U.S. medium bomber in 1945. It was the first U.S. pusher-bomber to reach the flight test stage in three decades. It has greater speed and range than any other U.S. bomber of its size. The Mixmaster established unofficial speed records in 1945, and has a range of more than 4,500 mi. It weighs about 35,000 lb., and can carry up to 8,000 lb. of bombs. The Mixmaster is powered by two Allison V-1710 engines mounted side by side in the fuselage just behind the crew's compartment in the nose. The propellers are in the rear. The Mixmaster carries a crew of three. The pilot and gunner sit side by side in the nose compartment, and the bombardier is situated in a forward well. The XB-42 has an interchangeable nose to accommodate several forward-firing .50-cal. guns and a 75-mm. gun or a 37-mm. cannon. The wing guns are mounted to fire rearward.

The British Mosquito was on all counts one of the outstanding aeroplanes of World War II and, of course, 1945. This all-wooden monoplane, because of its very high speed and long range was used for practically everything, except day bombing or strafing. It was effective as a light bomber, medium bomber, night fighter, pathfinder and reconnaissance aeroplane.

**Fighters—Army.**—The outstanding battle-tested fighter aeroplanes in 1945 were the U.S. P-47 Thunderbolt, the P-51 Mustang and the P-61 Black Widow; the British Spitfire, Typhoon IB, Tempest V and to a limited extent the Meteor; and the German newer types ME-262, ME-263 and AR-234. The non-battle-tested fighters of note that appeared in 1945 were the U.S. P-80 Shooting Star; XP-81, XP-82 and XP-83; the British Vampire; and three highly unconventional German developments: the Viper, the X-4 and the Rheintochter III.

The U.S. fighters, such as the Thunderbolts and Mustangs, were built primarily for altitude, range and firepower, to enable

them to accompany and defend the heavy bombers on their long missions.

Both the Germans and the Japanese, in the last stages of the war, made certain design changes in their aircraft. The Japanese began to use armour plating and heavier armament, with some sacrifice of range, and the Germans in developing their jets, emphasized the principles of speed, firepower and armour, at the expense of range, which they needed less and less.

The changes came too late, however, to be of any great consequence. Both the Germans and the Japanese had made a mistake in their earlier training programs that eventually proved to be fatal in their air forces. The Japanese mistake was to assume that the supply of pilots was inexhaustible, and that they could be expended lavishly in lightly armoured aeroplanes. The German error was in cutting down on pilot training in a false economy move to conserve supplies of gasoline. As a direct result of these early mistakes, and despite last minute corrective measures, the Allies were always victorious in the final and decisive battles that were fought for supremacy of the skies of Europe and the Pacific.

The P-47 Thunderbolt was an outstanding fighter in 1945. It was extensively used in Europe as a long-range fighter escort, and also as a fighter-bomber. Its outstanding fighter-escort characteristics were long range, great speed at high altitudes, and manoeuvrability. As a fighter-bomber, its chief assets were its general ruggedness, including diving speed and ability to absorb a great deal of battle damage and still continue flight.

The P-51 Mustang was considered by many to be the outstanding fighter aeroplane of World War II, and the year 1945. It has great range, a high rate of speed and climb, plus manoeuvrability and average ruggedness. It thus combines some of the best qualities of the Thunderbolts and Spitfires. The Mustang was also effective when used as a fighter-bomber. It was claimed by many to be the best designed fighter aeroplane for all around use in World War II.

The P-61 Black Widow was the outstanding night fighter of World War II. It was also effective in interception work, as a fighter-bomber, and for reconnaissance. It is armoured, has leakproof tanks and bulletproof glass. Its crew of two or three consists of pilot, radio operator and gunner. The P-61 is equipped with special radar equipment for night flying, detection and identification.

The Lockheed P-80 Shooting Star is a jet-propelled fighter. It did not see any combat duty in World War II. The Shooting Star, however, is powered by a General Electric turbo-jet engine, has a span of 39 ft., length 32 ft., height 11 ft. 4 in., and a weight of 11,950 lb. Its maximum speed is above 550 m.p.h., and it climbs to 35,000 ft. in 13.5 min. Its service ceiling is more than 40,000 ft. Its armament consists of six or more .50-cal. guns in the nose. It is equipped with a pressure cabin, armour, bulletproof glass and a bubble-canopy.

The XP-81 was still in the development stage. Like the navy's Fireball, the XP-81 is a combination jet and propeller aeroplane. The theory was that the propeller-driven engine, which is in the front, can be used to bring the aeroplane up to high speed, and when the point is reached where the propeller loses its thrust efficiency, the jet engine in the rear will be used. Theoretically, the combination seemed to be an ideal solution to the problem of the most effective utilization of both engine types. The XP-81 has a wing span of 50 ft. 6 in., and its fuselage length is 44 ft. 8 in.

The XP-82 twin-fuselage Mustang was designed and developed primarily as a fighter-escort for the B-29s. The XP-82 is, as its name suggests, two P-51H fuselages placed on a single wing. The wing is one-fourth larger than that of the Mustang alone, each fuselage is lengthened by 3 ft., and a large stabilizer

gives the aeroplane a twin-boom effect. In addition to its primary mission, long-range escort, the XP-82 can be used as an interceptor or as a fighter-bomber. A special nacelle is slung under the wing for radar equipment when the aeroplane is used for a night fighter. The XP-82's 14 machine guns, six in the wing and eight more in a package, give it more firepower than any other fighter. It can also carry four 1,000-lb. bombs. The XP-82 is powered by two Packard in-line engines of 1,500 h.p. at 30,000 ft. Adjustable seats in the cockpits make it possible for the pilot and co-pilot to get some rest on long missions.

The XP-83 is a twin-engine jet fighter. Its wing span is 53 ft., length of the fuselage 44 ft. 10 in., and weight 27,000 lb. The XP-83 is expected to have a top speed well in excess of 500 m.p.h., and a ceiling of between 40,000 and 50,000 ft. It is powered by General Electric engines.

The British Spitfire, at the close of World War II and the year 1945, continued to be the best fighter-interceptor in existence. Its excellent rate of climb and high speed at all altitudes, are the outstanding characteristics of the battle-tested Spitfire and what made it the best interceptor-fighter of the war. Though it was used for almost every type of combat flying, from the defense of Britain to short-range reconnaissance and escort work, the range of the Spitfire is far below that of the U.S. Mustang or Thunderbolt. For short-range work, however, the Spitfire could hold its own against almost any aeroplane in existence.

The British Typhoon IB and Tempest V, produced by the Hawker Aero Co. Ltd., are powered by Napier Sabre II and IIA engines. They are both heavier and faster than the Spits and have a longer range. Both aeroplanes have armour, bullet-resistant glass and self-sealing tanks. The Typhoon IB was effectively employed as a rocket-carrying aeroplane, and the Tempest V was used for patrol work and ground strafing.

The British Meteor is a two-engine jet fighter that saw limited combat service in World War II. It was produced by the Gloster Aircraft Co. Ltd., and is powered by two Rolls-Royce Derwent Series V turbo-jet units, from which a sea level static thrust of 4,000 lb. is produced. The Meteor has a maximum speed of 608 m.p.h. at sea level. No performance or descriptive data were available on the British Vampire.

As early as 1938 the jet-type engine was approved for production by the German air ministry. The German air ministry ordered full production on June 5, 1943. Yet only 527 ME-262s were accepted by the end of 1944, and this figure was not increased to above 1,400 up until the end of the war. The extremely high performance at all altitudes of the ME-262 was such that if the Germans had got into volume production

sooner, and if they had had the trained pilots and ingenuity to exploit the potentialities of the aeroplane properly, the ME-262 might well have averted the German defeat by another 6 or 12 months.

Another German unconventional aeroplane that saw combat was the ME-163. This was an amazing aircraft. It was the only rocket-propelled fighter in World War II. Of course, it was extremely vulnerable, because of its highly explosive fuels and short range. Its range was measured in terms of minutes, 8-12 min. with full power and up to 60 min. with power on and off. With proper development, however, the ME-163 could also have been a serious threat to the strategic air forces in Europe.

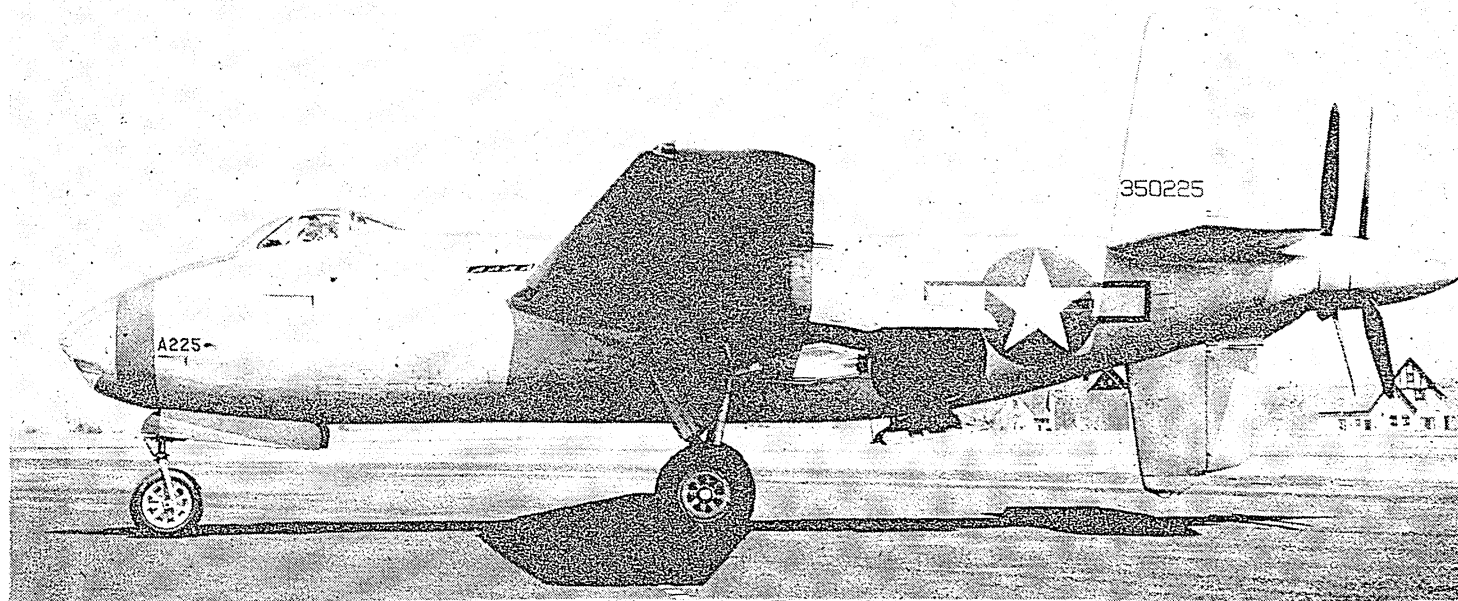
A final jet-type aeroplane that the Germans used in World War II was the AR-234. This was a two-engine heavy-type aeroplane (20,900 lb., in contrast to 10,000 lb. for the ME-262, 11,500 lb. for the ME-163, or 8,600 lb. for the conventional FW-190). It was used mainly for reconnaissance. The Germans did not have many of them, and those they had were no serious threat, but their extremely high speed and performance at high altitudes was such that they became almost legendary, especially in the Mediterranean theatre of operations.

The new types that the Germans were developing at the close of the war, but which failed to see any combat service, were the Viper, the X-4 and the Rheintochter III. The Viper was a piloted, rocket-propelled missile. It had a speed of 620 m.p.h. The Viper was designed to attack aircraft with cannon, rockets or by ramming. In the latter case, there was a special device whereby the pilot could automatically eject himself.

The X-4 was a pilotless missile designed to be launched from mother aeroplanes, somewhat in the manner of the Japanese Baka. However, there the resemblance ceased. Unlike the Baka, which is first of all a glider, and only secondarily a powered aircraft, and which was designed for the attack of surface objectives, particularly ships, the X-4 is a wire-controlled, rocket-propelled gyro-stabilized missile, primarily designed for use against bombers. Proximity fuses would increase the effectiveness of the X-4 by 100%. The Rheintochter III was a new type of radio-controlled flak rocket. It was designed for use against bombers, and for launching from the ground.

**Military Cargo and Transport Aircraft—Army.**—In the cargo-transport field, the Douglas C-47 Skytrain and the Douglas C-54 Skymaster continued to be the outstanding aeroplanes in 1945. The Skytrain is the military adaptation of the DC-3

XB-42 "MIXMASTER," a twin-engined U.S. bomber with dual, counter-rotating propellers in the tail, made a record cross-country flight on Dec. 8, 1945, averaging 432 m.p.h. On Dec. 16 the plane crashed at Oxon Hill, Md., the crew parachuting to safety



airliner, and the C-54 is the military adaptation of the DC-4 airliner. The Skytrain is in the 30,000-lb. class, develops a speed of 200 m.p.h., has a ceiling of 24,000 ft., and an operational range of 1,800 mi. The C-54 is in the 70,000-lb. class, has a speed in excess of 275 m.p.h., operates at 20,000 ft., and has a range of about 3,000 mi. The principal use of the C-47 was in combat hauling troops and cargo, and the C-54 was generally used for the same purpose between the zone of the interior and the theatres of operations.

Other U.S. transport and cargo planes in 1945 included the Curtiss C-46 Commando, a two-engine aeroplane in the 50,000-lb. class, with a speed in excess of 260 m.p.h., ceiling more than 25,000 ft. and range about 2,000 mi.; the big four-engine Lockheed C-69B Constellation, weighing 90,000 lb., with a speed of more than 325 m.p.h. and a range of more than 3,000 mi.; the Douglas C-74 (DC-7) Globemaster, weighing 145,000 lb., with much longer range than the C-69; the two-engine Fairchild C-82 Packet, capable of carrying 42 fully equipped soldiers or 15,000 lb. as far as 3,500 mi.; the Consolidated C-87, another four-engine aeroplane in the 50,000-lb. class, capable of carrying 20 passengers or 6,000 lb. for long runs; the long-range Boeing C-97, with construction similar to the B-29, in the 120,000-lb. class, capable of carrying up to 120 troops and a speed of more than 350 m.p.h.; and finally, the XC-99, a six-engine transport, weighing 265,000 lb., with a speed of 335 m.p.h. at 30,000 ft., and capable of being used as a troop carrier, cargo plane or hospital ship.

The outstanding non-U.S. cargo and transport aeroplane developments in 1945 were the British Tudor I and the French SE-1000. The Tudor I was produced by the A. V. Roe and Co. Ltd., is powered by four Rolls-Royce Merlin 100s, producing 1,850 h.p. at 6,250 ft. Its maximum speed is 346 m.p.h. at 20,000 ft., and its range is 4,890 mi. The SE-1000 is powered by four 1,290 h.p. Gnome-et-Rhone 14-R engines, has a maximum speed of 350 m.p.h. at 10,200 ft. Its range is 3,730 mi., and it has a 12 passenger seating capacity. The SE-1000 can also be used as a passenger liner.

**Fighters—Navy.**—Among naval aircraft, several types were outstanding and responsible for the brilliant record achieved by the carrier and land-based aircraft during the decisive phases of the Japanese war. The gull-winged Corsair (F4U) and the Grumman Hellcat (F6F) proved to be the leading navy fighter craft. The Corsair was used by the marine air force, both from land bases and carriers, as well as in night operations to run up a remarkable string of successes. The Hellcat was the backbone of the navy's carrier fighting forces. It also proved especially capable as a photographic plane.

Three other types of fighter aircraft were produced by the navy during the closing phases of the war. These were the Tiger Cat (F7F), the Bearcat (F8F) and the Fireball (FR). The Tiger Cat is a twin-engine aircraft designed to achieve a top speed exceeding 430 m.p.h. Photographic and night models were developed for use by the marine air force. The Tiger Cat was armed with four 20-mm. cannon and four .50-cal. machine guns. The Bearcat was designed to achieve the maximum performance for a fighter aircraft employing a conventional reciprocating engine as its power plant. It weighed 9,000 lb. and had a 2,000 h.p. Pratt and Whitney engine. Its rate of climb was rated as the best in the naval service. When the war ended the F8F was replacing the F6F on the Grumman production line. Its speed probably exceeded 440 m.p.h. It was armed with four .50-cal. machine guns.

The Fireball is a combination jet and conventional aeroplane with gross weight exceeding 8,000 lb. It was designed to operate from small carriers. The conventional reciprocating engine, plus the purely jet engine as a booster unit, gives the Fireball a speed of approximately 400 m.p.h. This is within limitations of stalling speed and size required for the small carriers. A larger aircraft, known as the XF15C, was contemplated along similar lines for operation from the large carriers. Its contemplated speed is 485 m.p.h. The navy also developed some purely jet-propelled aircraft. These included the XF6U, the XFJ and the XF2D, all with speeds considerably in excess of 500 m.p.h. None of these aircraft was ready for operational use at the end of the war.

The war saw many changes in fighter aircraft. These changes included

the following: Expansion of fighter radius of action by fitting with dropable fuel tanks in 1942; greater use of fighter aircraft as dive and torpedo bombers, especially after the fall of 1944; the introduction and highly successful use of air-borne rocket projectiles for tactical support; and the installation of suitable air-borne radar equipment to make conventional Corsair and Hellcat types into night fighters. At the close of the war, catapults were used to launch all types of naval aircraft from carriers.

The British fleet air arm used the Corsair and Hellcat and also the Seafire III. This last named plane was carrier-based and had a maximum range of 775 mi. It is powered with a Rolls-Royce engine and has two 20-mm. cannon and four .30-cal. machine guns.

**Bombers—Navy.**—The Helldiver (SB2C) was the navy's outstanding dive bomber. It was constantly improved and at the close of the war, the fifth series was being used operationally. Carrying a crew of two, it could carry a maximum bomb load of two 1,000 lb. armour-piercing bombs and had a maximum scouting radius of 500 nautical miles. Its armament consisted of two 20-mm. fixed forward-firing machine guns and two .30-cal. free guns fired by the rear seat man. Its gross weight was in excess of 14,000 lb. It proved to be the navy's only successful dive bomber in the last two years of the war.

One of the navy's most popular and most successful types of aircraft was the torpedo bomber. Here the Grumman Avenger (TBF, TBM) was in actual combat service for a period of three years and three months. The Sea Wolf (TBV) was produced in 1944. It had slightly improved power and armament characteristics over the Avenger. It did not get into action soon enough to offset the highly commendable record of the Avenger.

The British also used the Vultee Vengeance dive bomber. This aircraft had a maximum range of 1,200 mi. and carried five .50-cal. machine guns. The Japanese Judy 33 was the outstanding Nippon dive bomber. It replaced earlier Judy models, as well as the Val. The Judy 33 had three 7.7-mm. machine guns and could carry a maximum bomb load of 1,100 lb. Outstanding torpedo bomber types included the British Barracuda, and the Jill 12, a Japanese model. The Barracuda was manufactured by the Fairey Co., had a range of 638 mi., and was equipped to carry one torpedo. The Jill had a range of 2,000 mi. and could carry either a torpedo or two 550-lb. bombs. The Japanese also were manufacturing a torpedo bomber known as Grace. Its range was slightly more than that of Jill and its weapon-carrying capacity was approximately the same.

**Patrol Aircraft—Navy.**—Patrol aircraft of the navy also achieved distinction as a result of their varied efforts during the war. Land-based Privateers (PB4Y2), Liberators (PB4Y1) and Venturas (PV) ran up remarkable records in attacks on Japanese shipping, extended sea searches and other specialized duties. Seaplanes included the Coronado (PB2Y), the Mariner (PBM) and "the old granddaddy of them all," the Catalina (PBV). These planes were used for transport, air-sea rescue, flying ambulances and many other assignments as well as for actual combat patrols. All naval patrol aircraft carried extensive radar equipment. These enabled extensive attacks to be made at night or in overcast conditions.

The newest type navy patrol plane in 1945 was the Lockheed Neptune bomber. The Neptune is capable of flying 300 m.p.h., with a normal range of 3,500 mi. It carries a ton of the latest type radar-radio equipment, two torpedo rockets and six 20-mm. cannon. The Neptune has a "varicam tail," which allows the pilot to vary the curve of the horizontal tail surface and thus balance a heavy load in one part of the plane and keep it in level flight. The Neptune can carry four 2,000-lb. bombs or a greater number of lighter weight bombs. It can also carry twelve 325-lb. depth charges for submarine attack. Extra tanks stretch the range of the Neptune to 5,000 mi. It carries a crew of seven.

Three foreign patrol seaplanes that played an important role in the war were the British Sunderland, the Japanese Mavis and Emily 12. The Sunderland was a well-armed four-motored bomber with a maximum range of 2,480 mi. The Mavis and Emily 12, also four-engined, had maximum ranges of approximately 4,000 mi. They were not so well armed as the Sunderland but performed very excellently as the "scouting eyes" of the Japanese navy. They were both capable of carrying either two torpedoes or a bomb load of approximately 3,500 lb.

**Observation Aircraft—Navy.**—Another category of naval aircraft which played a formidable role during the war was the observation-scout float type, operating from battleship and cruiser catapults. The Curtiss SOC was a biplane attached to cruiser scouting duties. In addition to observing and spotting the gunfire of cruiser groups, these biplanes performed admirably in antisubmarine search. However, they suffered from lack of speed and thus were very vulnerable.

The navy answered the need for a faster and more effectual type of scouting float plane by developing the Sea Hawk (SC1). It is a single place aircraft although provision is made for carrying a wounded passenger in a special fuselage compartment. It carries two forward-firing .50-cal. machine guns and has an engine with a take-off rating three times that of the Kingfisher. Its scouting radius is 270 nautical miles. This plane proved superior to the Kingfisher and SOC which it replaced.

Among foreign type float aircraft, the British had a biplane known as the Sea Otter I, while the Japanese had four prominent types: Jake II, Paul II, Norm II and Rex II. The range of the Sea Otter I was 920 mi. All the Japanese float planes were excellent, with the Norm and Rex particularly outstanding. These two planes possessed engines with a take-off rating of 1,825 h.p., and the Norm had the unique feature of being able to jettison its floats.

(See also AIRPORTS AND FLYING FIELDS; AIR TRANSPORT COMMAND; AVIATION, CIVIL; CIVIL AERONAUTICS ADMINISTRATION; GLIDING; MUNITIONS OF WAR; PSYCHIATRY; PSYCHOLOGY; WORLD WAR II; see also under various countries.) (J. T. L.)

**Avocadoes:** see FRUIT.

**Azores, The:** see PORTUGAL.



**Bacon.** The reduced slaughter of hogs in the United States in 1945 compared with 1944 was reflected in the production of bacon. Total production of bacon was estimated to be about 500,000,000 lb. compared with a total of more than 600,000,000 lb. in 1944. The amount of bacon produced depends upon the trimming practices and type of hog in the market. With the end of World War II the United States demand was for more lean, sliced bacon. In 1944 a total of 549,800,000 lb. of sliced bacon was produced under federal inspection. During 1945 the rate of production was reduced and in the first ten months of 1945 only 310,000,000 lb. was produced compared with 479,000,000 lb. in the same period of 1944. Bacon was scarce in retail markets throughout 1945 though government purchases declined after Aug. 19. (See also Hogs; MEAT.) (J. C. Ms.)

**Bacteriology.** Numerous publications suggested the probable usefulness of streptomycin as a therapeutic agent in tuberculosis, typhoid, tularaemia and other infections, especially by gram-negative bacteria not susceptible to penicillin. The search for new and better antibiotics or those useful where penicillin or streptomycin are not, continued, yielding *Bacitracin* produced by *Bacillus subtilis* and apparently a very useful antibiotic drug; *Lycopericin*, a product of the tomato plant preventing growth of a fungus (*Fusarium oxysporum*) causing a wilt of tomatoes; an unnamed product of *Aspergillus ustus* inhibitory to tubercle bacilli; *violacein*, an antibiotic pigment produced by *Chromobacterium violaceum*; and others. A search for virus-inactivating antibiotics among a wide variety of animal, plant and bacterial materials revealed their rarity. An interesting possibility was revealed by Chinese scientists at Kunming in an antibiotic extracted from water chestnuts and called by them, *puchiin*. An extremely important advance in this field also was a report of the meeting of the permanent commission on biological standardization of the health organization of the League of Nations, at London, resulting in the formulation and adoption of an international standard unit and a working unit of penicillin, and the provision of means of producing, testing and storing standardized material. In 1945, also, the chemical structure of penicillin was published, an advance of outstanding importance to all interested in bacteriology.

In the field of sanitary bacteriology there appeared, among many interesting papers, a new and quicker presumptive test for sewage pollution of water depending on nitrate reduction in a selective medium, and further reports on bacteriological improvements in water supplies due to the use of break-point chlorination.

An extensive series of reports of a group of workers associated with the army epidemiological board, established on a firm foundation the usefulness of a new vaccine in preventing most epidemic influenza. Work was continued on the development of purified, potent, compact and stable antigenic extracts of organisms related to the typhoid bacillus which promise, among other things, to eliminate many sore arms and severe reactions due to antityphoid shots.

The monumental work of the United States of America Typhus commission in demonstrating the aetiology, and animal and insect vectors of an important and dangerous scourge of the military forces in Pacific islands (mite or scrub typhus or tsutsugamushi disease) was also published in 1945.

New and important reports concerning the continued war on air-borne disease also appeared, including work showing the value of oiling of floors and bedding in helping to control the spread of scarlet fever streptococci and similar organisms by diminishing aerial dust, especially when used with disinfectant

vapours. In the fields of industrial and agricultural bacteriology many papers appeared, among them being reports on improvements in the bacteriological method of assaying vitamins, the activity of bacterial and mould amylases as conversion agents in alcoholic fermentation, studies of methods for preparing active enzymes from bacteria, fermentation processes for making itaconic acid and glycerin, and the role of bacteria in petroleum destruction and formation. (See also EPIDEMICS AND PUBLIC HEALTH CONTROL.)

**BIBLIOGRAPHY.**—M. I. Smith and W. T. McClosky, "The Chemotherapeutic Action of Streptomycin and Promin in Experimental Tuberculosis," *Pub. Health Rep.*, 60:1129-1138 (Sept. 1945); B. A. Johnson, H. Anker and F. L. Meleney, "Bacitracin: A New Antibiotic Produced by a Member of the *B. Subtilis* Group," *Science*, 102:376-377 (Oct. 1945); P. Hartley, "World Standard and Unit for Penicillin," *ibid.*, 101:637-638 (June 1945); A. E. Griffin and N. S. Chamberlin, "Bacteriological Improvements Obtained by the Practice of Break-Point Chlorination," *Am. J. Pub. Health*, 35:199-210 (March 1945); T. Francis, Jr. et al., "Development of 1943 Vaccination Study of the Commission on Influenza," *Am. J. Hyg.*, vol. 42, no. 1 and 3 (1945); F. G. Blake, K. F. Maxcy, J. F. Sadusk, Jr., G. M. Kohls and E. J. Bell, "Studies on Tsutsugamushi Disease (Scrub Typhus, Mite-Borne Typhus) in New Guinea and Adjacent Islands: Epidemiology, Clinical Observations and Etiology in the Dobadura Area," *ibid.*, 41:243-373 (May 1945); C. B. Philip and G. M. Kohls, "Studies on Tsutsugamushi Disease (Scrub Typhus, Mite-Borne Typhus) in New Guinea and Adjacent Islands; Tsutsugamushi Disease with High Endemicity on a Small South Sea Island," *ibid.*, 42:195-203 (Sept. 1945); Committee on Medical Research, O.S.R.D., Washington, and Medical Research Council, London, "Chemistry of Penicillin," *Science*, 102:627-629 (Dec. 1945). (M. Fr.)

**Badminton.** Continuation of World War II once again restricted badminton competition to sectional tournaments in 1945, and the national championship was cancelled for the third straight year. On the west coast, strong fields were attracted to northern and southern California and Pacific southwest tournaments. Eastern, midwest and Texas championships drew the strongest players in their sectors, while the first annual Kodak Invitational boasted a top-flight group of Canadians who dominated the field.

Bernard McCay of Pasadena, Calif., dominated men's competition on the Pacific coast, winning the northern California and Pacific southwest singles championships and finishing second in the southern California meet. Janet Wright carried on much the same domination in the women's singles, capturing the northern and southern California titles and bowing only to Helen Noble of Pasadena in the Pacific southwest singles.

Players from St. Louis, Mo., dominated the midwest championships, capturing four of the six major titles. Richard Casey of St. Louis won his third singles championship. Marie Bytnor, also of St. Louis, won the women's crown by defeating the defending champion, Eleanor Coombs of Chicago, Ill., 3-11, 11-6, 11-1, in the final. The Texas tournament was dominated by George Harman of Tulsa, Okla., in the men's division and by Sgt. Bertha Barkhuff, Camp Hood, Tex., with a grand slam in the women's events.

Eastern competition was concentrated on doubles, with the most interest centred in the Kodak tournament. Toronto entries captured both the men's and women's doubles, with Evelyn Effnert and Joan Hennessey winning the women's crown and Jack Muir and Grant Henry taking the men's division. The French national championship was won by Lieut. "Ozzie" H. Hilton of the U.S. navy. (M. P. W.)

**Bahamas.** An archipelago of about 3,000 islands, islets (or cays) and rocks, east of Florida and north of Cuba, extending about 800 mi. in length, and organized politically as a British colony. The capital and only city is Nassau (pop. 19,756). Area: 4,403.5 sq.mi.; pop. (1943 census): 70,619, of whom 57,346 are Negroes. New Providence island had a 1943 population of 33,350 (density, 506.7 per sq.mi.), and the remaining islands (only about 20 of which are inhabited) 37,269 (density, 15.6 per sq.mi.). The constitution of the crown colony

(granted in 1728) provides for a legislative council of nine crown-appointed members, a house of assembly of 29 members elected by 15 districts, and a crown-appointed governor aided by an executive council of not more than nine. H.R.H. the duke of Windsor served as governor in 1945 until his resignation March 15; he was succeeded by William L. Murphy who was inducted July 28.

**History.**—The Petroleum act was the most important legislation adopted in 1945. The duke of Windsor's resignation was followed by his presentation of a development program to the chamber of commerce on March 29 and his farewell address to the assembly on April 4. The assembly on July 3 rejected a proposal for participation in a British Caribbean colonial federation but asked for a greater degree of responsible government. Air Marshal Duncan Colyer announced Aug. 24 that a unit of the R.A.F. would remain in the Bahamas. Various wartime controls were lifted on Sept. 4. Speculation existed in the latter part of 1945 about the possibility of commercial use of wartime aviation installations.

**Education.**—Primary education is compulsory. School enrolment in 1942 in schools of all classes was 25,077.

**Finances.**—The monetary unit is the pound sterling, linked to the pound in London, and pegged in 1945 at \$4.06 for buying and \$4.00 for selling. A continuous inflow of funds existed in 1945 because of the recruitment of about 6,000 labourers for work on United States farms. Inflation continued, however, and hence little improvement in living conditions resulted. Merchants were the chief beneficiaries of the changed economic situation. The cost of living in 1945 was 125% above that for 1939. Life insurance reports in Jan. 1945 indicated some 10,600 policies in force for a total of about \$4,434,420.

**Agriculture and Industry.**—Agriculture, with the exception of tomato and sisal growing, is not important, principally because of inadequate soils, and practically all foodstuffs are imported. A well developed dairy and chicken industry on Eleuthera island provides Nassau with partial supplies of milk, chickens, eggs and butter. Of 120,000 mulberry cuttings imported from Venezuela in 1944, only 40,000 survived; it was hoped that they might provide the basis for silk production. A large tomato crop was expected in 1945, the acreage having been increased from 1,500 to 2,000. Straw and shellwork is the principal industry of the natives. Sponge fisheries, previously closed by government order after a disastrous experience with disease in 1938-39, showed signs of recovering in 1945. Lumbering and fish canning on Grand Bahama and salt evaporation on Inagua island are other forms of production. Various oil companies sent representatives early in 1945 to investigate prospects, but no drilling was undertaken in the first eight months.

**Trade and Communications.**—Total imports in 1944 were valued at £1,735,899 (1943, £1,526,624); exports in 1944 were valued at £337,047 (1943, £372,315). An unfavourable trade balance is customary for the colony. Chief items of imports are foodstuffs and manufactured articles. The principal sources of imports in 1944 were the United States 56% (1943, 61%); Canada 27% (1943, 20%); the United Kingdom 5% (1943, 5%); Jamaica 4%. The leading exports include straw and shellwork, valued in 1944 at £72,615 (1943, £177,161), tomatoes and pineapples and short-fibre sisal. The United States received 71% of total exports in 1944, Canada 22% and the United Kingdom 6%. Export of shells in the first half of 1945 was valued at \$50,051; straw work at \$121,831; agricultural products (principally tomatoes) between Nov. 17, 1944, and March 28, 1945, at \$342,414.

The colony has no railroads and only an inadequate highway system. New Providence island has 18 mi. of unimproved earth, 18 mi. of water-bound macadam, and 100 mi. of surfaced highways. Vehicle registration Jan. 1, 1945, included 930 automo-

biles, 233 trucks and busses, and 40 motorcycles. Pan American Airways operated passenger planes between Miami and Nassau six days a week. New Providence has an automatic telephone system with 1,300 subscribers. (See also WEST INDIES, BRITISH.)

FILMS.—*West Indies* (Encyclopædia Britannica Films Inc.). (R. H. FN.)

**Bahrein Islands:** see BRITISH EMPIRE.

**Baker, Sara Josephine** (1873-1945), U.S. child hygiene expert, was born Nov. 15 in Poughkeepsie, N.Y. She received her M.D. degree from the Women's Medical college, New York infirmary, 1898, and then practised medicine in New York city. She became assistant to the commissioner of health in that city, 1907. Dr. Baker organized the first bureau of child hygiene under government control in New York, becoming director in 1908. She had some difficulties with her staff when she was appointed to this position because several of the male doctors rebelled at working under a woman. Her efficiency and competence, however, were indisputable and she subsequently won full co-operation from her assistants. She persuaded the municipal authorities to establish health stations throughout the city, and at the time of her retirement these stations cared for some 60,000 babies a year—one-half the number born in New York annually. Under her administration child mortality in New York city was the lowest of any large city in the U.S. or Europe. Dr. Baker was president of the American Child Hygiene association, 1918-19, was consultant in child hygiene in the U.S. public health service and held responsible positions in various other important health organizations. She authored *Healthy Mothers, Healthy Babies* and *Healthy Children* (1923), *Child Hygiene* (1925) and *Fighting for Life* (1939). She died in New York city, Feb. 22.

**Baker Island:** see PACIFIC ISLANDS, U.S.

**Ballet:** see DANCE.

**Ballroom Dancing:** see DANCE.

**Baltic States:** see ESTONIA; LATVIA; LITHUANIA.

**Baltimore.** The only large city in Maryland, and seventh largest in the United States. The population according to the federal census of 1940 was 859,100; white, 692,705; non-white, 166,395 (19.4%), mainly Negro. The estimated civilian population as of July 1945 was 930,000. Land area, 78.58 sq.mi.; water area, 13.35 sq.mi. The mayor in 1945, whose four-year term of office began in 1943, was Theodore R. McKeldin, Republican. Budget appropriations for 1945 totalled \$62,647,692. Actual expenditures during 1944 amounted to \$60,479,514. The city tax rate for 1945 was \$2.89 per \$100 of assessed valuation (state rate, additional, \$.12). The gross funded debt as of Nov. 30, 1945, was \$157,663,000; the net debt was \$118,579,929 (not including accrued interest amounting to about \$200,000).

There were 79,552 white students and 34,269 Negro students, ranging from pre-kindergarten through teachers college, enrolled during the school year 1944-45; total, 113,821. The actual enrolment on Sept. 30, 1945, was 72,333 white students and 32,517 Negro students; total, 104,850. Dr. David E. Weglein was superintendent of public instruction in 1945. The department of education is administered as a unit apart from the school system of the rest of the state.

The end of World War II brought a lessening of shipbuilding and ship-repair work. By the end of 1945, reconversion was practically completed in most industries, the largest single reconversion project being that of the Chevrolet-Baltimore division of the General Motors corporation. Production continued vigorously in these lines, among others: metals and metal goods,

distilled liquors, plastics and electrical goods (including radios). Plant investment during 1945 surpassed that for the three preceding years. Building permits for the city were at \$14,800,000, being 138% above 1944. While many workers received unemployment compensation, few who desired available work were unable to obtain it. Total entrances and clearances of foreign trade shipping were 2,931 vessels of 11,000,000 net registered tons, an increase of 40% above 1944. On June 30, 1945, the resources of Baltimore banks aggregated \$1,659,702,000, representing slightly more than 75% of the bank resources of all Maryland.

(E. GN.)

**Bananas:** see FRUIT.

**Bankers Association, American:** see SOCIETIES AND ASSOCIATIONS.

### Bank for International Settlements.

Under a lessened tension due to the termination of the war in Europe, the 15th annual meeting of the Bank for International Settlements was held on June 11, 1945, at Basle, Switzerland. Following customary procedure of the war years, Dr. Ernst Weber, Swiss chairman of the board of directors, presided over the meeting, with member nations represented by proxy in lieu of personal representation.

The balance sheet and profit and loss account, covering the fiscal year ended March 31, 1945, were approved. With the future status of the bank in doubt and the need for strengthening of the bank's reserves, no action was taken with respect to declaration of a dividend.

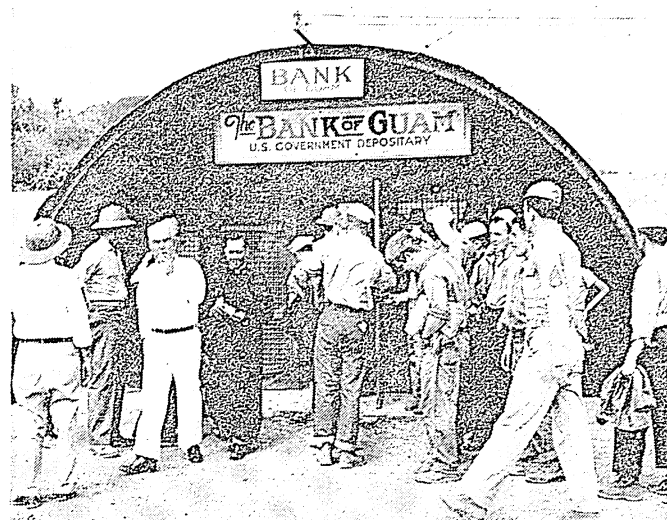
The annual report of President Thomas H. McKittrick dealt with economic and social problems confronting the world, particularly the former industrial nations of Europe. Attention was called to the growing tendency toward socialistic measures embraced by governments and the report indulged in mild speculation as to possible connection between these paternalistic developments and the widespread increase in the birth rate between 1938 and 1944, in sharp contrast to the trend in most countries during World War I. The report cautioned that social measures constitute a charge on the production of wealth, that in most countries about three-fourths of all business is in private hands, and that material progress, as well as attainment of maximum employment, depends primarily upon results achieved by private initiative and enterprise. "Without economic expansion," the report emphasized, "there can be no real social security."

An important lesson of the war to which attention was called was that speedy transformation in wartime may be obtained with the aid of government intervention, and that this might be applied also to reconversion of industry during the transition period.

The latest available statement of account of the bank, as of Oct. 31, 1945, showed a balance sheet total of 454,331,117 Swiss gold francs, compared with 466,064,273 in Oct. 1944. Gold in bars and coin and other cash amounted to 161,209,385 Swiss gold francs, constituting 35½% of total assets. Long term deposits were 229,001,250 Swiss gold francs, more than 50% of liabilities. Short term and sight deposits, in gold and various currencies, totalled 23,654,729 Swiss gold francs. The bank was capitalized at 500,000,000 Swiss gold francs, of which 25% was paid up.

(C. A. SR.)

**Banking.** In the United States the total amount of deposits adjusted and currency outside banks, which had been \$78,200,000,000 in Dec. 1941, increased by \$12,800,000,000 during the first ten months of 1945, and stood at \$163,800,000,-



THE BANK OF GUAM, operated by the U.S. navy department in a Quonset hut, was reopened in 1945. Savings and checking accounts were used by military personnel and by civilians

000 on Oct. 31, 1945. On that date demand deposits adjusted amounted to \$78,100,000,000, and U.S. government deposits \$11,700,000,000. Currency outside banks stood at \$26,400,000,000 and time deposits at commercial banks, mutual savings banks and the postal savings system at \$47,600,000,000.

The Federal Reserve survey of demand deposit ownership showed that of the \$32,000,000,000 increase in demand deposits of individuals and businesses between Dec. 1941 and July 1945, one-fourth represented increases in demand deposits of manufacturing and mining businesses, about one-fifth increased holdings of trade concerns and about two-fifths growth in personal deposits. During the period after Dec. 1941 manufacturing and mining businesses increased their holdings by 84% and trade firms by 137%. Personal holdings rose 140%. The substantial wartime increases in currency and in time deposits were largely held by individuals.

Commercial bank holdings of government securities rose to new heights during 1945, although the increase was less than in each of the two preceding years. On June 30, 1945, government securities owned by commercial banks amounted to \$84,000,000,000; these comprised nearly three-fourths of their total loans and investments. Commercial banks held about one-third of the total interest-bearing U.S. government debt.

The growth in bank holdings of government securities took the form chiefly of treasury bonds purchased in the market. Although total holdings of government obligations by weekly-reporting member banks in 101 leading cities rose \$4,700,000,000 during 1945, their holdings of treasury bonds increased by \$5,200,000,000. Certificate holdings rose \$1,100,000,000 while weekly-reporting member banks held \$1,500,000,000 less of treasury bills, treasury notes and guaranteed obligations.

Bidding for treasury bonds in the market by commercial banks resulted in major changes in the pattern of yields on government securities which had been in existence after the formulation of war financing plans in 1942. Heavy bank buying of treasury bonds provided a strong demand for such securities, not only directly, but indirectly through corresponding expansion in the money supply held by the public. Although the treasury bill rate remained at three-eighths of 1%, the established rate at which the federal reserve banks stood ready to buy all bills offered, only one-fourth of the treasury bills outstanding were held outside the federal reserve banks. The yield curve for bank-eligible, fully taxable treasury bonds flattened out during 1945, as the prices of these bonds rose to premiums. The 1½% treasury bonds of Dec. 1930, offered in the Seventh



War Loan drive, yielded 1.17% on Dec. 31, 1945; the 2% treasury bonds of Dec. 1952-54, which sold at a yield to date of first call of 1.96% at the beginning of 1945, yielded 1.33% to call at the end of the year.

The distinction between treasury bonds currently eligible for purchase by commercial banks and those not so eligible (except for limited purchases during war loan drives for the investment of savings deposits) became of increasing significance. The bank-ineligible treasury bonds of Dec. 1967-72 yielded 2.41% to call date on Dec. 31, 1945. In contrast, the bank-eligible treasury bonds of Sept. 1967-72 sold at a yield of 1.99%; these bonds yielded 2.46% at the beginning of the year.

Yields on high-grade municipal bonds declined from 1.87% to 1.64% during 1945; yields on Aaa corporate bonds declined from 2.70% to 2.61%. Not only did long term interest rates decline to lower levels than ever before, but also the spread between yields on investments involving varying degrees of risk narrowed, as a result of the strong pressure in the markets of funds seeking investment.

The movement of commercial and industrial loans during 1945 reflected an increase in loans for nonwar purposes which more than offset a decline in loans outstanding for war purposes. Loans for purchasing and carrying securities, especially government securities, increased during the year, fluctuating with war loan drives. Banks made plans for active lending operations as an aid to the attainment of high levels of production and employment in peacetime. Emphasis in the field of business loans was placed on newer types of loan procedures, such as term loans, loans on accounts receivable and warehouse receipts and bank credit pools. Expansion in consumer credit and home modernization loans was anticipated.

Net profits of commercial banks continued their wartime increase, due primarily to earnings on increased holdings of government securities. About half of the gross earnings of commercial banks in the aggregate were derived from interest received on government securities. For all member banks of the Federal Reserve system, net profits on total capital accounts amounted to 11.0% in the first half of 1945, as compared with 9.7% in 1944 and 6.7% in 1941. The average rate earned on loans by member banks declined to 3.0% in the first half of 1945, continuing a downward movement that had been underway for several years. The average rate earned on securities remained unchanged at 1.5%. Cash dividends increased in 1945, but not substantially. Banks continued to add a large portion of their net profits to capital accounts. Not a single bank was suspended during 1945. (See also BUSINESS REVIEW; CONSUMER CREDIT; LAW; PRICE ADMINISTRATION, OFFICE OF.)

**Investment Banking.**—The year was an active one for corporate financing. New corporate securities issued for new capital and for refunding reached a total of \$5,600,000,000 in the 11 months ending Nov. 30, 1945, an amount greater than in any year after 1929. Corporate issues for new capital amounted to \$1,100,000,000, somewhat under the levels of 1936 and 1937. Corporate issues for refunding totalled \$4,500,000,000, exceeding the total for any previous whole year for which data are available. Refunding operations were stimulated by the low level of interest rates and by the tax saving that corporations in the excess profits tax brackets were able to secure by refunding outstanding bond issues. State and municipal issues were offered in light volume. (See also WAR BONDS.) (J. K. L.)

**Mutual Savings Banks.**—In New York state in 1945, an amendment to the banking laws authorized savings banks to enter the housing field as owners and operators. Savings banks could own the stock and obligations of a corporation organized under the laws of New York state for the purpose of providing housing, subject to such conditions as may be prescribed by the

banking board. Under banking board regulations, rent in the housing projects owned by savings banks was limited to \$25 per room per month and if erected in conformance with Urban Redevelopment laws the projects could enjoy partial exemption from real estate taxes as provided in those laws.

A group of banks already entered into tentative agreements with the city of New York to proceed conditionally with the erection of three projects which, when built, would house between 3,500 and 4,000 families and cost between \$20,000,000 and \$25,000,000. These projects were developed by the banks through the instrumentality of the Savings Banks Trust company, an organization wholly owned by the savings banks of the state, which acts as a co-ordinating agency making all the preliminary studies as to location, size, design and costs.

An important development of interbank co-operation occurred in the forming of the Savings Bank Investment Fund in Massachusetts, a vehicle through which the savings banks would have an opportunity to invest in securities not eligible for purchase by individual banks. Banks could invest up to 10% of their deposits in the proposed fund which was managed by a board of directors elected by the directors of the Mutual Savings Central Fund, Inc. (a central pool for assistance to savings banks if need arises).

Effort was being made in 1945, to replenish mortgage portfolios particularly by financing low cost homes. Savings bank laws in most states limited such loans to amounts not exceeding 70% of the appraised value of the mortgaged property. In 1943 New York state raised its limit to 80% of the appraised value on loans on homes located within 50 mi. of the bank making the loan. In 1945 other states enacted similar laws setting new percentage limitations as follows: Connecticut 80%, Massachusetts 75%, New Jersey 80%, Vermont 80% and Washington 80% of appraised value.

In 1927, Massachusetts authorized savings banks to make personal loans in limited form. In 1945 that state extended the limit to \$1,000 for loans without security other than personal note to mortgagors for the purpose of repairing or remodeling mortgaged property. It also authorized loans on the note of one or more makers with or without security in amounts up to \$1,000.

During 1945 the financial condition of several railroads improved to the extent that their bonds became attractive once more and moderate new investment took place. State banking laws pertaining to rail securities had been greatly detailed in respect of qualifications for savings bank investment. In Connecticut in 1945 a new law was enacted which permitted a savings bank to invest not exceeding 20% of its assets in bonds of Class I railroads, provided such bonds are named in the list of bonds certified to the bank commissioner by a committee known as the "Savings Banks' Railroad Investment committee." This committee consists of six members appointed by the governor, none of whom may be engaged in the business of dealing in securities. Nominations to this committee were submitted to the governor by the bank commissioner and commercial and savings banks associations. In Minnesota the banking law was rewritten in order to qualify a great many high-grade new issues which had previously been nonlegal for savings banks in that state, where the subdivision defining eligibility of railroad mortgage bonds was completely rewritten in order to provide standards for "qualifying railroad corporations" and the "eligible obligations" of such corporations. The railroad companies have to meet certain tests as to size, payment record, debt ratio and net earnings coverage above fixed charges.

In the year ended July 1, 1945, all mutual savings bank deposits increased \$1,950,327,636 or 15.7% to a total of \$14,378,413,200; surplus increased \$2,094,379,836 or 15.1% to a total

of \$15,953,333,612; accounts increased 622,998 or 3.9% to a total of 16,725,733. The ratio of surplus to deposits on July 1, 1945, was 10.7% as compared with 11.1% on July 1, 1944. Dividends paid on deposits averaged 1.70% as compared with 1.78% the previous year. During the year two banks were absorbed by mergers so that the number of banks on July 1, 1945, was 532.

Gains in deposits were completely absorbed by the purchase of U.S. government bonds in the Sixth and Seventh War Loan drives and the Victory Loan campaign in which the banks subscribed to \$2,314,000,000, \$2,241,000,000 and \$1,770,000,000 respectively. (See also WAR BONDS.)

Savings bank life insurance continued to expand in the three states in which it is authorized. In Massachusetts, on Nov. 30, 1945, the last date for which information was available at the close of the year, there were 32 issuing banks and 116 agency banks, with insurance in force of \$266,754,699, representing 294,184 policies. In New York, on Nov. 30, 1945, there were 31 issuing banks and 19 agency banks with insurance in force of \$59,210,131 representing 55,743 policies. In Connecticut, on Nov. 30, 1945, there were eight issuing banks and 15 agency banks with insurance in force of \$5,800,303 representing 6,215 policies. (HE. BR.)

**Canada.**—Total deposits of the ten chartered banks rose \$436,000,000 in the first ten months of 1945, with a steady growth in time deposits accounting for the increase. On Oct. 31, 1945, total deposits of chartered banks stood at \$5,600,000,000. Total securities held amounted to \$4,200,000,000, an increase of more than \$500,000,000 from the beginning of the year. Loans and discounts other than security loans declined slightly.

Security holdings of the Bank of Canada rose \$317,000,000 through Oct. 31, 1945, to a level of \$1,800,000,000. Note circulation increased \$100,000,000, with chartered bank notes showing some decline. (J. K. L.)

**Great Britain.**—Trustee savings banks in the United Kingdom, the counterpart of the mutual savings banks in the U.S., reported another record increase for the year ended Nov. 20, 1944, of £78,624,940 in deposits and £4,676,851 in government stock held for depositors on the savings banks' registers. The cash balance due to depositors in the Ordinary department was £410,984,411, in the Special Investment department £115,818,940 and government stock held for depositors had a nominal value of £64,758,954. The combined surplus fund was £14,595,639. On Nov. 20, 1944, there were 88 trustee savings banks in the United Kingdom with 741 offices. During 1945 there was a net increase in the number of accounts, including holders of investment stocks bought by the banks for account of clients, of more than 268,000 bringing the total accounts to 5,346,661. (See also BANK OF ENGLAND.) (HE. BR.)

**Australia.**—Fundamental legislation was enacted during 1945 in Australia concerning the organization and functions of the Commonwealth Bank (the central bank of Australia), the relationship between the government and the Commonwealth Bank and the control of the operations of the trading banks (commercial banks). The Commonwealth Bank was charged with the duty of acting as a central bank and pursuing a monetary and banking policy which would best contribute to the stability of the currency, the maintenance of full employment and the economic prosperity and welfare of the people of Australia. Management of the Bank was placed in the hands of a governor, appointed by the government.

The treasurer of Australia was to be informed by the bank of its monetary and banking policy. In event differences of opinion arise between the bank and the government as to policy, and if the treasurer and the bank can not reach agreement, the government will accept responsibility for the adoption by the bank of the policy in accordance with the opinion of the government, and the bank will then give effect to that policy. Provision was made in the legislation for abolishment of the reserve

requirements against the note issue. These requirements had been 25% to be kept in the form of gold or English sterling. Authority is granted to the government to mobilize and provide machinery for the control of foreign exchange and gold resources.

The Commonwealth Bank acts not only as the financial agent of the Commonwealth of Australia but also as the banker of the government. Any deficits not met by borrowing from the nonbanking public will be met by borrowing from the central bank. Trading banks may not purchase or subscribe to securities of the Commonwealth, except with the consent of the Commonwealth Bank.

**Europe.**—In December the National Constituent assembly of France passed a bill nationalizing the Bank of France and four large private banks. The prime minister of Belgium advocated nationalization of the Belgian National Bank, and a commission in the Netherlands was considering ways and means of nationalizing the Netherlands Bank.

Action was taken in France, Belgium and the Netherlands to reduce the amount of money in circulation as part of the programs of these countries for economic and financial rehabilitation. Currency conditions in central and southeastern Europe continued to deteriorate, and in some countries the stage of hyperinflation had been reached. (See also BANK FOR INTERNATIONAL SETTLEMENTS.) (J. K. L.)

**Bank of England.** The main event of 1945 was the introduction on Oct. 10 of the bill for the nationalization of the Bank of England. For years the nationalization of the bank had been a cardinal tenet of faith of the British Labour party, and so the general election result made the bill a foregone conclusion. When the Labour government took office, the bill was pushed to the forefront of its nationalization program, partly to satisfy the Labour rank and file, and partly because it was a comparatively simple measure.

The holders of the 14,553,000 capital stock of the bank were to receive in exchange for these holdings 58,212,000 of 3% British government stock, redeemable, at the government's option, at par on or after April 5, 1966. As from 1923, the stockholders had been getting 12% on the bank stock, with no prospect of any change in their dividend, the four-to-one exchange meant that they would receive the same income as before this "previous income" test was deliberately applied by the government in this special case of the bank. It sidetracked such questions as the stockholders' claims to one bank's assets, accumulated reserve, good-will and so on.

The governor, deputy governor and director of the bank would thereafter be appointed by his majesty. The governors would hold office for five years and the director for four years, but all would be eligible for reappointment. The number of directors was to be 16, instead of 24 as previously. This made, with the two governors, a court of 18.

Section 4 of the bill crystallized into legal form the informal but effective relationship which before and during World War II had gradually developed between the government, the Bank of England and British banks. Under this section, the treasury may after consultation with the governor of the bank, issue directions to the bank. The Bank of England in turn may request information from and make recommendations to all bankers, and may, if so authorized by the treasury, issue compulsory directions to any banker to this effect. This section was the most controversial part of the whole bill, for while the existing government's intention, no doubt, was to operate it reasonably, it could be used to give a future government full powers over all banks operating in Great Britain.

During the spring of 1945, the formation of two new financial institutions was announced. The larger of the two obtained its share of capital from the Bank of England, the insurance companies and investment trust companies, and its loan capital from the banks. Its purpose was to finance whole sections of British industry. The smaller institution was financed almost entirely by the joint-stock banks. Its function was to provide British firms with medium-term capital in relatively small amounts. The need for finance of this kind was specified in the Macmillan report in the early 1930s.

The Bank of England played a leading part in the organization of these two new institutions.

The table shows changes in the bank's condition during the first nine months of 1945.

Bank of England					
(£ million)					
1945	Jan. 3	April 4	July 4	Oct. 3	
Issue dept.					
Note circulation . . . . .	1,238.4	1,240.3	1,294.1	1,333.4	
Fiduciary issue . . . . .	1,250.0	1,250.0	1,350.0	1,350.0	
Banking dept.					
Public deposits. . . . .	16.4	10.9	9.1	9.6	
Banker's deposits. . . . .	251.4	187.9	251.1	232.9	
Other deposits. . . . .	56.4	56.0	58.3	57.0	
Government securities. . . .	300.8	225.6	262.0	282.5	
Discounts and advances . . .	15.2	20.7	3.7	6.7	
Other securities . . . . .	12.5	14.8	13.3	11.3	
Reserve . . . . .	13.5	11.4	57.4	17.1	
(N. E. C.)					

(N. E. C.)

**Bankruptcy:** see BUSINESS REVIEW; SECURITIES AND EXCHANGE COMMISSION.

**Banks:** see BANKING.

**Baptist Church.** Two momentous programs were adopted in 1945 by Baptists of the Northern convention in the United States. One, the Christian Life Crusade, had as its purpose the bringing of Northern Baptists face to face with their imperious obligations and privileges in spiritual concerns.

The second, the World Mission Crusade, seeks the means whereby that evangelical service may be implemented. The latter objective is the raising of \$14,000,000 between Oct. 7, 1945, and April 30, 1947. This sum was to be spent for advance in missionary labour at home and abroad; the restoration of church edifices, schools and hospitals; extension work in cities; education; and pension funds for ministers and missionaries.

The Southern Baptists found themselves prohibited by war regulations from celebrating in 1945 the centennial of their convention. A challenging centennial crusade was organized. With the motto, "Crowning a Century for Christ," the convention enthusiastically undertook to contribute \$20,000,000 to missions and benevolences in the centennial year with advance planned in evangelism, enlistment, education, rehabilitation, stewardship and benevolence.

The denomination in the south was encouraged by its marvellous growth during the century. In 1845 the total membership was 352,822. In 1945 it was approximately 5,500,000. A hundred years before, the Baptists in all the United States (811,935) gave \$160,584.82 (20 cents per member) to missions and benevolences. In 1945 the Southern Baptists gave more than \$63,067,083 or about \$11.48 per member.

The National Baptist Convention, Inc., U.S.A. (Negro), adopted a budget of \$200,000 for the year July 1945-June 1946. Rehabilitation and extension, home and foreign, was projected.

Baptists of Canada rejoiced in the consummation of a long-hoped-for organization—The Baptist Federation of Canada, which, formed in Dec. 1944, co-ordinated the three conventions of the dominion—Maritime, Ontario and Quebec and the Union of Western Canada.

They were also uniting in 1945 in an inter-church missionary centenary. The first missionary of any denomination in Canada to go to a foreign field was Richard Burpee, a Baptist, who sailed from Halifax for Burma in 1845. A few months later the Presbyterians sent John Geddie to Aneiteum in the South Seas. In the same year Bishop Mountain of Quebec inaugurated missions of the Church of England in Canada among the Indians of the northwest. Joint observances were to be held by these three communions commemorating this century of missions.

Burdened by the expense of repair of many church edifices British Baptists nevertheless appealed for increased gifts for foreign missions—setting apart as self-denial week, Oct. 28-Nov. 4, 1945. The Scottish Baptists supported more than 50

missionaries with 39 in active service and others awaiting passage.

South African Baptists sought £15,000 (£1=403.5 cents U.S.) for extension work to serve the many English speaking people who are moving into frontier settlements.

The Northern Baptist convention recorded 1,556,112 members; the Southern Baptist convention, 5,500,000; Negro (two conventions) 4,162,332; Canada 139,405; Great Britain 385,933; New Zealand and Australia 40,774; Africa 167,175; world total 13,314,620. (See also CHURCH MEMBERSHIP.)

(R. E. E. H.)

**Bar Association, American:** see SOCIETIES AND ASSOCIATIONS.

**Barbados:** see WEST INDIES, BRITISH.

**Barbier, George** (1865?-1945), U.S. actor, was born in Philadelphia, Pa. After playing a small role in a school pageant, he decided that he was more inclined toward the theatre than to the ministry and he left the Crozier Theological seminary in Upland, Pa., to start a career as an actor. After the usual arduous apprenticeship in stock companies, he won his first Broadway role in Daniel Frohman's production of *The Hunchback of Notre Dame*. He enjoyed a long and distinguished career on the New York stage before going to Hollywood in 1930. A volatile personality and a skilled character actor, he became an indispensable feature actor for those companies that needed a crusty and querulous businessman with an explosive temper. His portrayals had more than adequate vitality and he became known as a "scene stealer." Mr. Barbier died at his Hollywood home, July 19.

**Barium Minerals.** The production of barite in the United States was as shown in the table.

Production continued to rise in 1945, the total of 521,623 tons in the first three quarters exceeding that for the full year in 1944. Imports kept pace, with 204,981 tons in the same period, although demand was falling, and consumption was 423,328 tons.

U.S. Production of Barite, 1940-44  
(in thousands of short tons)

	1940	1941	1942	1943	1944
Production, crude . . . . .	390.5	483.4	449.9	429.3	515.1
Sales, crude . . . . .	409.4	503.2	429.5	420.3	518.6
Consumption . . . . .	404.3	490.8	449.4	453.7	595.6
Used for					
Chemicals . . . . .	66.6	93.0	104.2	99.1	100.9
Lithopone . . . . .	136.9	154.0	144.8	129.5	134.6
Ground barite . . . . .	200.9	243.8	200.4	225.2	360.0
Well drilling . . . . .	138.1	154.8	117.4	144.5	277.8
Imports . . . . .	7.4	0.5	4.7	—	67.9

Canada increased in barite output from 338 tons in 1940 to 24,474 tons in 1943 and 118,719 tons in 1944, of which 104,000 tons was exported, 66,000 tons crude and 38,000 tons ground.

(G. A. Ro.)

**Barkley, Alben William** (1877- ), U.S. politician and senator, was born Nov. 24 in Graves county, Ky., the son of a tobacco farmer. He received his B.A. degree from Marvin college at Clinton (1897) and studied at Emory college in Oxford, Ga., and the University of Virginia Law school. He was elected to the U.S. house of representatives in 1912 and was re-elected six successive times, serving through 1926. In the latter year, he was elected to the senate and was re-elected in 1932, 1938 and 1944. A staunch administration supporter, Barkley helped push through the Selective Service bill and the Lend-Lease bill, and also sponsored the amendments to the Neutrality act which passed the senate in Nov. 1941. After 11 years of uninterrupted support of the Roosevelt administration, Barkley broke with the presi-



dent over the tax veto bill, assailing (Feb. 23, 1944) the veto message as "a deliberate assault upon the legislative integrity of every member of congress." Thereupon Barkley resigned his leadership of the senate. The president, disavowing any intention of slurring the integrity of congress, urged him to reconsider his resignation. Both houses of congress overrode the president's veto, and on Feb. 24, a Democratic senate caucus unanimously re-elected Barkley to senate leadership. When congress decided to investigate the Pearl Harbor incident, Barkley was named (Sept. 18, 1945) chairman of the committee of inquiry. He subsequently pledged a nonpartisan investigation and said (Nov. 10) that he would "lay all the facts before the public, no matter whom they may hurt in high or low places."

**Barley.** The 1945 barley crop was 277,246,000 bu. as estimated by the United States department of agriculture. This was about 2½% below the 1944 crop of 284,426,000 bu., but 1½% above the average of 1934-43 of 273,481,000 bu. The acreage for harvest was reduced to 10,606,000 ac. in 1945 or 14% below 1944 but the higher yield per acre of 26.1 bu. brought the total up sharply. This acre yield was the highest after 1915, 3 bu. above 1944 and 4 bu. above the ten-year aver-

U.S. Production of Barley by Leading States, 1945 and 1944

State	1945 bu.	1944 bu.	State	1945 bu.	1944 bu.
North Dakota . .	53,760,000	57,285,000	Wyoming . .	3,106,000	3,278,000
California . .	41,608,000	40,012,000	Arizona . .	2,652,000	2,812,000
South Dakota . .	32,900,000	28,448,000	New York . .	2,200,000	2,325,000
Colorado . .	19,551,000	13,666,000	Oklahoma . .	2,108,000	3,990,000
Nebraska . .	13,421,000	8,928,000	Virginia . .	1,836,000	2,124,000
Montana . .	13,248,000	16,290,000	Maryland . .	1,818,000	2,174,000
Minnesota . .	13,224,000	13,884,000	Tennessee . .	1,728,000	1,862,000
Idaho . .	11,840,000	12,728,000	Missouri . .	1,463,000	1,600,000
Utah . .	6,750,000	7,038,000	Kentucky . .	1,170,000	1,932,000
Kansas . .	6,702,000	14,144,000	Illinois . .	842,000	1,125,000
Oregon . .	6,402,000	7,142,000	North Carolina	840,000	1,170,000
Washington . .	5,670,000	7,500,000	Indiana . .	816,000	1,176,000
Michigan . .	3,906,000	3,900,000	Nevada . .	640,000	781,000
Texas . .	3,857,000	10,080,000	Ohio . .	630,000	475,000
Wisconsin . .	3,600,000	5,062,000	New Mexico . .	550,000	896,000
Pennsylvania . .	3,150,000	2,632,000	Mississippi . .	338,000	416,000

age of 22.3 bu. per acre. The season was very favourable, especially in the heavy producing states of the north central area. In North Dakota, the leading barley producing state, the average yield per acre was 24 bu. compared with 22.5 bu. in 1944 and a ten-year average of 18 bu. Wisconsin harvested a yield of 39.5 bu. per acre compared with 26.5 bu. in 1944 and Minnesota 29 bu. per acre in 1945 compared with 19.5 a year earlier.

(J. C. Ms.)

**Barros Camara, João de** (1894- ), cardinal archbishop of São Sebastião do Rio de Janeiro, was born at São José, state of Santa Catarina, Brazil, on Aug. 3. He was educated at Jesuit seminary of São Leopoldo, and was ordained in Jan. 1920. He served as rector of the diocesan seminary, and was consecrated bishop of Mossoro in 1935. He was elevated to the archbishopric of Belem do Pará in 1940, and was transferred to see of São Sebastião do Rio de Janeiro in 1943. Known as an able organizer, orator, historian and administrator, the archbishop established a record in the development of seminaries and charitable works. Aside from his pastoral duties, he found time to carry on research concerning the history of the church in Brazil. On Dec. 23, 1945, it was announced that Archbishop Camara had been appointed to the Sacred College of Cardinals. He was created and proclaimed cardinal at consistory on Feb. 18, 1946.

**Bartók, Béla** (1881-1945), Hungarian composer, was born March 25 in Nagyszentmiklós, formerly in the Hungarian district of Torontal which later became part of Yugoslavia. For his early career, see *Encyclopædia Britannica*. He early came under the influence of the famous French com-

poser, Claude Debussy, and accordingly turned to modern compositions, becoming one of the vanguard of "neo-classicists." At the same time, he began to use the ancient scales he discovered in his research on old Hungarian folk music and adopted a 12-tone scale which afforded many new harmonic combinations. Bartók made his debut in the United States in 1927 as soloist with the Philharmonic orchestra and presented his own *Rhapsodie, Op. 1*. Later, he appeared with Joseph Szigeti in a concert devoted largely to his own compositions. In 1939, Bartók's concerto for violin and clarinet was played by Szigeti and Benny Goodman at Carnegie hall. In 1940, Columbia university awarded him the degree of doctor of music and commissioned him to transcribe the vast Milman Parry collection of Yugoslav folk-music recordings. A prolific composer, his stage works include: *The Wonderful Mandarin*, pantomime, *The Wooden Prince* and *Prince Bluebeard's Castle*. His orchestral works include *Dance Suite*, *Hungarian Folk Songs*, *Two Portraits* and *Two Pictures*. He also wrote a number of piano pieces based on folk melodies, choral works, violin compositions and revised orchestral arrangements for his earlier works. Bartók, who resided in the United States after 1940, was elected a member of the Hungarian parliament in absentia. He died in New York city, Sept. 26.

**Basalt:** see STONE.

**Bascom, Florence** (1862-1945), U.S. geologist and educator, was born July 14, in Williamstown, Mass. She was graduated from the University of Wisconsin in 1882 with an A.B. degree and took her A.M. in 1887. She was the first woman to win a Ph.D. degree from Johns Hopkins university, 1893. In the same year, Dr. Bascom became instructor in geology and petrography at Ohio State university. She joined the Bryn Mawr faculty in 1895 as lecturer and associate professor in geology, later becoming professor and serving in that capacity until her retirement in 1928. She was a member of the U.S. Geological Survey, 1896-1936, an associate editor of the *American Geologist*, 1896-1905, a fellow of the Geological Society of America as well as a member of numerous scientific societies. She died in Williamstown, June 18.

**Baseball.** Baseball in the United States played through its final year of World War II under a new leader. The death of Kenesaw Mountain Landis, who served as commissioner of baseball from Jan. 12, 1921, left a vacancy which was filled on April 24, 1945, with the selection of Albert Benjamin Chandler, Democratic senator from Kentucky and that state's former governor. Before the year was out Commissioner Chandler had rearranged the official family of the game. Walter Mulbry, a political associate, had moved in as secretary-treasurer and Herold (Muddy) Ruel, former catcher and Chicago White Sox coach, had taken over the duties of special assistant to the commissioner.

Leslie M. O'Connor, Chicago attorney associated with the late Judge Landis throughout his career at baseball's helm, served as special assistant to Chandler until a substitute could be named for him. Upon vacating that office, he assumed the role of general manager of the Chicago White Sox in the American league, a post left open by the retirement of Harry Grabiner.

There were important changes in several other major league clubs during 1945. The New York American league club (the Yankees), which had grown to fabulous strength and dominance under the ownership of the late Colonel Jacob Ruppert and the guidance of Edward G. Barrow, was sold (the full Yankee empire of farm clubs in Newark, N.J., Kansas City, Mo., and other cities figured in the deal) to a syndicate headed by Colonel



WITH FINGERS CROSSED and pigtailed flying, Francine Tomlin, 10, of Death Valley A.C. makes a practice catch during the Philadelphia sandlot baseball tournament in 1945

Larry S. MacPhail, former general manager of the Cincinnati Reds and Brooklyn Dodgers; Dan Topping, well-known sportsman, and Del Webb, western business man. The reported price for the Yankees was \$2,800,000.

In St. Louis, Mo., Donald L. Barnes, president of the St. Louis Browns, winners of the American league championship in 1944, sold his stock and turned over his presidency to Richard C. Muckerman. In Boston, Mass., the Braves were put under the orders of John Quinn, son of Robert, whose place he assumed. In Detroit, Mich., Jack Zeller concluded his career in front-office direction in a pennant-winning year for the Detroit Tigers. When he turned in his resignation to W. O. Briggs, Sr. after the Tigers beat the Chicago Cubs in the world series 4 games to 3, Briggs named George Trautman, president of the American association, AA minor league, to the post. Trautman's chair was immediately filled by Roy Hamey, of the Kansas City Blues.

There were changes, too, in the dugouts of major league clubs. Freddie Fitzsimmons started the season as pilot of the Philadelphia Phillies and turned over his job in midseason to Ben Chapman. The latter, a star infielder and outfielder with the New York Yankees, returned to the minor leagues several years before, served as a manager, became a pitcher and came back to the majors in Brooklyn. Traded to Philadelphia, he was named manager when Fitzsimmons resigned.

The Boston Braves had three managers during the year but only two during the playing season. Bob Coleman began the year as the dugout leader of the Boston National league club and, when his team became bogged in the second division, he suggested a new man take his place. Quinn placed Del Bissonette, Coleman's first lieutenant and a former star with the Brooklyn Dodgers, in charge.

At the end of the year, however, it was announced that a new leader would be selected. Numerous candidates were rumored, among them Bill Terry, who had piloted the New York Giants to three championships; Lieutenant Bill Dickey, U.S.N.R., prewar Yankee catcher, and Dick Bartell, former shortstop of the Cubs, Giants and Tigers, who was discharged from service just before the world series.

But when the announcement of the new manager came, it was one of the biggest surprises in the history of baseball. Billy Southworth, who had managed the St. Louis Cardinals from 1940 and had led them to successive pennants in 1942, 1943 and 1944 as well as world crowns in '42 and '44, was picked after the Boston club had received permission from Sam Breadon, Cardinals' president, to offer a contract to him. Eddie Dyer, former Cardinal player and long a vital cog in the Redbirds' vast farm system, was named to succeed Southworth in the Sportsman's park dugout.

For all of this off-the-diamond activity the playing season, itself, could not be thrown into the background as two of the greatest pennant races in history threw the Cubs, of the National league, and the Tigers, of the American league, into a seven-game conflict for the world's championship. Attendance records were set both during the regular season and in the world series.

Four clubs drew more than 1,000,000 fans to their home parks. The American league, paced by Detroit's attendance of 1,280,341, drew a total of 5,580,020, its league record. The National league had three teams over the 1,000,000-fan mark, the first time this had ever been accomplished in either circuit, as the Cubs, Brooklyn Dodgers and New York Giants all topped that figure. The league's combined attendance, according to an Associated Press survey, was 5,372,819, the senior circuit's top figure after 1930 and a gain of almost 1,200,000 over the 1944 turnstile count.

Twelve leagues were active in the minors during 1945, the International league, American association and Pacific Coast league, in AA; the Southern association, in A-1 (raised to AA during the year); the Eastern league, in A; the Inter-State and Piedmont leagues, in B; the Carolina league, in C, and the Appalachian, Pony, North Carolina state and Ohio state, in D. It was estimated by the office of Judge William G. Bramham, president of the National association, that a total of 10,000,000 fans had watched minor league baseball during the year and at the winter meetings in Columbus, O., more than 30 leagues announced they would resume postwar activity in 1946.

A comparison of the major league attendances at each of the major league parks for 1943-45 may be found in Table I.

Table I.—Major League Attendance Figures, 1945, 1944 and 1943

	NATIONAL LEAGUE		
	1945	1944	1943
Brooklyn . . . . .	1,064,668	618,198	688,633
New York . . . . .	1,038,195	733,598	506,345
Chicago . . . . .	1,037,026	640,110	510,000
Pittsburgh . . . . .	623,398	653,912	542,011
St. Louis . . . . .	594,207	486,851	522,379
Boston . . . . .	410,146	245,197	312,923
Philadelphia . . . . .	310,389	367,417	466,876
Cincinnati . . . . .	294,790	431,297	430,545
Total . . . . .	5,372,819	4,176,580	3,979,712
	AMERICAN LEAGUE		
	1945	1944	1943
Detroit . . . . .	1,280,341	923,176	606,287
New York . . . . .	881,445	789,995	618,330
Chicago . . . . .	657,981	563,539	508,962
Washington . . . . .	652,660	525,235	574,694
Boston . . . . .	603,794	506,975	358,275
Cleveland . . . . .	558,182	475,272	438,894
St. Louis . . . . .	482,986	508,644	214,392
Philadelphia . . . . .	462,631	505,322	376,735
Total . . . . .	5,580,020	4,798,158	3,696,569
Grand Total . . . . .	10,952,839*	8,974,738	7,676,281

\*Gain of approximately 22% over 1944 attendance total.

The annual major league All-Star game, usually played early in July and from which the proceeds during World War II were turned over to war charities, was not staged in 1945 because of Office of Defense Transportation restrictions on travel. In place of this classic, seven interleague games were played and the receipts were given to the American Red Cross and other charities.

The American league won five of the seven games which netted the war charities more than \$250,000. The New York Yankees defeated the Giants at the Polo grounds, 7 to 1. The Chicago Cubs fell before the White Sox at Comiskey park in ten innings, 5 to 4; the Washington Senators were hosts to the Brooklyn Dodgers and defeated them, 4 to 3, with Lieutenant Bert Sheppard, one-legged war hero, pitching four innings and getting credit for the victory. At Fenway park in Boston, the Red Sox defeated the Braves, 8 to 1. In St. Louis, the Browns used nine pitchers, each working an inning, and the Cardinals were held to two hits and shut out, 3 to 0. The only National league triumphs were scored by the Cincinnati Reds at Cleveland, 6 to 0, and by the Phillies over the Athletics in Philadelphia's Shibe park, 7 to 6. The crowds and net receipts for these games are shown in Table II.

Fittingly enough, the world series of 1945, an exciting con-

flict which presented, among other episodes, a bizarre sixth game in which 19 players participated for each side, and in the third game the greatest pitching performance ever exhibited in world series play, set attendance and gate receipts marks which had never been equalled. Even before the seventh game had been played this was the richest series and the final contest at Wrigley field smashed the old turnstile count. The final figures were 333,457 paying fans, \$1,592,454 (including \$100,000 radio rights). The old standards were 328,051 who watched the Yankees play the Cardinals in 1926 and the \$1,322,328 realized at the 1940 Tigers-Cincinnati Reds series of 1940.

**The Pennant Races.**—The 1945 pennant races were bristling down-to-the-wire battles, the American league championship being awarded on the final day of the campaign and the National league title being clinched by the Cubs just a day earlier. There was a unique situation in the American league race, for the Washington Senators, last-minute challengers of the Tigers were idle throughout the final week of the season. Finishing their schedule one game behind the Bengals with a week to go, the Senators moved to the Bainbridge naval training station to keep in shape for a possible play-off or, perhaps, the elimination of the Tigers. Neither event occurred, however, and the Tigers, holding their slim lead, went on to win the world's championship.

Detroit led in the American league race from June 12 to the clinching. Although Washington moved to within a half-game of the top on several occasions, they never were in first place at any time during the 154-game campaign. (Oddly enough, the defending St. Louis Cardinals, only real threat to the Cubs' triumph, also played throughout the season without acquiring part or sole possession of first place.) Before June 12 several American league clubs held temporary leads—Chicago, Detroit and New York.

The White Sox opened with five straight victories and were a threat at the getaway. By the first week of June, however,

Table II.—Crowds and Receipts for 1945 Inter-League Charity Games

Teams	Crowd	Receipts
Boston Braves v. Red Sox . . . . .	23,253	\$ 69,149.85*
New York Giants v. Yankees . . . . .	46,482	61,365.95
Chicago Cubs v. White Sox . . . . .	47,144	49,334.75
St. Louis Cardinals v. Browns . . . . .	24,129	28,592.49
Brooklyn Dodgers v. Senators . . . . .	22,800	22,760.48
Cincinnati Reds v. Indians . . . . .	6,000	6,000.00
Philadelphia Phillies v. A's . . . . .	4,000	4,102.53
Total . . . . .	173,808	\$241,306.05

\*Includes sale of red feathers, other donations.

ROY HUGHES, shortstop for the Chicago Cubs, being called out when he attempted to gain an extra base on a two-base hit in the sixth game of the 1945 World Series on Oct. 8, 1945. The Chicago Cubs won the game, but lost the series on Oct. 10, four games to three. Cub manager Charlie Grimm (40) watches play





the Yankees had taken over. On June 8, the Tigers got their first hold on first place but by June 10 the Yankees were back in front. Then on June 12, with Hal Newhouser, the Tigers' spectacular southpaw, winning an 11-inning battle from the St. Louis Browns while New York was losing to Washington, Detroit moved in front, never to be headed.

Early in July Washington began to move up to the challenging position. A last-place team in 1944, the Senators combined good knuckle-ball pitching with speed on the base paths and jumped to within two and one-half games of the top late that month. Detroit had a four-game margin Aug. 1, yet dropped to within a half-game of the Senators by Aug. 5. It was a two-team battle by mid-August when the Senators took three out of four in a series with the Tigers and five out of six from Cleveland.

Returning from service with the navy, Bob Feller tossed his weight into the battle for Cleveland in late August and, although the Indians were out of it, his first victory over Detroit helped lift the Senators to within that stubborn half-game margin once more. By evening of Labor day, Detroit's lead was two games and time was running out for the Nats. When another dischargee, Walt Masterson, pitched a two-hitter and defeated Feller in an early September battle, the Senators had moved once again that scant half-game away. Finally on Sept. 15, the two leaders met in a five-game series with the pennant on the line. Detroit won three of the five games and left Washington leading by a game and a half. Washington was still a game out when it reached the end of its schedule and sat around waiting for disaster to overtake the Tigers.

But the Tigers hung on and finally clinched it the last day of the season—and in dramatic fashion. Hank Greenberg, another dischargee from service who was to play an important role in the world series, smashed the decisive blow. With his team trailing the St. Louis Browns by a run in the last inning of a game in St. Louis, Hank rocketed a grand slam home run into the left field bleachers. And that was the pennant!

The hustling getaway gallop of the White Sox in the American league was a brief spurt compared with the meteoric opening bid of the New York Giants in the National league. Under the spirited leadership of Mel Ott, erstwhile boy wonder, the venerable players from the Polo grounds won 25 of their first 32 games. It was a start which had not been matched in three decades of National league play and placed the Giants in an enviable position, six and one-half games ahead of their nearest rival on May 26. Thereafter the fortunes of the Giants faded and by the end of the season they were a mere four games over the .500 mark, a disappointing fifth in the league standings.

But that surprising Giants' move to the top did much to enliven the race in its early stages. It was not until mid-June that the Giants sank out of the lead. Then the Pittsburgh Pirates took over briefly. The Brooklyn Dodgers displaced them and on July 4, which tradition says is the day when champions are crowned, they were in front. But tradition was kicked around once again, for on July 8 the triumphant Cubs made their bid during a successful eastern trip, grabbed first place and stayed there until the end of the season.

Holding the lead was not as easy as it sounds, however. Time and again the Cardinals challenged and were turned back. The purchase of Hank Borowy, who had won ten games for the Yankees in the American league, was a master stroke—the turning point in the pennant fight. Borowy reported late in July and not only led the National league pitchers in the earned-run-averages lists and the won-and-lost percentage columns, but won three vital games from the Cards. In fact, he was the only Cub pitcher who beat the Redbirds over the last half of the season. St. Louis set an all-time record by winning 16 games

from the pennant-winning club, losing only 6.

At one time the Cubs held a seven and one-half game lead over the Cards. That was their longest margin. That lead dwindled to a mere one and one-half games in the closing weeks of the race. Labor day was a happy one for the Cubs. They beat the Reds twice (Chicago won 21 out of 22 from Cincinnati during the year) and the Pirates turned back the Cards in both ends of a double-header. That gave the Cubs a four-game advantage and probably saved the pennant for them when St. Louis made its traditional late rush in an attempt to acquire its fourth straight flag. The clinching was done on the next-to-last day of the season. Three games up and three to play, the Cubs beat the Pirates in the first half of a double-header. And the starting and winning pitcher in that game? Borowy, of course.

The final standings of the clubs in the two league races follow:

National League												
Club	Chi.	St. L.	Bkn.	Pitts.	N.Y.	Bost.	Cin.	Phila.	Won	Lost	Pct.	
Chicago . . . . .	6	14	14	11	15	21	17	98	56	.636		
St. Louis . . . . .	16	13	12	16	12	13	13	95	59	.617		
Brooklyn . . . . .	8	9	12	15	13	11	19	87	67	.565		
Pittsburgh . . . . .	8	10	10	11	15	12	16	82	72	.532		
New York . . . . .	11	6	7	11	10	16	17	78	74	.513		
Boston . . . . .	7	10	9	7	10	10	14	67	85	.441		
Cincinnati . . . . .	1	9	11	10	6	12	12	61	93	.396		
Philadelphia . . . . .	5	9	3	6	5	8	10	46	108	.299		

American League												
Club	Det.	Wash.	St. L.	N.Y.	Clev.	Chi.	Bost.	Phila.	Won	Lost	Pct.	
Detroit . . . . .	10	15	15	11	12	10	15	88	65	.575		
Washington . . . . .	12	11	8	14	14	11	17	87	67	.565		
St. Louis . . . . .	6	11	15	10	13	14	12	81	70	.536		
New York . . . . .	7	14	7	9	12	16	16	81	71	.533		
Cleveland . . . . .	11	8	11	12	8	11	12	73	72	.503		
Chicago . . . . .	10	8	8	9	11	13	12	71	78	.477		
Boston . . . . .	12	11	8	6	11	9	14	71	83	.461		
Philadelphia . . . . .	7	5	10	6	6	10	8	52	98	.347		

The World Series.—The last of the World War II world series may have lacked something in the quality of play but it was packed with thrills from start to finish and the record gathering of fans who watched the first three games in Detroit and the last four in Chicago carried away memories which would remain with them for many years.

The scores of the 1945 games were: First game, Cubs 9; Tigers 0; Second game, Tigers 4; Cubs 1; Third game, Cubs 3; Tigers 0; Fourth game, Tigers 4; Cubs 1; Fifth game, Tigers 8; Cubs 4; Sixth game, Cubs 8; Tigers 7 (12 innings); Seventh game, Tigers 9; Cubs 3.

This was Detroit's seventh appearance in world series competition and its second world crown. By winning in 1945 Steve O'Neill repeated the 1935 victory scored by Mickey Cochrane over another Cubs' team, managed as was the 1945 ensemble by Charlie Grimm. For the Cubs the '45 pennant was the 16th in the history of the club, six titles being won in the pre-world series era. For O'Neill this was his first league championship, for Grimm it was number three.

The Tigers were out of the first ball game soon after it started. The Cubs scored four runs in the first inning. After one away, Don Johnson scratched a single through the box and stole second. After Peanuts Lowrey flied out, Phil Cavarretta beat out a slow roller to Eddie Mayo, the second baseman. Failure to nail Cavarretta on this close play was vital to the ball game. When one of Newhouser's pitches slipped past Paul Richards, Johnson scored from third and Cavarretta moved to second. Andy Pafko was intentionally passed and Bill Nicholson then pounded a two-run triple against the right field screen, a ball which many thought should have been caught by Roy Cullenbine. Nicholson also scored on a single by Mickey Livingston.

Four runs were in, therefore, before the Tigers came to bat and Hank Borowy coasted to victory. Newhouser was tagged for three more runs and removed in the third, Cavarretta added a home run against Jim (Flutter-Ball) Tobin in the seventh when the Cubs scored their last two runs in a 9 to 0 triumph. Borowy, hurling a six-hitter, went all the way and became the first pitcher since Jack Coombs to win world series games for both leagues. He had won for the Yankees in 1943 against the Cardinals. Coombs had scored series triumphs for the Athletics and Dodgers of an earlier era.

Virgil (Fire) Trucks, a fast-balling pitcher just out of the navy, who had returned to the Tigers a few days before the end of the season but was eligible for the series under a special ruling for returning servicemen, was too much for the Cubs to handle in the second game. In fact this contest was a triumph for two men discharged from military duty. While Trucks was throttling the Bruin batters, Hank Greenberg's three-run home run in the fifth won the ball game.

The Cubs went into that inning a run to the good. They had put over their lone tally in the fourth when Cavarretta doubled and Nicholson singled. Hank Wyse, the Cubs' leading winner of the regular season, had held the Tigers to two hits, both singles, over the first four frames and seemed in absolute control of the situation. Then the Tigers exploded. Wyse retired the first two men, Pafko making a great catch of an opening drive by Richards and Trucks popping to Johnson. But before he could get the next out of the inning, Wyse had lost the ball game. Skeeter Webb lined a single to left. Eddie Mayo walked on four pitches. Doc Cramer sliced a single over third, scoring Webb with the tying run. With the count at 1 and 1, Greenberg then won the game when he whaled a homer among the left field patrons.

The third game produced the masterpiece of world series pitching, a one-hit effort by Claude Passeau, of the Cubs, and a 3 to 0 triumph which sent the Bruins back to their home park, Wrigley field, one game ahead. There was nothing questionable about the single which robbed Passeau of his no-hitter. With two away in the second inning, Rudy York smashed a line-drive single to left centre. A speedier base runner might have made second on the blow.

Passeau retired the next batter, however, and not another Tiger reached first base until the sixth when Bob Swift, the catcher, walked. Red Borom, a substitute runner, took Swift's place at first base. With none away, the Tigers visioned a rally. But Hub Walker, batting for Lefty Overmire, Passeau's mound rival, hit into a fast double play and Passeau resumed his complete reign over the Bengals. The next ten men who faced him went down as they came up. Only 11 balls were hit out of the infield against Passeau.

There had been only one other one-hitter hurled in world series history. That, too, was credited to a Chicago Cubs' pitcher, Ed Reulbach, who produced it against the Chicago (Hitless Wonders) White Sox on Oct. 10, 1906. But Reulbach's game did not match Passeau's performance in all-around class for Reulbach walked six, hit one batter and, in fact, did not score a shutout, winning 7 to 1.

Although Overmire pitched a game which might have been good enough to win against less masterful flinging, he was beaten in this one as early as the fourth when he gave up two runs. Lowrey opened that inning with a double against the left field wall. Cavarretta sacrificed and, after Pafko walked, Nicholson's single scored Lowrey. A single by Roy Hughes then scored Pafko. The third Chicago run came over in the seventh on Livingston's double, a sacrifice and Passeau's scoring fly to centre.

As in the second game, the Tigers won the fourth on a four-run burst, doing all their scoring in one rally. This time it occurred in the fourth after Ray Prim, a venerable southpaw, had retired the first ten batters who faced him. With one away in that frame, however, Mayo walked, Cramer singled, Greenberg singled and Cullenbine doubled. Two runs were in and Prim was removed from the game. Paul Derringer replaced him and, after York had been intentionally passed, Jimmy Outlaw's forceout grounder scored Greenberg. A single by Richards then sent Cullenbine over the plate.

Meanwhile Paul (Dizzy) Trout, sturdy right-hander, was fashioning a five-hitter. Livingston singled in the third but the rally died. Johnson and Lowrey hit successive singles before an out in the fourth but Trout fanned two and slipped through, unscathed. In the sixth, by which time he had his four-run margin, he was tagged for a run when Johnson tripled to right centre and came over on an error by York. A pinch single by Paul Gillespie in the seventh was the only other safety off Trout and once again the series was all even.

Newhouser and Borowy, the first-game starters, were mound rivals once again in the fifth contest. Both gave up a run in the third, but the fuse was touched to Detroit dynamite in another four-run inning, the sixth, and Borowy was shelled to the dugout. Cramer singled and took second when the ball got through Pafko for an error. Greenberg blasted a double down the left field line, scoring Cramer. Cullenbine beat out an infield hit to Cavarretta and York's single scored Greenberg from third. Borowy was replaced by Hy Vandenberg, whose control was poor. After a sacrifice and an intentional base on balls filled the bases, Vandenberg walked Newhouser, forcing Cullenbine over the plate. York scored during an infield out for the fourth run of the inning. The Tigers scored one more in the seventh and two in the ninth. Although Newhouser was in trouble in the late innings, his robust batting support saw him through and he finished with a seven hitter.

The sixth game was the nightmare of the world series. Thirty-eight men, 19 for each team, played in this hectic game won in the 12th, 8 to 7, by the Cubs when Billy Schuster, a substitute runner, came all the way from first to home on Stan Hack's "single" to left which blossomed into a game-winning double as it bounced over Greenberg's head. At first this was scored as a single and an error for Greenberg, but late that night Martin J. Haley, of St. Louis, Ed Burns, of Chicago, and H. G. Salsinger, of Detroit, changed the official scoring decision and credited Hack with a two-base blow.

That was only one of the many bizarre episodes which occurred during and after this game. Early in the game it seemed the Cubs might win easily. Passeau, the one-hit hero of the third game, was back on the mound, opposing Trucks. Detroit scored a run in the second but Chicago countered with four in the fifth. Going into the sixth inning with a 4 to 1 lead, Passeau had another one-hitter rolling, York having doubled in the second.

But in the sixth Jimmy Outlaw sent a hot liner right back at the pitcher and, although Passeau knocked down the ball and threw the batter out at first base, a nail was torn loose from one of the fingers of his pitching hand. He got the Tigers out in that inning and tried to continue in the seventh but it was obvious he could put no "stuff" on the ball and after the Tigers had scored a run, he was removed.

The Cubs, as later events proved, got a terrific break in this sad seventh. Chuck Hostetler batted for Webb and was safe on an error. He reached second on an infield out and seemed a certain scorer on Cramer's single to left but as he rounded third and headed for home (through a "stop" sign by Steve O'Neill) he stumbled and fell. Before he could get to his feet again, the Cubs had the ball at the plate and Hostetler was run down for the second out of the inning. But Passeau couldn't hold the Tigers even with that stroke of good fortune. After he walked Greenberg and was touched for a run on Cullenbine's single, Wyse replaced him.

Wyse gave up one more run before the inning was concluded but the Cubs had added one in their half of the sixth and they also matched the two picked up by the Tigers in the seventh. Thus, they ventured into the eighth, leading by a score of 7-3. And then the ever-dangerous Tigers caught fire once again and tied the score. Wyse got off to a bad start in the eighth when he walked Swift. A pinch double by Walker past first base sent Swift to third. Hack fumbled Joe Hoover's grounder as Swift scored and Hoover reached first safely. Mayo's single scored Walker and sent Hoover to third but Mayo was out at second when he tried to stretch his hit. Prim relieved Wyse and on Cramer's fly, Hoover went over the

plate. With the bases empty, the Tigers still a run behind and the count 3 and 2, Greenberg came through with a home run smash to the left field stands which tied the score. The two teams moved through the next three rounds without scoring and then the Cubs got their winning break and the series was in a 3 to 3 deadlock. Borowy was the winning pitcher, having taken over for the Cubs in the ninth.

The four innings Borowy pitched that afternoon, however, proved a decisive disadvantage two days later when the seventh game was played. Grimm once again selected Borowy in this key game and it was his third trip to the mound in four days, in fact his third straight appearance in as many games. Borowy never had pitched as often. The schedule proved too rigorous and he was out of the last game, a beaten pitcher, before he retired a Tiger. Webb opened with a single to right. Mayo found the same hole for another safety. When Cramer scored Webb with a single over short, Grimm went out to the mound and accompanied Borowy to the dugout.

Derringer, usually a control pitcher, took over and was wild. After a sacrifice moved up the two runners, Derringer intentionally filled the bases with a walk for Cullenbine. He worked hard on York and Rudy lifted to Hack. But Outlaw walked, forcing a runner over the plate and a double by Richards cleared the bases. Five runs were in and the series was decided right there. Newhouser was reached for ten hits, as compared to nine picked up by the Tigers, but won easily, 9 to 3.

**Individual Achievements.**—The second Kenesaw Mountain Landis Memorial Trophies were awarded in 1945. They were made to men voted the most valuable players in the two leagues by the Baseball Writers Association of America. The National league award went to Phil Cavarretta, batting champion and captain of the pennant-winning Chicago Cubs. In the American league Hal Newhouser, southpaw pitcher and the circuit's top winner, won for the second successive year.

Both received decisive margins. Cavarretta led Tommy Holmes, the Boston Braves' home run champion, 279 to 175. Cavarretta received 15 first-place votes, seven seconds and one fifth and was unnamed on only one of the 24 ballots cast. Newhouser, also left off one ballot, received 236 votes against 164 for his team mate and second baseman, Eddie Mayo.

The two committees, both presided over by Martin J. Haley, retiring president of the association were as follows:

**American League**

St. Louis—Glen Wallar, *Globe Democrat*; Bill McGoogan, *Post Dispatch*; Donald Drees, *Star-Times*.  
Detroit—Harry Salsinger, *News*; Leo Macdonell, *Times*; James Zerilli, *Free Press*.  
New York—Garry Schumacher, *Journal-American*; Rud Rennie, *Herald Tribune*; Charley Segar, *Mirror*.  
Boston—Jack Malaney, *Post*; John Drohan, *Traveler*; Ralph Wheeler, *Herald*.  
Cleveland—Ed McAuley, *News*; Franklin Lewis, *Press*; Alex Zirin, *Plain Dealer*.  
Philadelphia—Walter W. Smith, *Record*; Don Donaghey, *Bulletin*; Stan Baumgartner, *Inquirer*.  
Chicago—Irving Vaughan, *Tribune*; John Carmichael, *Daily News*; Herb Simons, *Times*.  
Washington—Frank "Buck" O'Neill, *Times Herald*; Shirley Povich, *Post*; John Keller, *Star*.

**National League**

St. Louis—J. Roy Stockton, *Post Dispatch*; Sid Keener, *Star-Times*; Ellis Veech, *E. St. Louis Journal*.  
Pittsburgh—Chilly Doyle, *Sun-Telegraph*; Ed Ballinger, *Post Gazette*; Chester L. Smith, *Press*.  
Cincinnati—Lou Smith, *Enquirer*; Frank Grayson, *Times-Star*; Tom Swope, *Post*.  
Chicago—Ed Burns, *Tribune*; Edgar Munzel, *Sun*; Leo Fischer, *Herald American*.  
New York—John Drebing, *Times*; Joe King, *World Telegram*; Dick Young, *Daily News*.  
Boston—Bill Grimes, *American*; Joe Cashman, *Record*; Harold Kaese, *Globe*.  
Brooklyn—Harold Burr, *Eagle*; Lee Scott, *Citizen*; Eddie Murphy, *N. Y. Sun*.  
Philadelphia—Bill Dooley, *Record*; Stan Baumgartner, *Inquirer*; Ed Pollock, *Bulletin*.

The top ten men in the most-valuable-player voting and their votes follow:

Player, Club	American League										Total Points
	1	2	3	4	5	6	7	8	9	10	
Hal Newhouser, Tigers . . .	9	6	2	4	2	..	..	..	..	..	236
Eddie Mayo, Tigers . . .	7	3	1	2	1	1	1	..	..	2	164
George Stinewiss, Yankees . .	4	3	3	3	2	1	3	..	1	2	161
David Ferriss, Red Sox . . .	2	3	3	2	4	3	1	2	3	..	148
George Myatt, Senators . . .	1	4	2	3	..	1	1	..	1	..	98
Vern Stephens, Browns . . .	..	..	3	3	3	4	1	1	1	2	94
Roger Wolff, Senators . . .	..	..	1	5	2	..	4	1	2	..	78
Lou Boudreau, Indians . . .	..	1	1	..	3	4	1	3	1	..	70
George Case, Senators . . .	..	1	1	..	3	4	1	3	1	..	60
Paul Richards, Tigers . . .	..	1	..	1	..	2	..	2	1	1	35

Player, Club	National League										Total Points
	1	2	3	4	5	6	7	8	9	10	
Phil Cavarretta, Cubs . . . . .	15	7	..	..	1	..	..	..	..	..	279
Tommy Holmes, Braves . . . . .	3	6	4	3	2	2	1	..	..	..	175
Charles Barrett, Cards . . . . .	1	6	4	4	1	2	..	1	2	..	151
Andy Pafko, Cubs . . . . .	4	1	2	1	3	4	..	1	..	2	131
George Kurowski, Cards . . . . .	..	1	4	2	3	2	1	..	..	3	90
Hank Borowy, Cubs . . . . .	1	1	4	..	..	2	3	1	2	..	84
Hank Wyse, Cubs . . . . .	..	1	1	5	1	1	..	1	2	2	72
Marty Marion, Cards . . . . .	..	1	2	2	1	4	..	..	2	..	69
Dixie Walker, Dodgers . . . . .	..	..	1	4	2	..	..	5	1	1	66
Goodie Rosen, Dodgers . . . . .	..	..	1	1	2	2	4	1	..	..	56

The chief individual honours in the National league fell to members of the first-place Chicago Cubs. Cavarretta was the batting champion with an average of .355. Borowy was the leading pitcher with 11 won, 2 lost for the top percentage of .846 and also led in earned runs with an average of 2.14. (He won 10, lost 5 in the American league.) Holmes, of the Braves, led in home runs with 28. Walker, of the Dodgers, was the run-batted-in pace-setter with 124.

In the American league the batters did not frolic as of old. It was a pitchers' league. George Stirnweiss, of the New York Yankees, won the batting crown with a mere .309, lowest winning average since Elmer Flick, of Cleveland, won the 1905 title with .306. Vern Stephens, the St. Louis shortstop, won home run honours with 24 circuit smashes. In pitching, Newhouser, with 25 victories and 9 defeats for a .735 percentage and the low earned-run average of 1.81, was outstanding.

There was only one no-hit, no-run game pitched during the 1945 season and it was performed by Dick Fowler, of the Philadelphia Athletics, against the St. Louis Browns. The score was 1 to 0. Fowler, discharged by the Canadian army only three weeks earlier, hurled his masterpiece Sept. 9 at Shibe park in the second half of a double-header.

Ten more names were added to the Hall of Fame by the permanent committee which selected Jimmy Collins, considered by many the flashiest third baseman of all time; Dan Brouthers and Ed Delahanty, two of the game's greatest sluggers; James (Orator) O'Rourke, Roger Bresnahan, Wilbert (Uncle Robbie) Robinson, Fred Clark, Hughie Jennings, Hugh Duffy, whose .438 average had never been topped in any season, and Mike (King) Kelly.

Branch Rickey, president of the Brooklyn Dodgers in the National league and head of that club's growing farm system, threw something of a bombshell into the baseball world during 1945 when he signed a Negro shortstop, Jack Robinson, former University of California (Los Angeles) football star, to a Montreal contract. He was the first Negro signed to a contract for organized baseball in modern times. Robinson had played shortstop for the Kansas City Monarchs in a Negro league and while Rickey was scored for "raiding" that circuit, his move was hailed as one which would open the way for numerous Negro stars to join professional baseball ranks.

**The Minor Leagues.**—In the minors only four of the pennant-winning clubs also won the Shaughnessy play-off series. These were Lancaster of the Inter-State league; Danville, of the Carolina league; Kingsport, of the Appalachian league and Batavia of the Pony league. Louisville of the American association, and Newark of the International league clashed in the little world series and the former was returned the winner, 4 games to 2. Following are the pennant and play-off winners in the 12 minor leagues active during 1945:

CLASS AA			
American association . . . . .	Pennant Winner	Play-off Winner	
International league . . . . .	Milwaukee	Louisville	
Pacific Coast league . . . . .	Montreal	Newark	
	Portland	San Francisco	
CLASS A-1			
Southern association . . . . .	Atlanta	Mobile	
CLASS A			
Eastern league . . . . .	Utica	Albany	
CLASS B			
Inter-State league . . . . .	Lancaster	Lancaster	
Piedmont league . . . . .	Norfolk	Portsmouth	

		Pennant Winner	Play-off Winner
CLASS C			
Carolina league . . . . .	Danville	Danville	
CLASS D			
Appalachian league . . . . .	Kingsport	Kingsport	
North Carolina State league . . . . .	Hickory	Landis	
Ohio State league . . . . .	Middletown	Zanesville	
Pony league . . . . .	Batavia	Batavia	

## League Leaders

First Five in Each League  
(400 at bat or more)

BATTING					
National League					
	G	AB	R	H	Pct.
Cavarretta, Chicago . . . . .	132	498	94	177	.355
Holmes, Boston . . . . .	154	636	125	224	.352
Rosen, Brooklyn . . . . .	145	606	126	197	.325
Hack, Chicago . . . . .	150	597	110	193	.323
Kurowski, St. Louis . . . . .	133	511	84	165	.323
American League					
Stirnweiss, New York . . . . .	152	632	107	195	.309
Cuccinello, Chicago . . . . .	118	402	50	124	.308
Dickshof, Chicago . . . . .	130	486	74	147	.302
Estalella, Philadelphia . . . . .	126	451	45	135	.299
Myatt, Washington . . . . .	133	490	81	145	.296
HOME RUNS					
National League					
Holmes, Boston . . . . .	28				
Workman, Boston . . . . .	25				
Adams, Philadelphia-St. Louis . . . . .	22				
Oh, New York . . . . .	21				
Kurowski, St. Louis . . . . .	21				
American League					
Stephens, St. Louis . . . . .	24				
York, Detroit . . . . .	18				
Ettan, New York . . . . .	18				
Cullenbine, Cleveland-Detroit . . . . .	18				
Seerey, Cleveland . . . . .	14				
RUNS BATTED IN					
National League					
Walker, Brooklyn . . . . .	124				
Holmes, Boston . . . . .	117				
Pafko, Chicago . . . . .	110				
Olmo, Brooklyn . . . . .	110				
Adams, Philadelphia-St. Louis . . . . .	109				
American League					
Ettan, New York . . . . .	111				
Cullenbine, Cleveland-Detroit . . . . .	93				
Stephens, St. Louis . . . . .	89				
York, Detroit . . . . .	87				
Binks, Washington . . . . .	81				

During the annual winter meetings of the major league moguls at Chicago, the Pacific Coast league, through its president, Clarence (Pants) Rowland, sought to be admitted as a third major league. The request was turned down although the majors admitted the P.C.L. was "potential major league territory." A request to raise the P.C.L., International league and American association from AA to AAA, a new baseball classification, was okayed. (A. E. Pn.)

**Basilone, John** (1918?-1945), U.S. marine, served for three years with the peacetime army in the Philippines. In 1943, he was awarded the Congressional Medal of Honor, the first enlisted marine in World War II to be so honoured. He received the decoration for heroism in the defense of Henderson field on Guadalcanal, when, in Oct. 1942, he and two machine-gun sections held off for two days a large force of Japanese attempting to retake the airstrip. Sgt. Basilone himself slew 38 Japanese soldiers that attempted to take his emplacement. The citation read that he "contributed in a large measure to the virtual annihilation of a Japanese regiment." When he was returned to the U.S. in 1943, his home town of Raritan, N.J., gave him a hero's welcome. Sgt. Basilone, at the behest of the treasury department, toured the eastern states during a war bond drive. He then asked for reassignment to combat duty, declaring his ambition was to participate in the recapture of Manila. The marines were assigned instead to seize Iwo Island and Sgt. Basilone was killed by Japanese artillery fire, Feb. 19, 1945, in the first day of fighting for the volcanic isle as he was leading his machine-gun platoon.

**Basketball.** Oklahoma Agricultural and Mechanical college, Stillwater, reached the pinnacle of intercollegiate basketball during 1944-45 with a conquest of DePaul university, Chicago, Ill., in the annual Red Cross play-off game and, in the process, staked first claim to the national championship. Oklahoma A. & M. first took charge of the National Collegiate Athletic association tournament with a 49-45 conquest of New York university, New York city, in the final. DePaul qualified for the Red Cross final with a triumph in the national invitational, defeating Bowling Green, Ohio, in the final, 71-54.



Led by seven-foot Robert Kurkland, Oklahoma A. & M. won the Red Cross classic with a 52-44 victory over DePaul, manned chiefly by six-foot, nine-inch George Mikan.

Army (U.S. Military academy, West Point), St. John's university, Brooklyn, and the University of Pennsylvania, Philadelphia, dominated eastern basketball. Army was judged the leading team on the Atlantic coast, while St. John's won its second straight Metropolitan title. Pennsylvania interrupted a string of seven consecutive championships for Dartmouth college, Hanover, N.H., by winning the Eastern League crown. The University of Iowa, Iowa City, captured its first Big Ten championship, winning 11 conference games and losing 1 to the University of Illinois, Urbana. The University of North Carolina, Chapel Hill, replaced Duke university, Durham, N.C., as basketball ruler of the south, while the University of Kentucky, Lexington, repeated in the southeast and Rice institute, Houston, Texas, dominated the southwest. Iowa State, Ames, captured the Big Six championship; Oklahoma A. & M. won in the Missouri valley; the University of Utah, Salt Lake City, in the Big Seven; the University of Oregon, Eugene, in the Pacific coast northern division; University of Southern California at Los Angeles in the Pacific coast southern division.

The intercollegiate season was marred by a betting scandal which drew nation-wide notoriety. Five members of the Brooklyn college basketball team were expelled from school for accepting a bribe, and two gamblers, Henry Rosen and Harvey Stemmer, were sentenced to one year in jail and fined \$500.

Phillips "66" of Bartlesville, Okla., won its third straight American Athletic union championship with a 47-46 conquest of the Denver Ambrose in the final. Trailing by 14 points with ten minutes to play, Phillips "66" rallied to overtake the Denver team in the closing minute. Gale Bishop of Fort Lewis, Wash., set an A.A.U. tournament scoring record with 62 points against the Hoxie, Kan., chamber of commerce.

The Nashville, Tenn., Vultrees retained their women's A.A.U. championship with a 22-20 victory over Little Rock, Ark., in the final. Once again 22 teams entered the annual women's tournament.

The Fort Wayne, Ind., Zollners again dominated professional basketball by capturing both the World and National League championships. The Philadelphia, Pa., Sphas won the American League title.

(M. P. W.)

**Basutoland:** see BRITISH SOUTH AFRICAN PROTECTORATES.

**Battleships:** see NAVIES OF THE WORLD.

**Bauxite.** World production of bauxite was reported by the U.S. bureau of mines as shown in Table I.

Table I.—World Production of Bauxite

(Thousands of short tons)

	1940	1941	1942	1943	1944
British Guiana . . . . .	699.4	1,169.5	1,340.1	2,115.4	1,023.1
France . . . . .	539.0	647.5	705.0	1,010.1	733.7
Gold Coast . . . . .	...	16*	50*	180*	120*
Greece . . . . .	55*	55*	55*	27*	11*
Hungary . . . . .	716*	716*	770*	880*	880*
Italy . . . . .	583*	660*	440*	330*	110*
Netherlands Indies . . . . .	302.4	189.4	270*	330*	220*
Surinam . . . . .	678.4	1,321.6	1,353.1	1,824.5	689.8
U.S.S.R. . . . .	330*	270*	300*	380*	440*
United States . . . . .	491.9	1,049.5	2,914.3	6,980.8	3,162.6
Yugoslavia . . . . .	320*	440*	220*	132*	55*
Total . . . . .	4,923*	6,839*	8,812*	14,600*	7,664*

\*A number lacking a decimal is an estimate.

After the peak World War II demand for aluminum had passed, production of bauxite was cut back sharply by all United Nations producers. Axis supplies dropped in about the same

PRACTICE SHOOTING at the "Keaney ring," which makes a smaller basket opening, developed the accuracy of St. John's university (Brooklyn, N.Y.) basketball team during 1945



proportion, but for a different reason—lack of ability to keep up the pace. The bulk of the axis supply came from France and Hungary. German controlled expansion of the French output was one of the best records made in any occupied area. During the war Gold Coast developed into an important producer, and Northern Ireland also made a good showing. Active development of prospects were being made in Haiti and Jamaica, and exploration was being done in Nigeria and Venezuela.

**United States.**—The salient features of the bauxite industry in the United States are outlined in Table II.

Table II.—Data of Bauxite Industry in the U.S., 1940-44

		(Thousands of short tons)				
		1940	1941	1942	1943	1944
Mine production . . . .		571.1	1,215.3	3,381.2	8,156.6	3,721.1
Dried equivalent . . . .		491.9	1,049.5	2,914.3	6,980.8	3,162.6
Shipments, crude . . . .		567.9	1,161.6	3,223.6	7,896.3	3,676.5
Dried equivalent . . . .		490.3	1,005.0	2,777.3	6,732.5	3,124.6
Imports } Dried		705.1	1,250.5	990.3	1,733.6	627.7
Exports } Dried		134.5	244.9	291.9	467.2	164.2
Consumption } Dried		1,073.7	2,055.7	3,403.1	7,796.2	3,408.3

At the close of World War I it was widely believed that the cream had been so thoroughly skimmed from the bauxite reserves that the United States would never again be able to equal the peak war output of 678,000 tons. How well this was accomplished was demonstrated by the figures above. Not only was the demand for immediate use fully met, but at the end of the war surplus stocks had been accumulated to the extent of 1,364,200 tons at mines, processing plants and consumers' plants, and some 3,000,000 tons in the hands of the Metals Reserve company.

(G. A. Ro.)

**Beans, Dry.** The 1945 crop of dry beans was estimated by the United States department of agriculture to be 14,191,000 bags of 100 lb. which is about 12% less than the 1944 crop of 16,128,000 bags and below the average of 15,942,000 bags in 1934-43. This was the smallest crop after 1936. The season was generally unfavourable and while the acreage was about the average, 1,818,000 ac., the yield dropped to 781 lb. per acre compared with 784 lb. in 1944 and an aver-

U.S. Production of Dry Beans in Leading States, 1945 and 1944

		(in 100-lb. bags)			
State	1945	1944	State	1945	1944
California . . .	3,546,000	3,843,000	Wyoming . . .	1,000,000	1,201,000
Michigan . . .	3,247,000	4,158,000	Nebraska . . .	780,000	588,000
Colorado . . .	1,909,000	2,088,000	New York . . .	679,000	731,000
Idaho . . . .	1,726,000	2,175,000	New Mexico . .	238,000	724,000

age of 872 lb. in 1934-43. Allowing for heavy cleaning losses the net crop of clean beans was only about two-thirds the average of 1941-43. The baby-lima crop of California was a half larger than the ten-year average but standard limas were less than in 1944. Harvest losses were very heavy in the eastern areas running as high as 20% for New York and Michigan.

(J. C. Ms.)

**Bechuanaland Protectorate:** see BRITISH SOUTH AFRICAN PROTECTORATES.

**Beef:** see MEAT.

**Beekeeping.** The crop of honey in 1945 was estimated at 225,779,000 lb. by the U.S. department of agriculture compared with 188,917,000 lb. in 1944, a gain of 20% and 16% above the five-year average. Favourable weather resulted in the largest yield per colony of bees after 1941. The average production was 41.3 lb. per colony compared with 36.3 lb. in 1944. The record was made in 1941 when the yield was 49.6 lb. per colony. The number of colonies of bees was also an important factor in the increased production, being 5,566,000 in 1945 compared with 5,217,000 in 1944 which was 24% above the low year 1939. About half of the 1945 honey crop was produced in the leading beekeeping states of Minnesota, Iowa, Cali-

fornia, Wisconsin, Ohio, New York, Florida, Michigan, Illinois and Texas, ranking in the order named. California had a poor year and for the first time on record failed to lead in honey production. Beekeepers had difficulty in obtaining sugar for winter feeding and retained more honey than usual for wintering. The demand for honey was active and commercial stocks on hand at the end of 1945 were smaller than in 1944. Honey prices were well sustained during 1945 due to the shortage of sugar.

**FILMS.**—*Honey Bee* (Encyclopædia Britannica Films Inc.). (J. C. Ms.)

**Beer:** see BREWING AND BEER.

**Beer-Hofmann, Richard** (1866-1945), Austrian poet and playwright, was born July 11 in Vienna. He was forced into exile by the nazis and went to the United States as a refugee. Beer-Hofmann, rated by Arthur Schnitzler and Hugo von Hofmannsthal as one of the great contemporary poets writing in German, was also one of the slowest workers on record. According to some versions, his average pace was reported at six words a day. His second play, *The Young David* (1934) took him 25 years to write; the one and one-half page preface required seven months to complete. In Vienna, Beer-Hofmann first attracted notice with his *Schlaflied für Mirjam* (Lullaby for Miriam) (1919), a poem in four stanzas. Among his other works are his verse plays *The Count of Charolais* (1904) and *Jacob's Dream* (1918). In 1944, he completed the first volume of his prose memoirs entitled *Herbstmorgen in Oesterreich*. Work on his second volume was interrupted by his death in New York city, Sept. 26.

**Belgian Colonial Empire.** The accompanying table gives material relative to the colonial and mandated territories administered by Belgium (q.v.). Total area 923,000 sq.mi.; total population (est. Dec. 31, 1941) 14,383,000.

**History.**—In April 1945 Pierre Ryckmans, governor-general, visited Brussels for discussions with the colonial minister, Edgar de Bruyn.

In October the general confederation of (white) trade unionists of the Congo met at Leopoldville and called for immediate enactment of the promised pensions law, for which provisional contributions were already being collected.

There was some demand among colonists for a greater say in the administration of the colony.

The cost of living for Europeans in the Congo, which in normal times is about 50% above Belgian levels, was roughly estimated to have doubled from 1935 to 1944, although strict price controls were in force. This increase was attributed approximately in the proportion of 50% to the fall in value of the Belgian franc in relation to the currencies of the Congo's existing chief suppliers (United Kingdom, United States, Argentina), 30% to the rise in export prices in those countries and 20% to the rise in freights.

Compulsory gathering of wild rubber by natives ceased on the day of the Japanese surrender. This uneconomic and unsatisfactory expedient was resorted to only as a desperate measure in 1942 when the Japanese had captured 90% of the world's normal sources of rubber. The results were impressive: the crop of wild rubber was 381 metric tons in 1942 (eight months); jumped to 7,161 in 1943; and further increased to 9,243 in 1944. By slaughter-tapping the output of plantation rubber was also raised from 694 metric tons in the last eight months of 1942 to 1,888 in 1944. New plantations, which were of course not yet in bearing, brought the area of cultivated rubber from 14,900 hectares in 1940 to 73,000 in 1944.

Belgian Colonial Empire						
Country and Area sq. mi. (approx.)	Population (000's omitted) (est. Dec. 31, 1941)	Capital, Status, Governors, Premiers, etc.	Principal Products 1943 (approx. only)	Imports and Exports, 1943 (Francs '000)	Road, Rail	Revenue and Expenditure 1941
Belgian Congo, 902,274	Native: 10,508 White: 30	Leopoldville, colony. Governor General: Pierre Ryckmans	Diamonds (mainly industrial) 7,000,000 carats (In short tons) Copper (1942) . . . 185,186 Tin* . . . . . 20,393 Zinc conc. . . . . 24,251 Manganese ore (1942) 29,762 Palm oil . . . . . 110,230 Palm kernels . . . . 98,105 Rubber (mainly wild) 13,228 Gum copal. . . . . 17,637 Cotton* . . . . . 47,399 Jute substitutes . . . 8,818 Coffee* (1942) . . . 36,376 Sugar . . . . . 15,983	Imp. 2,289,475 (519,973 short tons) Exp. 4,609,725 (683,608 short tons)	Roads open to traffic (Jan. 1, 1943) 55,307 mi.; under construction 976 mi. Railways (Jan. 1, 1943) 3,053 mi.	Revenue Ordinary . . . \$20,804,724 Extraordinary . . \$2,004,123 \$22,808,847  Expenditure Ordinary . . . \$20,182,162 Extraordinary (incl. war) . \$39,314,847 \$59,497,009
Ruanda and Urundi, 21,200	Native: 3,843 White: 2	Nianza (Ruanda), Kitega (Urundi), mandated territory united administratively with the Belgian Congo		1943 Imp. 136,776 (7,009 short tons) Exp. 228,728 (16,208 short tons)	Roads open to traffic 4,148 mi.	United administratively with the Belgian Congo

\*Including Ruanda-Urundi. †From Belgian Congo Directory 1943; figures apparently for 1942 though this is not explicitly stated for roads.

Official statistics for 1943 released in 1945 showed that some of the most striking increases in exports as compared with 1938 were:

	1938	1943
Tin bars . . . . .	1,813 metric tons	10,841 metric tons
Manganese . . . . .	3,303 " "	12,883 " "
Zinc . . . . .	6,929 " "	21,420 " "
Palm kernel oil . . . . .	" "	6,841 " "
Diamonds (mainly industrial) . . . . .	5,800,000 carats	10,200,000 carats

Copper remained by far the leading export in 1943, reaching 188,704 metric tons valued at 1,197,000,000 francs (\$27,000,000 at 44 Belgian francs to the dollar).

Some increases in the output of industries working for local consumption were:

	1938	1943
Cotton fabrics . . . . .	11,500,000 metres	16,300,000 metres
Cement (Bas Congo and Katanga) . . . . .	24,848 metric tons	69,221 metric tons
Footwear (Leopoldville) . . . . .	" "	25,160 pairs
Beer (Elisabethville) . . . . .	9,550 hectolitres	23,685 hectolitres
" (Leopoldville) . . . . .	15,000 " "	118,868 " "
Soap . . . . .	4,989 metric tons	10,103 metric tons

FILMS.—*A People of the Congo*; *A Giant People*; *Pygmies of Africa* (Encyclopædia Britannica Films Inc.). (W. For.)

**Belgian Congo:** see BELGIAN COLONIAL EMPIRE.

**Belgium.** A country of western Europe, occupied by German troops from May 1940 to Sept. 1944; area 11,775 sq. mi.; pop. (est. Dec. 31, 1939), 8,396,276; chief towns (pop. Dec. 31, 1938): Brussels and suburbs (cap. 912,774); Antwerp (273,317); Ghent (162,858); Liège (162,229). Ruler: King Léopold III; regent Prince Charles (q.v.); prime minister: Achille van Acker; languages: French and Flemish; religion: Christian (mainly Roman Catholic).

**History.**—In protest against the disarmament of the resistance forces, their representative in the government, Fernand de Man, and the two Communist ministers had resigned in Nov. 1944. During the month there were demonstrations against the Pierlot government, and the chamber voted powers to ban public meetings. The disarmament proceeded smoothly none the less. In Feb. 1945 the Socialist ministers resigned after criticizing the government for failing to improve coal and food supplies, to suppress the black market and to punish traitors promptly. The outgoing Socialist minister of labour, Achille van Acker, became prime minister with special responsibility for the coal industry. His government still represented all shades of opinion.

On May 8 Allied troops freed King Léopold from internment in a castle near Salzburg. Although the charges of treachery brought against the king in 1940 had been sufficiently rebutted, two questions were again hotly debated when the news of his release arrived. These were whether the king acted most unwisely or even unconstitutionally in refusing to leave Belgium

in 1940 and whether he did all in his power to oppose the enemy during the occupation. Over these questions the Liberal, Socialist and Communist parties called for the king's abdication, but the Catholics were ready to welcome him back. The Catholic ministers resigned from the government for this reason in July and were replaced by Independents of Catholic leanings, Liberals and members of the resistance movements.

A new social security law, largely the work of M. van Acker, came into force on Jan. 1, 1945. From April, government direction of labour was enforced in essential industries and improved conditions were decreed for coal miners. From January to September unemployment was brought down from 309,000 to 112,000. Wages were increased a further 20% with the proviso that they should not be more than double the May 1940 level. In September a household re-equipment fund and other additional social services were inaugurated, the cost to be met by employers' payments at the rate of 1½% of all wages. Previous social services contributions already amounted to 15¼% from employers and 8¼% from employees.

Coal output rose from 1,037,000 tons for Jan. 1945 to 1,262,000 for August, but this was still only about one-half the 1939 rate, and the shortage was holding back many other industries, including steel, textiles and glass.

On Aug. 30, six finance bills were passed, estimated to bring in 50,000,000,000 belgas (\$1,136,000,000 at 44 belgas per U.S. dollar in 1945). Under lend-lease Belgium was the only country in Europe to give far more than it received; \$165,000,000 of goods and services were supplied to the U.S.A. against \$47,500,000 worth received. (W. For.)

**Education 1938.**—Primary schools 8,712; scholars 955,038; higher schools 273; scholars 86,279; universities (1937-38) 4; students 10,776.

**Banking and Finance.**—Revenue, ordinary (est. 1941) \$410,800,000; expenditure, ordinary (est. 1941) \$410,609,400; public debt (Dec. 31, 1939) \$2,003,500,000; notes in circulation (Aug. 1944) \$3,350,880,000; (Oct. 1944) \$472,920,000; gold reserve (July 31, 1944) \$732,350,400; exchange rate (average 1940): belga=16.88 cents U.S. (Conversion rate [Sept. 1945]: belga=2.288 U.S. cents.)

**Trade and Communication.**—External trade (merchandise): imports (1939) \$656,283,800; exports (1939) \$729,054,000.

**Communication and Transport.**—Roads, suitable for motor traffic (1939) 6,571 mi.; railways, open to traffic, main (1939) 3,190 mi.; airways (1938), distance travelled 1,457,050 mi.; passenger mileage 8,255,980 mi.; baggage mileage 172,799 ton mi.; mail mileage 86,434 ton mi.; newspapers 57,875 ton mi.; shipping (July 1, 1939) 450,199 gross tons; tonnage launched (July 1938-June 1939) 30,423 gross tons; vessels en-





GROUP OF BELGIAN CHILDREN sent to Switzerland by the Belgian Red Cross in 1945 for a three-month period. There, it was expected, they would recover somewhat from the effects of bombing and under-nourishment

tered, in net tons (monthly average 1938) 2,752,443; (July 1939) 3,087,542; cleared (monthly average 1938) 2,757,955; (July 1939) 3,089,747; motor vehicles licensed (Dec. 31, 1938): 155,174 cars; 77,600 commercial; 67,016 cycles; wireless receiving set licences (1938) 1,062,200; telephone subscribers, local (1938) 287,323.

**Agriculture, Manufactures, Mineral Production.**—Production 1939 (in short tons): wheat 384,703; oats 798,286; rye 385,144; potatoes 3,663,163; coal (1940) 28,224,392; pig iron and ferroalloys 3,371,936; steel 3,421,539; beet sugar (1940) 254,631; barley 56,217; butter 67,240; margarine 66,910; artificial silk 6,504. Industry and labour: industrial production (1929=100) average (1939) 83.3; (Jan. 1940) 79.1; number wholly unemployed (average 1939) 195,211; (March 1940) 163,598. (See also BELGIAN COLONIAL EMPIRE.)

**Bellamann, Henry** (1882-1945), U.S. author and musician, was born April 28 in Fulton, Mo. After completing his studies at the University of Denver, he went to Paris where he studied piano, organ and composition. After his return to the United States, he was dean of the School of Fine Arts, Chicora College for Women, at Columbia, S.C., 1907-24, and during this period wrote his first book *A Music Teacher's Note Book* (1920). He was chairman of the examining board of the Juilliard Music foundation, 1924-26, and dean of the Curtis Institute of Music, Philadelphia, 1931-32. Bellamann scored a sensational success with his psychological novel *King's Row* (1940), a grim and gloomy study of life in a small midwestern town in the horse-and-buggy era, which subsequently was made into a motion picture. His earlier works include two books of verse, *Cups of Illusion* (1923), *The Upward Pass* (1927), and the following novels: *Petenera's Daughter* (1926), *Crescendo* (1928), *The Richest Woman in Town* (1932) and *The Gray Man Walks* (1936). He later wrote *Floods of Spring* (1942) and *Victoria Grandolet* (1944). He was at work on a new novel at the time of his death in New York city, June 16.

**Benavides, Oscar R.** (1876-1945), Peruvian army officer and politician, was born May 18 in Lima, Peru. A student at the National Military school of Lima, he later went to France where he completed his military

training and spent five years in service with various branches of the French army. In 1913 he was named chief of the general staff of the Peruvian army, but was later dismissed by the Billinghurst government. Thereupon, Benavides became a leader of a revolutionary movement. The Billinghurst government was overthrown and Benavides became president of the military junta, 1914, and provisional president, 1915-16. He was later minister to Italy (1917-20), to Spain (1931) and to Great Britain (1932-33). His diplomatic assignments were said to have been initiated with the purpose of keeping him away from Peruvian internal politics. When the crisis developed over seizure of the Leticia corridor, Colombia's outlet to the Amazon, Benavides was immediately recalled and made commander in chief of national defense. The assassination of President Sánchez Cerro in 1933 and his own assumption of the presidency gave Benavides the means to settle the Colombian dispute peacefully, without resorting to war. His rule was marked by sharp suppression of popular rights and disregard for the 1936 elections, after which he ruled without congress until 1939, when new presidential elections brought Dr. Manuel Prado Ugarteche to the executive office. Benavides was raised to a field marshal in Dec. 1939 and later served as ambassador to Spain, 1940, and to Argentina, 1941. He died July 2, according to a Lima report.

**Benchley, Robert Charles** (1889-1945), U.S. humorist, was born Sept. 15 at Worcester, Mass. While a student at Harvard university, Cambridge, Mass., he was editor of its magazine, *The Lampoon*. After his graduation in 1912, he had a brief try in the advertising department of a publishing house in Philadelphia and later obtained a personnel job in Boston. He went to New York city in 1916 where he became associate editor of the *New York Tribune's* Sunday magazine and editor of the *New York Tribune Graphic* the following year. He was managing editor of *Vanity Fair*, 1919-20, dramatic editor of *Life* until 1929 and held a similar post with the *New Yorker* until 1940. Through many mediums as an author, playwright, actor, columnist, critic and radio star, he proved himself one of the top humorists of the U.S. His success was largely attributed to his sense of the absurd and the ordinary banalities of life as the man on the street lives it. His first professional stage appearance was in the *Music Box Revue*, 1923, and six years later he was introduced to Hollywood. His contract in the film capital called for his services not only as an actor, but as a writer and director as well. His skit, *How to Sleep*, won a Motion Picture Academy award for 1935. Among his best known published works are: *Of All Things* (1921), *Pluck and Luck* (1925), *The Early Worm* (1927), *The Treasurer's Report* (1930), *No Poems* (1932), *From Bed to Worse* (1934), *My Ten Years in a Quandary* (1936), *Inside Benchley* (1942) and *Benchley Beside Himself* (1943). He died in New York city, Nov. 21.

**Bendix, Vincent** (1882-1945), U.S. engineer and inventor, was born in Moline, Ill. He left home at 16 years of age, worked at various odd jobs, studied mechanics, built an automobile and marketed the Bendix self-starter. He applied his inventive ability to improving generators, radio direction apparatus for ocean-going vessels, magnetos, laundry machinery, landing gears, the four-wheel automobile brake and lastly the helicopter. He founded the Bendix corporation in 1929, but resigned in 1942 as chairman of the board to resume a more active part in the development of aviation. In June 1944 he formed Bendix Helicopter, Inc., which produced a four-passenger sedan popular-type helicopter, the manufacture

of which was expected to start after the war. Bendix founded and was sponsor of the Bendix transcontinental air race, was donor of the Bendix trophy and donor of a trophy awarded for soaring competitions held annually at Elmira, N.Y. He died in New York city, March 27.

**Benefactions:** *see* DONATIONS AND BEQUESTS.

**Benton, William** (1900— ), U.S. government official, was born April 1 in Minneapolis, Minn., son of Charles William Benton and Elma (Hixson) B. Both of his parents were educators. He was graduated from Shattuck Military academy, Faribault, Minn., and received the bachelor's degree from Yale university, New Haven, Conn., in 1921. Benton entered the advertising agency business in New York in 1922. In 1929, in partnership with Chester Bowles, he founded the Benton and Bowles agency, which rose rapidly to become one of the most successful in the advertising business. He resigned the active direction of the agency in 1935, and in 1937 became vice-president of the University of Chicago.

At the university Benton devoted himself to the development of radio and classroom motion pictures as instruments of education. In 1943, when the university acquired Encyclopædia Britannica, Inc., he became chairman of the board of directors of Britannica. In collaboration with Paul Hoffman he founded (and served as vice-chairman of the board of trustees) the Committee for Economic Development, which instituted studies and plans for reaching and maintaining high levels of employment and productivity in the postwar period.

Benton was appointed assistant secretary of state, in charge of public affairs, on Sept. 1, 1945, and, after confirmation by the senate, was sworn in on Sept. 14. He was given responsibility for the domestic information work of the department; for the proposed program of international information and cultural relations; and for U.S. participation in the United Nations Educational, Scientific and Cultural organization. By executive order of the president, the state department was given responsibility for the overseas work of the Office of War Information and the Office of Inter-American Affairs, with a mandate to give the peoples of other nations "a full and fair picture of American life and of the aims and policies of the United States government." At the end of the year Benton had a plan for a permanent Office of International Information and Cultural Affairs, for submission to the president and congress, which would employ about 2,000 people, about 450 of them abroad, and would include maintenance of U.S. libraries of information abroad; short-wave broadcasting; use of documentary motion pictures, exhibits and film strips; and stimulation of the exchange of students, scholars, scientists and technicians.

**Bentonite.** Sales of bentonite in the United States made a heavy increase in 1944 to 546,768 short tons, against 480,202 short tons in 1943, an increase of 14% in quantity, while value rose 20%. Most of the increased demand was in drilling mud for oil wells. All of the increase in output came from South Dakota and Wyoming. (*See also* FULLER'S EARTH; MICA.) (G. A. Ro.)

**Bequests, Philanthropic:** *see* DONATIONS AND BEQUESTS.

**Berlin.** The residence of Hohenzollern electors, kings and emperors from 1442 to 1918, and capital of the German reich after 1871, Berlin is the largest and most important city of Germany. Reorganized in 1920 to include several suburbs, greater Berlin in 1939 had an area of 332 sq.mi., and a population of 4,332,000. It was the centre of Germany's rail, highway and air lines, and enjoyed cheap water transportation

through Germany's wide-reaching system of rivers and canals. During World War II, and especially in the early part of 1945, Berlin was subjected to very intensive Allied attacks of explosive and incendiary bombs, which completely destroyed most of the centre of the city containing the official government buildings, main banking institutions and large commercial houses. The suburbs suffered somewhat less, but it was estimated that altogether 80% of the residential buildings were damaged and 20% rendered uninhabitable. In spite of this, Berlin was estimated to have a population of 3,200,000 at the end of 1945. Berlin was divided in June 1945 into four zones, each governed by one of the four principal Allied powers, and was the seat of the Allied control council for the military government of all Germany. (*See also* GERMANY.)

FILMS.—*Germany—Berlin* (Encyclopædia Britannica Films Inc.) (S. B. F.)

**Berlin Conference.** On July 17, 1945, the heads of government of the United States, the soviet union and Great Britain met in the Potsdam district outside Berlin to determine policy in the light of the unconditional surrender of Germany May 8, 1945. The principals were President Harry S. Truman, Generalissimo Joseph V. Stalin, Prime Minister Winston Churchill and Clement Attlee, who became prime minister after the results of the British general election were announced July 26. They were accompanied by their foreign secretaries, James F. Byrnes, V. M. Molotov and Anthony Eden, the chiefs of staff, and other advisers. Eden was later succeeded by Ernest Bevin.

On Aug. 2 the Tripartite Conference of Berlin ended and released its report signed by the three government heads. Important decisions announced were the establishment of a council of foreign ministers of the three powers, China and France; agreement on the treatment of Germany in the initial control period; and a detailed plan for the settlement of reparations claims.

In effect the establishment of a council of foreign ministers provided for a continuing series of international meetings to resolve international problems. As its first task the council was charged with the drafting of peace treaties with Italy, Rumania, Bulgaria, Hungary and Finland for submission to the United Nations. The council was also directed to propose territorial settlements and prepare for eventual peace with Germany.

The conference report reiterated the Crimea declaration, stating that measures would be taken to assure that Germany never again would threaten its neighbours or the peace of the world, but repeating that it was not the victors' intention to destroy or enslave the German people. The conference set forth the principles by which the Allied control council was to be guided. These were: Germany's complete disarmament and demilitarization; destruction of its war potential; rigid control of permitted industry; decentralization of its political and economic structure. Naziism was to be uprooted and utterly destroyed and the German general staff broken up for all time. Agriculture and peaceful domestic industries were to be encouraged.

Although there was to be no central German government for the present, local self-government and free elections were directed restored, a degree of free speech, press, religion and free trade unions were to be allowed consonant with the Allied intent to reconstruct German life on a democratic basis and prepare Germany for eventual acceptance among the free and peaceful peoples of the world.

The conference agreed in principle on reparations providing that claims would be met by German assets abroad and by removals from Germany. It was specifically stated, however, that removals should leave enough resources to enable the German people to subsist without external assistance.

Transfer of Germans from Poland, Czechoslovakia and Hun-

gary was agreed upon as necessary, but it was directed that this be effected in an orderly and humane manner and with special regard to the equitable distribution of the transferred Germans in the several occupation zones.

Pending final determination of territorial questions at the peace settlement, the conference agreed in principle to the ultimate transfer to the soviet union of the city of Koenigsberg and its adjacent area and to the administration by Poland of certain former German territories.

The Allied press welcomed the assurance that its representatives would be free to report developments in Poland, Rumania, Bulgaria, Hungary and Finland.

Considerable comment was occasioned by the declaration that the three powers would not favour any application for United Nations membership put forward by the existing Spanish government, "which, having been founded with the support of the Axis powers, does not, in view of its origins, its nature, its record and its close association with the aggressor states, possess the qualifications necessary to justify such membership."

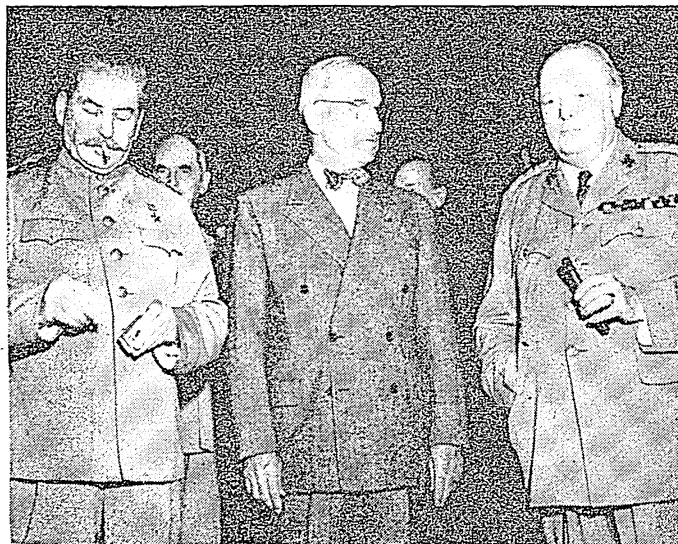
Subsequent events disclosed that the conference had had a direct and compelling effect on the war in the Pacific. While the conference report had ended with a cryptic reference to meetings on "military matters of common interest," on Aug. 3 it was announced that during the conference Truman and Attlee had approved "powerful new blows" to speed the defeat of Japan. On Aug. 6, homeward bound on the U.S.S. "Augusta," President Truman announced the most powerful blow of the war, the dropping of an atom bomb on Hiroshima. When the soviet union declared war on Japan on Aug. 8, Molotov revealed that during the conference Japan's mid-July request for soviet mediation for a cessation of hostilities had been discussed. Finally, the Potsdam declaration which had been issued July 26 under the signatures of President Truman and Prime Minister Attlee and concurred in by Generalissimo Chiang Kai-shek became the basis of the Japanese surrender in Tokyo bay on Sept. 2, 1945. (E. W. Sc.)

Following is the report of the conference which was signed by the three government heads.

#### REPORT ON THE TRIPARTITE CONFERENCE OF BERLIN

On July 17, 1945, the President of the United States of America, Harry S. Truman, the Chairman of the Council of People's Commissars of the Union of Soviet Socialist Republics, Generalissimo J. V. Stalin, and the Prime Minister of Great Britain, Winston S. Churchill, together with Mr. Clement R. Attlee, met in the Tripartite Conference of Berlin.

PREMIER STALIN, President Truman and Prime Minister Churchill pose informally before the opening session of the Berlin conference in the suburb of Potsdam, July 17, 1945. Churchill was succeeded at Potsdam by Clement R. Attlee on July 28, following the general election in Great Britain



They were accompanied by the foreign secretaries of the three governments, Mr. James F. Byrnes, Mr. V. M. Molotov, and Mr. Anthony Eden, the Chiefs of Staff, and other advisers.

There were nine meetings between July seventeenth and July twenty-fifth. The conference was then interrupted for two days while the results of the British general election were being declared.

On July twenty-eighth Mr. Attlee returned to the conference as Prime Minister, accompanied by the new Secretary of State for Foreign Affairs, Mr. Ernest Bevin. Four days of further discussion then took place. During the course of the conference there were regular meetings of the heads of the three governments accompanied by the foreign secretaries, and also of the foreign secretaries alone. Committees appointed by the foreign secretaries for preliminary consideration of questions before the conference also met daily.

The meetings of the conference were held at the Cecilienhof near Potsdam. The conference ended on August 2, 1945.

Important decisions and agreements were reached. Views were exchanged on a number of other questions and consideration of these matters will be continued by the Council of Foreign Ministers established by the conference.

President Truman, Generalissimo Stalin and Prime Minister Attlee leave this conference, which has strengthened the ties between the three governments and extended the scope of their collaboration and understanding, with renewed confidence that their governments and peoples, together with the other United Nations, will ensure the creation of a just and enduring peace.

#### II

##### ESTABLISHMENT OF A COUNCIL OF FOREIGN MINISTERS

The conference reached an agreement for the establishment of a Council of Foreign Ministers representing the five principal powers to continue the necessary preparatory work for the peace settlements and to take up other matters which from time to time may be referred to the Council by agreement of the governments participating in the Council.

The text of the agreement for the establishment of the Council of Foreign Ministers is as follows:

1. There shall be established a Council composed of the foreign ministers of the United Kingdom, the Union of Soviet Socialist Republics, China, France and the United States.

2.(i) The Council shall normally meet in London, which shall be the permanent seat of the joint secretariat which the Council will form. Each of the foreign ministers will be accompanied by a high-ranking deputy, duly authorized to carry on the work of the Council in the absence of his foreign minister, and by a small staff of technical advisers.

(ii) The first meeting of the Council shall be held in London not later than September 1, 1945. Meetings may be held by common agreement in other capitals as may be agreed from time to time.

3.(i) As its immediate important task, the Council shall be authorized to draw up, with a view to their submission to the United Nations, treaties of peace with Italy, Rumania, Bulgaria, Hungary and Finland, and to propose settlements of territorial questions outstanding on the termination of the war in Europe. The Council shall be utilized for the preparation of a peace settlement for Germany to be accepted by the government of Germany when a government adequate for the purpose is established.

(ii) For the discharge of each of these tasks the Council will be composed of the members representing those states which were signatory to the terms of surrender imposed upon the enemy state concerned. For the purpose of the peace settlement for Italy, France shall be regarded as a signatory to the terms of surrender for Italy. Other members will be invited to participate when matters directly concerning them are under discussion.

(iii) Other matters may from time to time be referred to the Council by agreement between the member governments.

4.(i) Whenever the Council is considering a question of direct interest to a state not represented thereon, such state should be invited to send representatives to participate in the discussion and study of that question.

(ii) The Council may adapt its procedure to the particular problem under consideration. In some cases it may hold its own preliminary discussions prior to the participation of other interested states. In other cases, the Council may convoke a formal conference of the state chiefly interested in seeking a solution of the particular problem.

In accordance with the decision of the conference the three governments have each addressed an identical invitation to the governments of China and France to adopt this text and to join in establishing the Council.

The establishment of the Council of Foreign Ministers for the specific purposes named in the text will be without prejudice to the agreement of the Crimea Conference that there should be periodic consultation among the foreign secretaries of the United States, the Union of Soviet Socialist Republics and the United Kingdom.

The conference also considered the position of the European Advisory Commission in the light of the agreement to establish the Council of Foreign Ministers. It was noted with satisfaction that the Commission had ably discharged its principal tasks by the recommendations that it had furnished for the terms of Germany's unconditional surrender, for the zones of occupation in Germany and Austria, and for the inter-Allied control machinery in those countries. It was felt that further work of a detailed character for the coordination of allied policy for the control of Germany and Austria would in future fall within the competence of the Allied Control Council at Berlin and the Allied Commission at Vienna. Accordingly, it was agreed to recommend that the European Advisory Commission be dissolved.

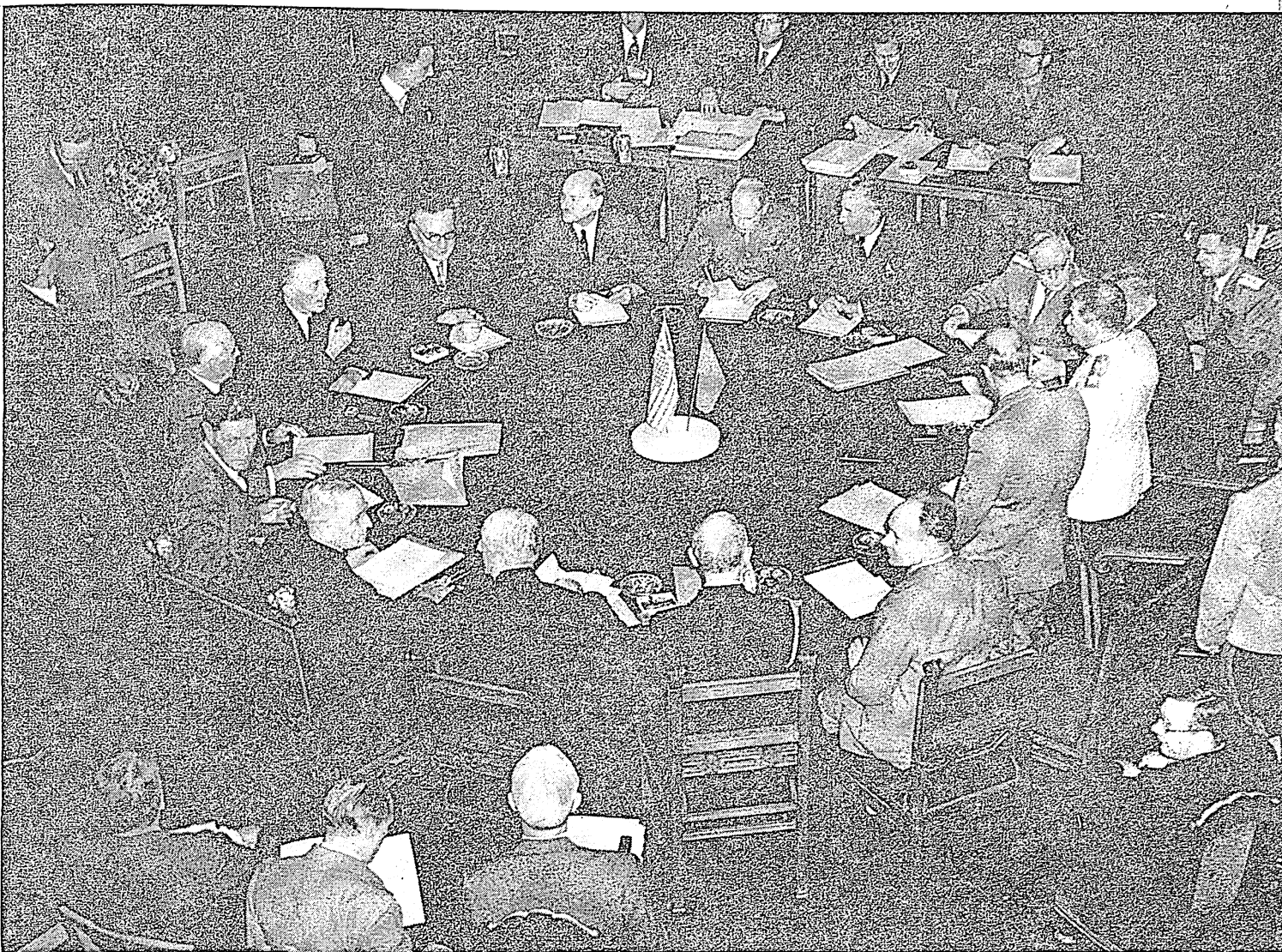
#### III

##### GERMANY

The Allied Armies are in occupation of the whole of Germany and the German people have begun to atone for the terrible crimes committed under the leadership of those whom in the hour of their success, they openly approved and blindly obeyed.

Agreement has been reached at this conference on the political and economic principles of a coordinated Allied policy toward defeated Germany during the period of Allied control.





THE BERLIN CONFERENCE was resumed on July 28, 1945, after the British elections were announced. Prime Minister Attlee is at far side of table, centre; Marshal Stalin stands at right; President Truman is seen in profile, left foreground

The purpose of this agreement is to carry out the Crimea Declaration on Germany. German militarism and Nazism will be extirpated and the Allies will take in agreement together, now and in the future, the other measures necessary to assure that Germany never again will threaten her neighbors or the peace of the world.

It is not the intention of the Allies to destroy or enslave the German people. It is the intention of the Allies that the German people be given the opportunity to prepare for the eventual reconstruction of their life on a democratic and peaceful basis. If their own efforts are steadily directed to this end, it will be possible for them in due course to take their place among the free and peaceful peoples of the world.

The text of the agreement is as follows:

#### The Political and Economic Principles to Govern the Treatment of Germany in the Initial Control Period

##### A. Political Principles.

1. In accordance with the agreement on control machinery in Germany, supreme authority in Germany is exercised on instructions from their respective governments, by the Commanders-in-Chief of the armed forces of the United States of America, the United Kingdom, the Union of Soviet Socialist Republics, and the French Republic, each in his own zone of occupation, and also jointly, in matters affecting Germany as a whole, in their capacity as members of the Control Council.

2. So far as is practicable, there shall be uniformity of treatment of the German population throughout Germany.

3. The purposes of the occupation of Germany by which the Control Council shall be guided are:

(i) The complete disarmament and demilitarization of Germany and the elimination or control of all German industry that could be used for military production. To these ends:

(a) All German land, naval and air forces, the S.S., S.A., S.D., and Gestapo, with all their organizations, staffs and institutions, including the General Staff, the Officers' Corps, Reserve Corps, military schools, war veterans' organizations and all other military and quasi-military organizations, together with all clubs and associations which serve to keep alive the military tradition in Germany, shall be completely and finally abolished in such manner as permanently to prevent the revival or reorganization of German militarism and Nazism.

(b) All arms, ammunition and implements of war and all specialized facilities for their production shall be held at the disposal of the Allies or destroyed. The maintenance and production of all aircraft and all arms, ammunition and implements of war shall be prevented.

(ii) To convince the German people that they have suffered a total military defeat and that they cannot escape responsibility for what they have brought upon themselves, since their own ruthless warfare and the fanatical Nazi resistance have destroyed German economy and made chaos and suffering inevitable.

(iii) To destroy the National Socialist Party and its affiliated and supervised organizations, to dissolve all Nazi institutions, to ensure that they are not revived in any form, and to prevent all Nazi and militarist activity or propaganda.

(iv) To prepare for the eventual reconstruction of German political life on a democratic basis and for eventual peaceful cooperation in international life by Germany.

4. All Nazi laws which provided the basis of the Hitler regime or established discrimination on grounds of race, creed, or political opinion shall be abolished. No such discriminations, whether legal, administrative or otherwise, shall be tolerated.

5. War criminals and those who have participated in planning or carrying out Nazi enterprises involving or resulting in atrocities or war crimes shall be arrested and brought to judgment. Nazi leaders, influential Nazi supporters and high officials of Nazi organizations and institutions and any other persons dangerous to the occupation or its objectives shall be arrested and interned.

6. All members of the Nazi party who have been more than nominal participants in its activities and all other persons hostile to allied purposes shall be removed from public and semi-public office, and from positions of responsibility in important private undertakings. Such persons shall be replaced by persons who, by their political and moral qualities, are deemed capable of assisting in developing genuine democratic institutions in Germany.

7. German education shall be so controlled as completely to eliminate Nazi and militarist doctrines and to make possible the successful development of democratic ideas.

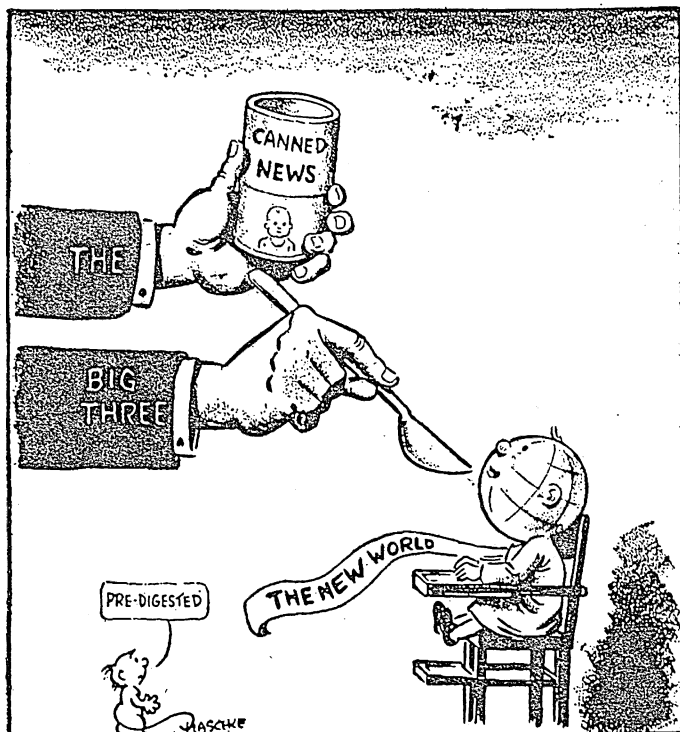
8. The judicial system will be reorganized in accordance with the principles of democracy, of justice under law, and of equal rights for all citizens without distinction of race, nationality or religion.

9. The administration of affairs in Germany should be directed towards the decentralization of the political structure and the development of local responsibility. To this end:

(i) Local self-government shall be restored throughout Germany on democratic principles and in particular through elective councils as rapidly as is consistent with military security and the purposes of military occupation;

(ii) All democratic political parties with rights of assembly and of public discussion shall be allowed and encouraged throughout Germany;

(iii) Representative and elective principles shall be introduced into regional, provincial and state (land) administration as rapidly as may be justified by the successful application of these principles in local



"BABY FOOD." Plaschke of the *Chicago Herald-American* was critical of the guarded news releases coming from the Berlin Conference in July 1945

self-government;

(iv) For the time being no central German government shall be established. Notwithstanding this, however, certain essential central German administrative departments, headed by state secretaries, shall be established, particularly in the fields of finance, transport, communications, foreign trade and industry. Such departments will act under the direction of the Control Council.

10. Subject to the necessity for maintaining military security, freedom of speech, press and religion shall be permitted, and religious institutions shall be respected. Subject likewise to the maintenance of military security, the formation of free trade unions shall be permitted.

#### B. Economic Principles.

11. In order to eliminate Germany's war potential, the production of arms, ammunition and implements of war as well as all types of aircraft and sea-going ships shall be prohibited and prevented. Production of metals, chemicals, machinery and other items that are directly necessary to a war economy shall be rigidly controlled and restricted to Germany's approved post-war peacetime needs to meet the objectives stated in paragraph 15. Productive capacity not needed for permitted production shall be removed in accordance with the reparations plan recommended by the Allied Commission on reparations and approved by the governments concerned or if not removed shall be destroyed.

12. At the earliest practicable date, the German economy shall be decentralized for the purpose of eliminating the present excessive concentration of economic power as exemplified in particular by cartels, syndicates, trusts and other monopolistic arrangements.

13. In organizing the German economy, primary emphasis shall be given to the development of agriculture and peaceful domestic industries.

14. During the period of occupation Germany shall be treated as a single economic unit. To this end common policies shall be established in regard to:

- (a) Mining and industrial production and allocations;
- (b) Agriculture, forestry and fishing;
- (c) Wages, prices and rationing;
- (d) Import and export programs for Germany as a whole;
- (e) Currency and banking, central taxation and customs;
- (f) Reparation and removal of industrial war potential;
- (g) Transportation and communications.

In applying these policies account shall be taken, where appropriate, of varying local conditions.

15. Allied controls shall be imposed upon the German economy but only to the extent necessary:

- (a) To carry out programs of industrial disarmament and demilitarization, of reparations, and of approved exports and imports.
- (b) To assure the production and maintenance of goods and services required to meet the needs of the occupying forces and displaced persons in Germany and essential to maintain in Germany average living standards not exceeding the average of the standards of living of European countries. (European countries means all European countries excluding the United Kingdom and the Union of Soviet Socialist Republics.)
- (c) To ensure in the manner determined by the Control Council the equitable distribution of essential commodities between the several zones so as to produce a balanced economy throughout Germany and reduce the need for imports.
- (d) To control German industry and all economic and financial international transactions, including exports and imports, with the aim of preventing Germany from developing a war potential and of achieving the other objectives named herein.
- (e) To control all German public or private scientific bodies, research

and experimental institutions, laboratories, et cetera, connected with economic activities.

16. In the imposition and maintenance of economic controls established by the Control Council, German administrative machinery shall be created and the German authorities shall be required to the fullest extent practicable to proclaim and assume administration of such controls. Thus it should be brought home to the German people that the responsibility for the administration of such controls and any breakdown in these controls will rest with themselves. Any German controls which may run counter to the objectives of occupation will be prohibited.

17. Measures shall be promptly taken:

- (a) To effect essential repair of transport;
- (b) To enlarge coal production;
- (c) To maximize agricultural output; and
- (d) To effect emergency repair of housing and essential utilities.

18. Appropriate steps shall be taken by the Control Council to exercise control and the power of disposition over German-owned external assets not already under the control of United Nations which have taken part in the war against Germany.

19. Payment of reparations should leave enough resources to enable the German people to subsist without external assistance. In working out the economic balance of Germany the necessary means must be provided to pay for imports approved by the Control Council in Germany. The proceeds of exports from current production and stocks shall be available in the first place for payment for such imports.

The above clause will not apply to the equipment and products referred to in paragraphs 4(A) and 4(B) of the Reparations Agreement.

#### IV

##### REPARATIONS FROM GERMANY

In accordance with the Crimea decision that Germany be compelled to compensate to the greatest possible extent for the loss and suffering that she has caused to the United Nations and for which the German people cannot escape responsibility, the following agreement on reparations was reached:

1. Reparation claims of the U.S.S.R. shall be met by removals from the zone of Germany occupied by the U.S.S.R. and from appropriate German external assets.

2. The U.S.S.R. undertakes to settle the reparation claims of Poland from its own share of reparations.

3. The reparation claims of the United States, the United Kingdom and other countries entitled to reparations shall be met from the western zones and from appropriate German external assets.

4. In addition to the reparations to be taken by the U.S.S.R. from its own zone of occupation, the U.S.S.R. shall receive additionally from the western zones:

(A) 15 per cent of such usable and complete industrial capital equipment, in the first place from the metallurgical, chemical and machine manufacturing industries, as is unnecessary for the German peace economy and should be removed from the western zones of Germany, in exchange for an equivalent value of food, coal, potash, zinc, timber, clay products, petroleum products, and such other commodities as may be agreed upon.

(B) 10 per cent of such industrial capital equipment as is unnecessary for the German peace economy and should be removed from the western zones, to be transferred to the Soviet Government on reparations account without payment or exchange of any kind in return.

Removals of equipment as provided in (A) and (B) above shall be made simultaneously.

5. The amount of equipment to be removed from the western zones on account of reparations must be determined within six months from now at the latest.

6. Removals of industrial capital equipment shall begin as soon as possible and shall be completed within two years from the determination specified in paragraph 5. The delivery of products covered by 4(A) above shall begin as soon as possible and shall be made by the U.S.S.R. in agreed installments within five years of the date hereof. The determination of the amount and character of the industrial capital equipment unnecessary for the German peace economy and therefore available for reparations shall be made by the control council under policies fixed by the Allied Commission on Reparations, with the participation of France, subject to the final approval of the zone commander in the zone from which the equipment is to be removed.

7. Prior to the fixing of the total amount of equipment subject to removal, advance deliveries shall be made in respect of such equipment as will be determined to be eligible for delivery in accordance with the procedure set forth in the last sentence of paragraph 6.

8. The Soviet Government renounces all claims in respect of reparations to shares of German enterprises which are located in the western zones of occupation in Germany as well as to German foreign assets in all countries except those specified in paragraph 9 below.

9. The Governments of the United Kingdom and the United States of America renounce their claims in respect of reparations to shares of German enterprises which are located in the eastern zone of occupation in Germany, as well as to German foreign assets in Bulgaria, Finland, Hungary, Rumania and Eastern Austria.

10. The Soviet Government makes no claims to gold captured by the Allied troops in Germany.

#### V

##### DISPOSAL OF THE GERMAN NAVY AND MERCHANT MARINE

The conference agreed in principle upon arrangements for the use and disposal of the surrendered German fleet and merchant ships. It was decided that the three governments would appoint experts to work out together detailed plans to give effect to the agreed principles. A further joint statement will be published simultaneously by the three governments in due course.

#### VI

##### CITY OF KOENIGSBERG AND THE ADJACENT AREA

The conference examined a proposal by the Soviet Government that pending the final determination of territorial questions at the peace settle-



ment the section of the western frontier of the Union of Soviet Socialist Republics which is adjacent to the Baltic Sea should pass from a point on the eastern shore of the Bay of Danzig to the east, north of Braunsberg-Goldap, to the meeting point of the frontiers of Lithuania, the Polish Republic and East Prussia.

The conference has agreed in principle to the proposal of the Soviet Government concerning the ultimate transfer to the Soviet Union of the City of Königsberg and the area adjacent to it as described above subject to expert examination of the actual frontier.

The President of the United States and the British Prime Minister have declared that they will support the proposal of the conference at the forthcoming peace settlement.

## VII

## WAR CRIMINALS

The three governments have taken note of the discussions which have been proceeding in recent weeks in London between British, United States, Soviet and French representatives with a view to reaching agreement on the methods of trial of those major war criminals whose crimes under the Moscow Declaration of October 1943 have no particular geographical localization. The three governments reaffirm their intention to bring those criminals to swift and sure justice. They hope that the negotiations in London will result in speedy agreement being reached for this purpose, and they regard it as a matter of great importance that the trial of those major criminals should begin at the earliest possible date. The first list of defendants will be published before September first.

## VIII

## AUSTRIA

The conference examined a proposal by the Soviet Government on the extension of the authority of the Austrian Provisional Government to all of Austria.

The three governments agreed that they were prepared to examine this question after the entry of the British and American forces into the City of Vienna.

## IX

## POLAND

The conference considered questions relating to the Polish Provisional Government and the western boundary of Poland.

On the Polish Provisional Government of National Unity they defined their attitude in the following statement:

A—We have taken note with pleasure of the agreement reached among representative Poles from Poland and abroad which has made possible the formation, in accordance with the decisions reached at the Crimea Conference, of a Polish Provisional Government of National Unity recognized by the three powers. The establishment by the British and United States Governments of diplomatic relations with the Polish Provisional Government has resulted in the withdrawal of their recognition from the former Polish Government in London, which no longer exists.

The British and United States Governments have taken measures to protect the interest of the Polish Provisional Government as the recognized government of the Polish State in the property belonging to the Polish State located in their territories and under their control, whatever the form of this property may be. They have further taken measures to prevent alienation to third parties of such property. All proper facilities will be given to the Polish Provisional Government for the exercise of the ordinary legal remedies for the recovery of any property belonging to the Polish State which may have been wrongfully alienated.

The three powers are anxious to assist the Polish Provisional Government in facilitating the return to Poland as soon as practicable of all Poles abroad who wish to go, including members of the Polish armed forces and the Merchant Marine. They expect that those Poles who return home shall be accorded personal and property rights on the same basis as all Polish citizens.

The three powers note that the Polish Provisional Government in accordance with the decisions of the Crimea Conference has agreed to the holding of free and unfettered elections as soon as possible on the basis of universal suffrage and secret ballot in which all democratic and anti-Nazi parties shall have the right to take part and to put forward candidates, and that representatives of the Allied press shall enjoy full freedom to report to the world upon developments in Poland before and during the elections.

B—The following agreement was reached on the western frontier of Poland:

In conformity with the agreement on Poland reached at the Crimea Conference the three heads of government have sought the opinion of the Polish Provisional Government of National Unity in regard to the accession of territory in the north and west which Poland should receive. The President of the National Council of Poland and members of the Polish Provisional Government of National Unity have been received at the conference and have fully presented their views. The three heads of government reaffirm their opinion that the final delimitation of the western frontier of Poland should await the peace settlement.

The three heads of government agree that, pending the final determination of Poland's western frontier, the former German territories east of a line running from the Baltic Sea immediately west of Swinemünde, and thence along the Oder River to the confluence of the western Neisse River and along the western Neisse to the Czechoslovak frontier, including that portion of East Prussia not placed under the administration of the Union of Soviet Socialist Republics in accordance with the understanding reached at this conference and including the area of the former free City of Danzig, shall be under the administration of the Polish State and for such purposes should not be considered as part of the Soviet zone of occupation in Germany.

## X

## CONCLUSION OF PEACE TREATIES AND ADMISSION TO THE UNITED NATIONS ORGANIZATION

The conference agreed upon the following statement of common policy for establishing, as soon as possible, the conditions of lasting peace after victory in Europe:

The three governments consider it desirable that the present anomalous position of Italy, Bulgaria, Finland, Hungary and Rumania should be terminated by the conclusion of peace treaties. They trust that the other interested Allied governments will share these views.

For their part the three governments have included the preparation of a peace treaty for Italy as the first among the immediate important tasks to be undertaken by the new Council of Foreign Ministers. Italy was the first of the Axis powers to break with Germany, to whose defeat she has made a material contribution, and has now joined with the Allies in the struggle against Japan. Italy has freed herself from the Fascist regime and is making good progress towards the re-establishment of a democratic government and institutions. The conclusion of such a peace treaty with a recognized and democratic Italian government will make it possible for the three governments to fulfill their desire to support an application from Italy for membership of the United Nations.

The three governments have also charged the Council of Foreign Ministers with the task of preparing peace treaties for Bulgaria, Finland, Hungary and Rumania. The conclusion of peace treaties with recognized democratic governments in these states will also enable the three governments to support applications from them for membership of the United Nations. The three governments agree to examine each separately in the near future, in the light of the conditions then prevailing, the establishment of diplomatic relations with Finland, Rumania, Bulgaria, and Hungary to the extent possible prior to the conclusion of peace treaties with those countries.

The three governments have no doubt that in view of the changed conditions resulting from the termination of the war in Europe, representatives of the Allied press will enjoy full freedom to report to the world upon developments in Rumania, Bulgaria, Hungary and Finland.

As regards the admission of other states into the United Nations Organization, Article 4 of the Charter of the United Nations declares that:

"1. Membership in the United Nations is open to all other peace-loving states who accept the obligations contained in the present Charter and, in the judgment of the Organization, are able and willing to carry out these obligations;

"2. The admission of any such state to membership in the United Nations will be effected by a decision of the General Assembly upon the recommendation of the Security Council."

The three governments, so far as they are concerned, will support applications for membership from those states which have remained neutral during the war and which fulfill the qualifications set out above.

The three governments feel bound however to make it clear that they for their part would not favor any application for membership put forward by the present Spanish Government, which, having been founded with the support of the Axis powers, does not, in view of its origins, its nature, its record and its close association with the aggressor states, possess the qualifications necessary to justify such membership.

## XI

## TERRITORIAL TRUSTEESHIPS

The conference examined a proposal by the Soviet Government concerning trusteeship territories as defined in the decision of the Crimea Conference and in the Charter of the United Nations Organization.

After an exchange of views on this question it was decided that the disposition of any former Italian territories was one to be decided in connection with the preparation of a peace treaty for Italy and that the question of Italian territory would be considered by the September Council of Ministers of Foreign Affairs.

## XII

## REVISED ALLIED CONTROL COMMISSION PROCEDURE IN RUMANIA, BULGARIA, AND HUNGARY

The three governments took note that the Soviet representatives on the Allied Control Commissions in Rumania, Bulgaria and Hungary, have communicated to their United Kingdom and United States colleagues proposals for improving the work of the Control Commission, now that hostilities in Europe have ceased.

The three governments agreed that the revision of the procedures of the Allied Control Commissions in these countries would now be undertaken, taking into account the interests and responsibilities of the three governments which together presented the terms of armistice to the respective countries, and accepting as a basis the agreed proposals.

## XIII

## ORDERLY TRANSFERS OF GERMAN POPULATIONS

The conference reached the following agreement on the removal of Germans from Poland, Czechoslovakia and Hungary:

The three governments having considered the question in all its aspects, recognize that the transfer to Germany of German populations, or elements thereof, remaining in Poland, Czechoslovakia and Hungary, will have to be undertaken. They agree that any transfers that take place should be effected in an orderly and humane manner.

Since the influx of a large number of Germans into Germany would increase the burden already resting on the occupying authorities, they consider that the Allied Control Council in Germany should in the first instance examine the problem with special regard to the question of the equitable distribution of these Germans among the several zones of occupation. They are accordingly instructing their respective representatives on the Control Council to report to their governments as soon as possible the extent to which such persons have already entered Germany from Poland, Czechoslovakia and Hungary, and to submit an estimate



of the time and rate at which further transfers could be carried out, having regard to the present situation in Germany.

The Czechoslovak Government, the Polish Provisional Government and the Control Council in Hungary are at the same time being informed of the above, and are being requested meanwhile to suspend further expulsions pending the examination by the governments concerned of the report from their representatives on the Control Council.

## XIV

## MILITARY TALKS

During the conference there were meetings between the Chiefs of Staff of the three governments on military matters of common interest.

Approved:

J. V. STALIN  
HARRY S. TRUMAN  
C. R. ATTLEE

**Bermuda.** An archipelago of about 360 small islands approximately 580 mi. east of North Carolina. Area: 19.3 sq.mi.; pop. (est., 1944): 33,925. The capital is Hamilton, pop. (1939), 1,863. The only other town of importance is St. George, pop. (1939), 2,665. The islands are organized politically as a British crown colony. The governor in the early part of 1945 was Lt. Col. Lord Burghley (appointed Aug. 24, 1943), but he announced his resignation Aug. 9; no successor was appointed and at the end of the year William Addis was acting governor. Bermuda has a representative government, including an executive council of seven and a legislative council of nine, both appointed by the crown, and an elective assembly.

**History.**—The perennial question of woman suffrage came to a climax in the defeat on Feb. 17, 1945, of a motion offered in the assembly by Dr. A. E. Cann, a Negro, providing for universal suffrage. The woman suffrage society was subsequently dissolved, April 11. British authorities on June 26 appointed William Addis colonial secretary. The United States on Aug. 6 returned the small Ordnance Island to St. George municipal authorities but United States naval officials on Sept. 6 urged retention by the United States of its naval base in the islands, the site for which was obtained from Great Britain in 1940. U.S. Representative Michael Bradley at the same time proposed British cession of the island base to the United States in part cancellation of lend-lease aid. Bermudian officials simultaneously proposed commercial use of Kindley airfield, operated by the U.S. army, but negotiations to that end encountered considerable delays. Canada had virtually closed its naval training base (commissioned Aug. 1, 1944) by Aug. 27 and announced its closing on Sept. 17. The United States and Bermuda mutually removed passport and visa restrictions, imposed during World War II, on Sept. 6. The United States and the British commonwealth opened a telecommunications conference at Hamilton Sept. 22; agreement on maximum rates for telecommunications facilities was announced Nov. 29.

**Finance.**—The monetary unit is the pound sterling, linked to the pound in London and in other British West Indian possessions, and valued in 1945 at \$4.06 for buying and \$4.00 for selling. Inflation continued to be a major economic problem in 1945. The colonial debt in 1943 was £275,000, including a non-interest bearing loan of £200,000 made to the British government for war purposes.

**Production.**—Most Bermudian production is agricultural, manufacturing and mining being practically nonexistent. The chief agricultural items are lily bulbs, green vegetables, potatoes and bananas. Cedar is the only wood available. Farm products were valued in 1943 at £440,000, the highest figure on record. Important amounts of lobsters and fish are normally obtained.

**Trade and Communications.**—Principal items of export are green vegetables, lily bulbs and potatoes. Bulb shipments in 1943 were 700,000 (1942, 755,000). Chief destinations of exports are Canada and the United States. Leading items of import are foodstuffs, clothing and textiles, hardware and furniture; the chief suppliers are the United States, Canada and the

United Kingdom. The first shipment of meat to reach Bermuda through commercial channels after 1942 arrived Sept. 3, 1945. With the end of the war, all shipping controls on cargoes from the United States and Canada were declared lifted on Aug. 30. Imports of fuel in 1944 were valued at £130,152; imports of sawed lumber in the same year amounted to 1,100,130 board feet and were valued at \$100,000 (U.S.).

The colony has only 21.5 mi. of railroad and 120 mi. of highway. Considerable work in construction of utility highways in connection with naval base development was undertaken in 1944-45, however. Railway passengers in 1943 totalled 1,487,477 and ferry passengers in the same year, 772,294. Estimates for expenditures for road repair and maintenance for 1945 were £49,500 as against £31,600 for 1944; an expenditure of £24,772 was authorized for 1945 for road building equipment. With the end of the war, Bermudian officials began making plans for an early and large-scale revival of the tourist trade, virtually suspended earlier by wartime restrictions because of naval base construction.

**BIBLIOGRAPHY.**—David Garth, *Bermuda Calling* (1944). (R. H. FN.)

**Beryllium.** There was a decline in the demand for beryllium in 1944, with consumption dropping by one-quarter. The U.S. output during the war years, released for publication in 1945, was 95 short tons in 1939, 121 tons in 1940, 158 tons in 1941, 269 tons in 1942, 356 tons in 1943 and 388 tons in 1944. Of the six-year total of 1,387 tons, 1,058 tons came from South Dakota. Late in 1944 a single crystal of beryl 28 ft. long and weighing more than 61 tons was found in the Ingersoll mine, near Custer, S.D. The bulk of the supply was from imports, mainly from Brazil, Argentina, India and Australia, totalling 810 tons in 1940, 2,666 tons in 1941, 2,050 tons in 1942, 4,840 tons in 1943 and 3,115 tons in 1944. The U.S. imports absorbed about three-quarters of the world output.

(G. A. Ro.)

**Berzarin, Nikolai Y.** (1904?-1945), Russian army officer, son of a Leningrad worker, joined the Red army at 14 years of age. He participated in the Murmansk fighting, 1918-19, and was sent to an officers' training centre in 1922. The following year, he was transferred to the far east. He remained there long enough to help organize the Pacific coast defenses against the Japanese when World War II threatened. He later returned to the European theatre of war and on June 3, 1945, took over the post of Russian military commander of Berlin. At that time, he declared that he would help to restore the fallen reich capital to normalcy by "helping the Germans to help themselves," and that he would follow a policy of "no pampering but no cruelty." Shortly after he assumed his new post and rumours were still rampant as to Adolf Hitler's whereabouts, he stated that it was his personal conviction that Hitler was hiding somewhere in Europe—probably Spain. Col. Gen. Berzarin's death as a result of a motorcycle accident was reported by the soviet-controlled Berlin radio, June 18.

**Bessarabia:** see RUMANIA.

**Best Sellers:** see BOOK PUBLISHING.

**Beveridge Report:** see SOCIAL SECURITY.

**Bevin, Ernest** (1881- ), British labour leader and cabinet minister, was born in Winsford, Somerset, England, the son of an agricultural labourer. In his youth he was a truck driver in the vicinity of Bristol; later he was elected general secretary of the Transport and General Workers' union, which became one of the largest trade unions in the world. Bevin played a leading part in the general strike of 1926,

which was broken by Winston Churchill. In 1937 he was appointed chairman of the General Council of Trades Union congress. One of the first to recognize the danger of Hitlerism, Bevin spoke out on May day, 1940, against Neville Chamberlain's appeasement policy. A fortnight later Churchill named him minister of labour and national service, and on Oct. 3, 1940, Bevin was promoted to the war cabinet. He speeded up munitions production, kept strikes, work stoppages and lockouts to a minimum and worked smoothly with Churchill. After the Labourite victory at the polls, July 26, 1945, Bevin was appointed foreign secretary by Prime Minister Attlee (July 27). He then superseded Anthony Eden at the Berlin conference. Bevin was one of the major participants in the London conference of foreign ministers in the fall of 1945 and declared (Oct. 9) that failure of this parley was due to Molotov's insistence that the smaller powers be excluded from the drafting of the peace treaties. In a speech to commons, Nov. 7, he said that the United States and Great Britain should retain the secret of the atomic bomb for the time being. He announced (Nov. 13) the establishment of a joint U.S.-British committee of inquiry to investigate the Palestine situation. In a commons speech, Nov. 23, he defended postponement of the Greek plebiscite and the use of British troops in Java and obliquely criticized the soviet policy in Iran. Bevin attended the conference of foreign ministers in Moscow. Unlike its predecessor, the London conference, this parley was successful and the conferees—Bevin, Byrnes and Molotov—reached agreement, Dec. 27, on many controversial and outstanding issues.

**BEW:** see FOREIGN ECONOMIC ADMINISTRATION.

**Bibesco, Princess Elizabeth** (1897-1945), British author, was the daughter of the 1st earl of Oxford and Asquith, former British prime minister, and his second wife, Margaret Tennant (Margot), the noted wit and author. She was married to Prince Antoine Bibesco in 1919 when he was councillor of the Rumanian legation in London and accompanied her husband to Washington, D.C., where he served as minister, 1920-26. The princess followed in her mother's footsteps, and her first book, a collection of short stories, was well received in the U.S. In Washington the princess caused a minor furore during the presidential election of 1924 by urging the election of John W. Davis, the Democratic nominee, in a letter to a nationally known liberal magazine. This disregard of the rules of diplomatic protocol nearly caused an international incident and jeopardized, momentarily, her husband's position. The princess, considered a skilled author of short stories, wrote the following works: *I Have Only Myself to Blame* (1921); *Balloons* (1923); *The Fir and the Palm* (1924); *The Painted Swan* and *The Whole Story* (1925); *There Is No Return* (1927); *Portrait of Caroline* (1931) and *The Romantic* (1940). Her death on April 7 was reported from Bucharest.

**Bible Society, American:** see SOCIETIES AND ASSOCIATIONS.  
**Bicycling:** see CYCLING.

**Biddle, Francis** (1886- ), U.S. attorney and cabinet member, was born May 9 in Paris, France, but was brought to the U.S. in infancy. He was educated at Haverford (Pa.) and Groton (Mass.) schools and Harvard university, Cambridge, Mass., and was admitted to the bar in Pennsylvania in 1912. He was special assistant U.S. attorney for the eastern district of Pennsylvania from 1922 to 1926. Biddle was solicitor general in 1940-41, and later in 1941 was appointed to Pres. Franklin D. Roosevelt's cabinet as attorney general. In June 1944 he defended the seizure of the Mont-

gomery Ward plant in Chicago as a move in the public interest. In his annual report, March 18, 1945, Biddle urged congress to enact new sabotage legislation to include conspiracy and to make aid to escaped prisoners of war a treasonable offense. He also asked for alterations in the naturalization statutes to ease citizenship requirements and new laws to expedite prosecutions of war frauds in manufacturing. He resigned May 23 and was replaced by Thomas C. Clark as attorney general. President Truman appointed Biddle, Sept. 12, as the U.S. judge on the international tribunal that tried the German war criminals at Nuernberg.

**"Big Inch" Line:** see PETROLEUM.

**Billiards.** Welker Cochran, graying San Francisco veteran, successfully defended the three-cushion billiard championship of the world in 1945. To accomplish this, Cochran outlasted Willie Hoppe of New York in a cross-country tour. After 90 games had been contested, Cochran finished with an aggregate of 4,819 points, as compared with the 4,771 tallied by Hoppe, himself a former titleholder.

This represented the only major competition in billiards for the year. However, Cochran, Hoppe and Charles Peterson, the trick-shot artist, kept themselves busy, visiting service camps and entertaining the G.I.'s.

The 29th annual national amateur three-cushion crown was won by Edward Lee of the New York A. C. In a ten-day round-robin, Lee swept through all seven of his matches, taking the measure of C. C. Vandover, the defending champion, 50-38, in the last match.

There was no pocket billiard tournament, so that Willie Mosconi of Toledo, O., continued his reign at the top.

(L. EF.)

**Biochemistry.** **Vitamins, Essential Amino Acids.**—That tryptophane is essential for niacin formation was indicated by the observation that niacin deficiency in rats and chicks can be prevented by feeding tryptophane. This niacin deficiency is brought on by diets of which the proteins are deficient in tryptophane, like corn or gelatin, but not by diets containing an adequate amount of casein.

Methods for the differential determination of pyridoxin, pyridoxamine and pyridoxal were developed in terms of their selective effect on the growth of various microorganisms, and in terms of their selective destruction by chemical reagents. Pyridoxamine and pyridoxal constitute a considerable part (in active tissues like liver and yeast the greater part) of the vitamin B<sub>6</sub> content. Pyridoxal phosphate was shown to be the coenzyme of decarboxylases of arginine and glutamic acid as well as of the previously reported tyrosine and lysine decarboxylases. A new chemical function was found for pyridoxal phosphate, that of a coenzyme for transaminases. This function was suggested by the observation that tissues of B<sub>6</sub>-deficient rats have low transaminase activity, and that pyridoxal and pyridoxamine are interconvertible by heating with amino and keto acids respectively. This function was proved by preparation of the transaminase apoenzyme, and the observation of its activation by synthetic pyridoxal phosphate. This gives the B<sub>6</sub> group of vitamins a fundamental role in protein metabolism.

Many studies were reported on structural analogues of vitamins some of which are vitamers, physiological substitutes for vitamins; others are antivitamins, that is, they cause vitamin deficiencies. New examples in the latter group are the production of niacin deficiency in mice by 3-acetylpyridine; pantothenic acid deficiency in various microorganisms by several new analogues of pantothenic acid; vitamin E deficiency by  $\alpha$ -tocopherol

quinone, riboflavin deficiency by galactoflavin and thiamin deficiency by the 2-*n*-butyl-pyrimidine homologue of thiamin. The inhibition of growth of certain bacteria by certain unnatural *d*-amino acids, and even by certain nonessential *L*-amino acids, has been described and interpreted in terms of competitive inhibition by structural analogues.

**Metabolism.**—The significance of acetate as an intermediary metabolite has been extended by studies with compounds containing isotopes, especially  $C^{13}$ . The conversion of acetate into fatty acids, aspartic, glutamic,  $\alpha$ -ketoglutaric, succinic and fumaric acids, porphyrins, and even into liver glycogen, was demonstrated. The conversion of acetate into glutamic acid by the intact rat, and the conversion of acetoacetate and acetate into  $\alpha$ -ketoglutaric, succinic and fumaric acids by kidney homogenates demonstrate the participation of acetate and acetoacetate in the citric acid cycle, and point to the idea that the final stages of carbohydrate and fat oxidation are identical, and that acetate or some closely related two-carbon metabolite furnishes the intermediate link. The incorporation of acetate carbon into liver glycogen by pathways other than  $CO_2$  fixation has extended this interrelation of carbohydrate and fat metabolism and has provided a convincing mechanism for the conversion of fatty acid into carbohydrate.

That acetate itself is not the reactive two-carbon metabolite was shown by the observation that in homogenized kidney, acetoacetate is readily converted into citrate, but acetate is not. In homogenized liver, octonate in the presence of pyruvate was observed to be readily converted into citrate, but acetoacetate does not form citrate under these conditions. Also in the conversion of octonate into acetoacetate by certain liver homogenates acetate was found *not* to be an intermediate; nor was acetaldehyde, acetyl phosphate nor any one of a large number of two- and four-carbon metabolites which were studied.

It was thought that this reactive two-carbon metabolite may be formed either from fatty acid oxidation or from pyruvate oxidation. In the presence of oxalacetate, the two-carbon metabolite condenses with oxalacetate to form citrate; in the absence of oxalacetate, the two-carbon metabolite condenses with itself to form acetoacetate. Thus the formation of acetoacetic acid from pyruvate and from fatty acid, and the anti-ketogenic action of glucose (which furnishes oxalacetate) have been reconciled.

**Enzymes.**—Continued interest was shown in the nature of the organic groups upon which the activity of certain enzymes depends. A large number of enzymes were classified according to the dependence of their activity upon the presence of an —SH group in the enzyme molecule. The great variety and wide distribution of these —SH enzymes, their activability by glutathione, and the wide distribution of glutathione in tissues has led to the assignment to glutathione of the role of continuous reactivation of the —SH enzymes which would otherwise be oxidatively inactivated. The activity of chymotrypsin was shown to depend upon a tyrosine group, but not upon primary amino, —SH, or —SS— groups. It is inactivated by oxidation reduction potentials more positive than  $E_h + 0.5$  volt.

**Penicillin.**—The chemical nature of penicillin has been described although all details of its structural formula were not defined with certainty by the close of 1945. Among the five known penicillins, all have the same double-ring system,  $C_8H_{11}O_4SN_2$ , attached to a variable R group. In dihydro-F-penicillin, R is *n*-amyl; in F, G, X and K penicillins R is pentenyl, benzyl, *p*-hydroxy-benzyl and heptyl, respectively. The  $C_8H_{11}O_4SN_2$  part contains a thiazolidine ring which shares a C and N atom with a  $\beta$ -alanine internal amide ring, with methyl, carboxyl and amino substituents. (See also PHYSIOLOGY; VITAMINS.)

**BIBLIOGRAPHY.**—W. A. Krehl, L. J. Tepley, P. S. Sarma and C. A.

Elvehjem, "Growth-Retarding Effect of Corn in Nicotinic Acid-Low Rations and Its Counteraction by Tryptophane," *Science*, 101:489-490. (May 1945); W. W. Umbreit and I. C. Gunsalus, "The Function of Pyridoxine Derivatives: Arginine and Glutamic Acid Decarboxylases," *J. Biol. Chem.*, 159:333-341 (July 1945); H. C. Lichstein, I. C. Gunsalus and W. W. Umbreit, "Function of the Vitamin B<sub>6</sub> Group: Pyridoxal Phosphate (Codecarboxylase) in Transamination," *J. Biol. Chem.*, 161:311-320 (Nov. 1945); S. Weinhouse, G. Medes and N. F. Floyd, "Fatty Acid Metabolism: III. Reactions of Carboxyl-Labeled Acetic Acid in Liver and Kidney," *J. Biol. Chem.*, 158:411-419 (April 1945); K. Bloch and D. Rittenberg, "An Estimation of Acetic Acid Formation in the Rat," *J. Biol. Chem.*, 159:45-58 (June 1945); J. M. Buchanan, W. Sakami, S. Gurin and D. W. Wilson, "A Study of the Intermediates of Acetate and Acetoacetate Oxidation with Isotopic Carbon," *J. Biol. Chem.*, 159:695-709 (Aug. 1945); F. E. Hunter and L. F. Leloir, "Citric Acid Formation from Acetoacetic and Oxalacetic Acids," *J. Biol. Chem.*, 159:295-310 (July 1945); A. L. Lehninger, "Fatty Acid Oxidation and the Krebs Tricarboxylic Acid Cycle," *J. Biol. Chem.*, 161:413-414 (Nov. 1945); A. L. Lehninger, "On the Activation of Fatty Acid Oxidation," *J. Biol. Chem.*, 161:437-451 (Dec. 1945); T. P. Singer and E. S. G. Barron, "Sulphydryl Enzymes in Fat and Protein Metabolism," *J. Biol. Chem.*, 157:241-253 (Jan. 1945); Committee on Medical Research, O.S.R.D. Wash. and the Medical Research Council, London, "Chemistry of Penicillin," *Science*, 102:627-629 (Dec. 1945). (M. E. H.)

**Biography:** see AMERICAN LITERATURE; ENGLISH LITERATURE.

**Biology:** see BOTANY; GENETICS; MARINE BIOLOGY; PHYSIOLOGY; ZOOLOGY.

**Birth Control.** The activities of the Planned Parenthood Federation of America, Inc. (formerly the Birth Control Federation of America), through its 347 state leagues and committees and 599 clinics, were given material support and stimulation by events of 1945, which found child spacing services either through clinics or referral systems, available in every state except Connecticut and Massachusetts. These were in 1945 the only states retaining legal barriers which prevented physicians prescribing birth control under any condition.

**Legal Decisions.**—Two pertinent decisions were handed down in 1945 by the district court of appeals in Washington, D.C. The first, a permanent injunction barring the postmaster general from interfering with the mailing of the Consumer's Union "Report on Contraceptive Material"; the second, overruling the postmaster general's mailing ban on Paul Popenoe's pamphlet, "Preparing for Marriage."

In Connecticut a bill to permit physicians to prescribe birth control for patients in poor health was killed in committee, although a Roper survey made just previous to the bill's introduction revealed that 85% of the state's adult voters were in favour of changing existing laws.

**Medical and Public Health.**—Dr. William W. Herrick, president of the New York Academy of Medicine, New York city, headed a committee of 40 of the city's distinguished physicians who presented a program on "Responsibility for the Health of Tomorrow's Family" at the federation's 24th annual dinner. Dinner speakers included Dr. R. C. Williams, assistant U.S. surgeon-general, U.S. public health service; Dr. Edward A. Schumann; and Lt. Col. Roy R. Grinker, medical executive, Army Air Force Convalescent hospital, St. Petersburg, Fla. A luncheon address by Mrs. Franklin D. Roosevelt, before a symposium of social agencies interested in postwar family health, including planned parenthood, was broadcast over a national network.

Temperature charts to assist in determining optimum fertility were made available to physicians by the federation's medical committee, to aid in the treatment of infertility. This phase of the planned parenthood program was increased with establishment of added infertility services or referral systems in various parts of the country.

From a study of 7,000,000 births, Dr. Jacob Yerushalmey, principal statistician of the U.S. public health service, published a report advocating an optimum interval between births to decrease the number of stillbirths.



**Research.**—To stimulate research in the field of human fertility, the Albert and Mary Lasker foundation made the first of its two annual awards of \$500 each to the scientist and public health official making significant contributions during the year. Awards for 1945 went to Dr. John MacLeod, department of anatomy, Cornell University Medical college, Ithaca, N.Y., for research in the motility of human sperm, and to Dr. Felix J. Underwood, director of the Mississippi state board of health for including planned parenthood in his state's public health program to improve infant and maternal health.

**Education.**—The publication of two new patient pamphlets, "Planning To Have a Baby?" and "The Soldier Takes a Wife" contributed materially to the large amount of literature requested during the year. "To Those Denied a Child" and "Population and Peace," a reprint of an address by Dr. Henry Pratt Fairchild at the University of Virginia, were also in great demand. Quantities of technical manuals and other planned parenthood literature were sent on request to physicians, educators, health officers, clergymen and social workers.

**Social Work.**—National Social Work Advisory committee was organized to give professional advice on the social work program. The Y.W.C.A. announced its resolution favouring "the principles of planned parenthood." Planned parenthood literature was included by the National Publicity council in its mailings to social agencies throughout the country, many of which ordered further literature for distribution.

**Work With Negroes.**—A second consultant on work with Negroes was added to the national staff, and several state organizations employed Negro field workers and included Negro members in their executive committees. A model clinic, the Hannah Stone Planned Parenthood centre, was established in Harlem district, New York city, to aid in reducing stillbirth, infant and maternal mortality, which is twice that of other parts of the city. Following an intensive study, the National Congress of Colored Parents and Teachers drew up a discussion outline of planned parenthood to be distributed to Negro community groups.

**Religion.**—A syllabus on marriage and family counselling was published by the federation's National Clergyman's Advisory council and made available for use in seminaries, community training schools and to individual clergymen. Army and navy chaplains made wide use of the G.I. pamphlet, "The Soldier Takes a Wife," and the library of congress translated the pamphlet into braille for blinded veterans. The Illinois league for planned parenthood added 500 ministers and rabbis to its Clergyman's Advisory committee and a number of other state organizations established similar committees.

**Press and Radio.**—Eighty articles reflecting favourable planned parenthood attitudes appeared in national popular and technical magazines during 1945. The announcement of the federation's two new pamphlets (see *Education*, above) attracted considerable newspaper comment, and wire services carried the story throughout the country. Cordial relations with many local radio stations were strengthened and both National Broadcasting company and Columbia Broadcasting system carried important annual meeting speakers. The Mutual Broadcasting system requested a speaker to discuss "The Soldier Takes a Wife" during a national news cast. The Houston (Texas) Maternal Health centre produced a 15 minute transcription which is available to all planned parenthood groups for local broadcast.

**International.**—Interest in planned parenthood showed new gains throughout the world with the ending of World War II. In England, governmental inquiries disclosed that economic and national insecurity, not the knowledge of birth control, was the determining factor in the declining birth rate. China and Japan

took official steps to adopt birth control measures to help solve their problems of overpopulation. Students of demography reported that India must include birth control in its health program if the high infant and maternal mortality was to be reduced. The western world learned of a ruling of the grand mufti of Egypt in 1937 granting legal and religious permission for the practice of birth control.

(See also BIRTH STATISTICS.)

(M. SR.)

**Birth Statistics.** The birth rate in the United States during 1945 was 2% below that for 1944, according to provisional reports covering the first nine months of both years. During 1944, the latest year of complete record, 2,794,800 births were registered, and the birth rate was 20.2 per 1,000 population. (A study based on the 1940 census showed that registration of births in the United States was then 92.5% complete.) The year 1945 is the second in which the birth rate in the U.S. declined from its wartime peak of 21.5 per 1,000 in 1943. Canada experienced a slight rise in its birth rate from 1944 to 1945, judging from reports from cities of 10,000 and over for the first nine months of both years; these show an increase of about 1% in number of births. For the entire year 1944, there were reported 283,555 births in all of Canada, the birth rate being 23.7 per 1,000 population; the rate for the year before was 24.0 per 1,000. England and Wales had a decrease in birth rate in 1945 after three successive years of increase. The indication for 1945 is provided by records for London and the great towns covering the first nine months of 1944 and 1945; these show a decrease of 4.7% in births. Births in England and Wales totalled 744,843 in 1944; the birth rate was 17.5 per 1,000 population.

A statement by the Royal Commission on Population, dated Sept. 1945, drew attention to the need for more facts for the study of population trends in Great Britain. The statement points out that births averaged 1,064,000 annually in the period 1900-09; this fell to an annual average of 701,000 during 1930-39. As a result of this downward trend, the proportion of young persons in the population is decreasing while that of old persons is increasing. It is stated that "if the average size of family were to remain as it was before the war, a time would inevitably come when there would be more deaths than births." During World War II, births in Great Britain fell to a low point in 1941, but then rose rapidly to a peak in 1944; it is suggested that the rise in the later years may be attributed to the postponement of births from the earlier years. The commission had no evidence that the decrease in the average size of family is due to increased physiological sterility. On the other hand, there was evidence that the widespread use of birth control practices was the direct cause of the decline in the birth rate. The statement was made by the commission that a continuance of the trend toward population decline would adversely affect the position of Great Britain in the world. In order to obtain the needed facts regarding family characteristics, the commission proposed that a sample census be taken of married women.

In a Canadian report on "Occupational Differences in Fertility," based upon the 1941 census (*Bulletin No. F-3*, Dominion Bureau of Statistics, 1945), it was found that in occupational groups in which the members were of like educational status, fertility tends to increase with income. As in other studies, it was observed that fertility decreases with advance in socioeconomic status (occupations were grouped into socioeconomic classes on the basis of educational level and average earnings). Except for clergymen, every occupational class had a smaller average size of family in metropolitan areas than in the country outside these areas. An earlier study on "Cultural Differences

in Family Size" (*Bulletin No. F-2*, 1945) pointed to decreases in average size of family with advance in educational status for all religious and mother tongue groups. A report on "Trends in Canadian Family Size" (*Bulletin No. F-1*, 1944) showed that early marriage influences family size by a longer reproductive period, by fewer childless marriages, and by a greater rate of issue within a given length of married life. The data also indicate a trend toward proportions of childless marriages and two-child families.

With the general decrease in the fertility of U.S. women from 1910-40, there was a narrowing in the range of the reproductive rates from one economic class to another (*Statistical Bulletin*, Metropolitan Life Insurance company, June 1945). In 1940, wives of farmers and farm managers reported 629 children under five years of age per 1,000 native white wives of ages 15 to 49; in 1910 the corresponding rate was 836 per 1,000. These figures were larger than for any other occupational group. The lowest rates in 1940 were observed among wives of (a) proprietors, managers, officials, (b) professional or semiprofessional persons and (c) clerks, where the level was about 360 per 1,000; the corresponding rates in 1910 were (a) 525; (b) 468; (c) 459. The greatest decrease from 1910-40, amounting to 30%, was found among wives of proprietors, managers and officials.

Data from the 1940 census indicate that, because of marital separations by widowhood, divorce or absence of the husband for other reasons, the birth rate in the U.S. is reduced by 6% or 7% below that observed in unbroken families (*Statistical Bulletin*, Sept. 1945). This finding is based upon the number of children under five years per 1,000 native white women of ages 15 to 49 classified according to marital status. In urban communities, this rate was 7.6% less for women who had ever married (including the widowed, divorced and separated) than for women still married and living with their first husband. In rural farm areas, this difference was only 3.3%; the smaller figure here is associated with the lesser frequency of marital separations in rural areas than in urban centres. This is a factor which may have some relation to the lower birth rates usual in cities. Considered geographically, the west showed the greatest reduction in the rate for children under five per 1,000 wives because of marital separations, namely, 8.4%; for the south, it was 6.6%, while the north eastern and north central states lost about 6%.

In 1940, the birth rates for the foreign-born and the native white population of the U.S. were practically at the same level (when adjusted for differences in the age composition of the two populations). The rate for the natives was 51 per 1,000 women of ages 10 to 54, while that for the foreign-born was 50 per 1,000 (*Statistical Bulletin*, Nov. 1944). Only two decades earlier, in 1920, the natives had a rate of 65 per 1,000, while that for the foreign-born was appreciably higher at 95 per 1,000. Of the total white births in 1940 in the birth registration states of 1915 (principally in the north east), only 5% had both parents foreign-born, 83% had both parents native born, and 12% had parents of mixed nativity (*Statistical Bulletin*, March 1945). For the same area in 1920, births among the foreign-born were 32% of the total, the natives had 55%, and 13% were to parents in both classes. The changes were attributed to the decrease in the number of foreign-born, to the fact that they are passing out of the reproductive ages, and to the more rapid decline in the birth rates among them.

The largest relative increase in number of births from 1940-43, the wartime peak year, was in families where the father was under 20 years old and the mother was of ages 20 to 24, the rise amounting to 74%. For all fathers under 20, the rise was 66%; for fathers of 20 to 24, it was 27%; at ages 25 to 29 it was 24%; at ages 30 to 39 it was 26% and at 40 to 44 it was 18%.

In 1943, of all births in the U.S., 72% were attended by a physician in a hospital, 21% by a physician elsewhere and 7% by a midwife or otherwise; the corresponding figures for 1942 are 68%, 25% and 7% respectively. (See also CENSUS DATA, 1945.)

**BIBLIOGRAPHY.**—United States Department of Commerce, Bureau of the Census, *Vital Statistics—Special Reports* (issued irregularly), *Monthly Vital Statistics Bulletin* and *Annual Reports of Vital Statistics*; Population Association of America, *Population Index* (issued quarterly at Princeton, N.J.); P. K. Whelpton and C. V. Kiser, "Trends, Determinants, and Control in Human Fertility," *Ann. Am. Acad. Polit. and Social Science*, 237:112-122 (Jan. 1945). (A. J. Lo.)

**Bismuth.** Peru, United States, Canada and Mexico are, in order of importance, the chief producers of bismuth, accounting for 90-95% of the total output. U.S. production was not reported, but was estimated to be about 250 short tons annually. For others the 1944 outputs (with 1943 in parentheses) are as follows, in short tons: Canada 62 (204), Mexico 182 (193), Peru 459 (532); world total 1,320 (1,440). (See also METALLURGY.) (G. A. Ro.)

**Black Markets.** Black markets is a term applied generally to all transactions in violation of price and rationing regulations. In this broad sense, it covers all types of profiteering in the sale of commodities under price control and rationing violations during World War II and the postwar period of heavy demand for scarce products. In a more restrictive sense, it refers to dealings in scarce commodities by organized gangs.

The statutory basis for fixing maximum prices in the United States was established by the Emergency Price Control act in Jan. 1942 and control was extended to nearly all commodities by the issuance of the General Maximum Price regulation in March 1942. At the same time through the Second War Powers act, rationing controls were extended to such scarce products as gasoline, fuel oil, tires, new cars, sugar, coffee, processed foods, meats, fats, oils, shoes and stoves.

Black market activities ranged from purchases by housewives at overceiling prices or without ration stamps to the operations of professional criminals who counterfeited or stole gasoline and fuel-oil ration stamps and cached precious stores of tires obtained by outright theft or overceiling payments.

The first black market of any consequence was in gasoline. Organized gangs of racketeers peddled counterfeit currency or valid coupons stolen from the government to a small minority of gasoline dealers, who, in turn, sold the gasoline to consumers at prices far in excess of ceiling levels and without requiring ration stamps.

Establishment of eight OPA verification centres at which ration currency was examined to detect counterfeits and the work of a special agents' branch of investigators, specializing in the detection of persons engaged in producing or distributing counterfeit ration coupons, effectively checked the gasoline black market. Invalid coupons found by screening all gasoline coupons used were charged back against the inventory of the station turning them in, by a debiting procedure operating like a bank debit. Stations turning in large numbers of illegal coupons soon found themselves without inventory with which to continue in business.

Even more complex black market problems followed the institution of comprehensive food controls in Oct. 1942. Increasing demand and reductions of civilian supplies by that time had combined to create serious inflationary pressures and a series of black market crises followed. Particularly serious was the black market in meat, the supplies of which were at a low level. Large quantities of meat were diverted from customary distribution channels and sold in violation of controls at prices



BLACK MARKET VENDOR on the Rue du Radis, a street in Brussels, in 1945. Cigarettes sold at upwards of 90 cents per package. British and U.S. rations, from chewing gum to meat, were either displayed or stored in pockets

in excess of legal ceilings. Intensive enforcement activity resulted in the imposition of more than 1,000 sanctions and broke the black market in meat early in 1943. New outbreaks during periodic shortages in 1944 and again in the spring of 1945 were curbed. The last serious crisis during the spring of 1945 resulted in part from extensive use of counterfeit ration stamps by some dealers who were selling at overceiling prices and violating rationing regulations.

Increased demand for poultry during meat rationing and profiteering in other foods when supplies were short also created black markets in these commodities.

More recently, with the channelling of some supplies to the consumer market, extensive black market activities in textiles, apparel and used cars were uncovered and were being curtailed. There was also a recurrence of periodic black market activities in lumber and waste paper fields.

The government found that particular black markets operated by gangsters could be stamped out when sufficient manpower could be concentrated for the purpose. However, the task of investigating violators and bringing them to justice often demanded skilled effort, particularly in the food and apparel industries where market structures were intricate and diversified.

Enforcement problems were attacked from two salients. The Office of Price Administration's enforcement staff was strengthened and its activities concentrated largely at primary levels of distribution to relieve retailers of pressures that might lead them to sell at above-ceiling prices. Price panels of volunteer workers were organized throughout the country to effect compliance at retail.

During 1944 and 1945, enforcement measures were carried out by this combination of specific investigation and general price-checking. A home-front pledge campaign begun in 1943 enlisted the co-operation of millions of housewives in refusing to pay overceiling prices or accept rationed goods without paying ration stamps. Approximately 5,000 price panels were organized from volunteers who checked prices of cost-of-living commodities in retail stores. Trade associations also co-operated in effecting compliance among their members. An anti-inflation campaign was carried on by grocers in the fall of 1944 and early in 1945.

While the term black market was not generally applied to violations of rent and eviction control regulations, extensive violations were uncovered in this field. In some instances, these violations were systematically organized by a small minority of rental agents and large rental organizations. They may be termed in every sense black markets. Such devices as compelling tenants to pay bonuses or side-payments to get housing accommodations or to buy furniture or extra lots they did not want at exorbitant prices were used in some areas.

Black markets did not end with the war. However, many problems were eliminated with the lifting of rationing controls of all products except sugar by the end of 1945. Enforcement activities were then concentrated to stop violations of price ceilings and maximum rents. Price violations in some commodity fields stemmed from the fact that while supplies were moving in civilian channels, the amount available was far

below the volume needed to satisfy accumulated demands.

During 1945, several other government agencies aided the Office of Price Administration in its enforcement activities. These included the alcohol tax unit and the bureau of internal revenue of the treasury department and the department of justice. These agencies co-ordinated their work most effectively. Joint investigation and prosecution of black market operators uncovered overceiling sales and prevented violators from concealing their illegal gains through filing fraudulent income tax returns. Despite numerous, and sometimes widespread violations, ceiling prices were generally maintained and the bulk of rationed commodities was distributed in compliance with OPA's fair distribution controls.

It was apparent that until supplies of scarce commodities more nearly equalled demand, the black market and danger of inflation would continue. But improved enforcement procedures coupled with concentration of activity against price and rent violations were expected to enable the government to cope with them.

(C. Bs.)

**Blamey, Sir Thomas Albert** (1884- ), Australian army officer, was born Jan. 24 in Wagga Wagga, New South Wales. He joined the commonwealth military forces in 1906 and served as chief of staff of the Australian corps during World War I. After the war, Sir Thomas, who was knighted in 1919, became deputy chief of the Australian general staff, 1920. He later became 2nd chief of the general staff of the commonwealth military forces (1923-25). He assumed command in 1940 of the 1st Australian army corps. Transferred to the Australian forces fighting in the middle east, he was promoted in 1941 to deputy commander in chief of the British middle east armies. In March 1942, Sir Thomas returned to Australia, took command of the Australian armies, and played an important role in the New Guinea operations, 1942-44. With the rank of lieutenant general, Sir Thomas commanded Allied land forces in the Southwest Pacific and was second in command to Gen. Douglas MacArthur. In May 1944, Sir Thomas was involved in a dispute with Lt. Gen. Henry Gordon Bennett, who charged that he was forced out of the Australian army by Blamey because he was associated with the ill-starred Malaya campaign and because his (Bennett's) escape from Singapore was "ill-advised." Sir Thomas answered that Bennett had been placed on the retired list at his own request. Sir Thomas was aboard the U.S.S. "Missouri" during the Japanese surrender ceremony in Tokyo bay, Sept. 2, and signed the document for the Australian government.

**Blockade:** see SUBMARINE WARFARE.

**Blood Plasma:** see MEDICINE; PHYSIOLOGY; SURGERY.

**Blood Pressure:** see MEDICINE.

**Blue Cross:** see INSURANCE.

**Board of Economic Warfare:** see FOREIGN ECONOMIC ADMINISTRATION.

**Bolivia.** A land-locked republic in south central South America. Area, 416,040 sq.mi.; pop. (1944 est.), 3,533,900. The legal capital is Sucre (est. pop., 30,000); the real seat of government is La Paz (est. pop., 301,000). Other cities (with est. pop.) include Cochabamba, 60,000; Oruro, 50,000; Potosí, 40,000; Santa Cruz, 32,800 and Tarija, 27,000. Racial distribution is estimated to be 54% Indian, 31% mestizo and 15% white. Bolivia is a unitary republic with a president popularly elected for a four-year term, a bicameral congress composed of a senate of 27 members and a chamber of deputies of 110, and a judiciary headed by a supreme court of justice. Bolivia is predominantly Roman Catholic. President in 1945: Lieut. Col. Gualberto Villarroel.

**History.**—Political conditions continued disturbed, with repeated charges of repression, in 1945. It was charged in January that two opposition senators who were missing had been executed by the government following an abortive rebellion in Nov. 1944; bodies of the two men were found in a mountain gorge near La Paz on Jan. 25, 1945. An unsuccessful attempt



was made March 12 to assassinate President Villarroel. Exiled Bolivians in mid-June organized at Santiago, Chile, a Frente Democrático Boliviano with ex-ambassador to the U.S., Dr. Fernando Guachalla, as head; the chief one of the opposition groups composing it was the long outlawed Partido de Izquierda Revolucionario (P.I.R.), headed by the exiled Senator José Antonio Arze. Foreign Minister Gustavo Chacón announced March 19 that relations with the U.S.S.R. would be established. The government on Sept. 28 ended diplomatic relations with the Franco regime in Spain and announced that its interests would be handled by Peru. A train wreck Aug. 25 killed 35 persons and injured 53.

**Education.**—Enrolment in 1,766 primary schools in 1942 totalled 160,283; in 77 intermediate schools it was 11,255. Literacy was estimated at only 20%.

**Finance.**—The theoretical monetary unit is the gold peso, valued in 1945 at 20.6 cents U.S.; most transactions, however, are carried on in terms of bolivianos, valued in Dec. 1945 at from 1.67 to 2.36 cents U.S. The 1945 budget, approved Feb. 10, totalled approximately \$25,040,000 and included about \$5,300,000 for the armed forces. A budget surplus of 71,526,362 bolivianos was reported for 1944. Governmental indebtedness to the Banco Central increased only slightly in 1944, principally because of the severe restriction of public works and the determination to check inflation. A loan from the Export-Import bank was authorized Jan. 5, 1945. Total Export-Import bank commitments to Bolivia as of June 15 were \$15,500,000, all of it listed as an undisbursed balance. Total lend-lease advances to July 1 were \$4,392,000. A governmental decree April 3 re-adjusted the percentage of exchange that must be sold to the state by exporters of tin; a similar decree Jan. 25 had applied to nonmineral exporters. The result, it was thought, would be to make more foreign exchange available. The government in July announced plans to spend 26,200,000 bolivianos on a hospital for workers at La Paz. Approximately 80,000,000 bolivianos were appropriated in November for public works programs. Need for additional foreign capital led to the passage of a law Oct. 17 extending special protection to new investments in excess of 5,000,000 bolivianos in agriculture, manufacturing, production of electric energy, commerce, housing, mining, and other fields. Economic prospects for 1946 appeared unfavourable late in 1945; inflation continued and taxes apparently would have to be increased. President Villarroel estimated that ten years would be required to restore economic equilibrium.

**Trade and Communication.**—Tapered U.S. mineral purchases and long delay in completing negotiations for a new tin contract unfavourably affected Bolivian foreign trade in 1945. The Patiño and Hochschild mining companies advised the government on March 24 of plans to close three tin mines because of the allegedly unprofitable price offered. With the cessation of the tin procurement contract with the Foreign Economic administration on June 30, tin purchases continued for a time on a day-to-day basis. Rubber exports to the U.S. in the first half of 1945 were 2,170 short tons. Exports of crude petroleum and fuel oil in 1944 were 116,497 bbl. as against 125,680 bbl. in 1943.

Railway mileage totalled 1,407. The principal construction project in 1945 was the Bolivian section of the transcontinental line from Arica, Chile, to Santos, Brazil. The railway, 2,300 mi. in length, was expected to be completed in 1947. Highway mileage was 3,710, much of which was not improved. A contract was signed July 17 with a U.S. firm to construct a 305-mi. highway from Cochabamba to Santa Cruz at a cost of \$11,000,000.

**Production.**—Bolivia is primarily a mineral-producing country; the government took steps in 1945 to make it more nearly

self-sufficient agriculturally and it was announced that extensive agricultural colonization projects in eastern Bolivia would be undertaken in 1946. Tin production in the second quarter of 1945 was 13,363 short tons as against 10,333 short tons in the first quarter of 1945. Tungsten production in the second quarter was 74,097 short tons as against 43,896 in the first quarter. Crude petroleum production in 1944 was 313,947 bbl. (1943, 334,113 bbl.). The government late in 1945 was considering plans for a new lead smelter in southern Bolivia at a cost of \$100,000.

**BIBLIOGRAPHY.**—Lilo Linka, *Andean Adventure, A Social and Political Study of Colombia, Ecuador, and Bolivia* (1945); John H. Hewlett, *Thunder Beats the Drum!* (1944). (R. H. FN.)

**Bombing:** see ATOMIC BOMB; MUNITIONS OF WAR.

**Bonaire:** see CURAÇAO.

**Bonds:** see STOCKS AND BONDS.

**Bonds, War:** see WAR BONDS.

**Bong, Richard Ira** (1920–1945), U.S. air officer, was born Sept. 24, in Superior, Wis. After leaving high school, he attended Wisconsin State Teachers college in Superior, but quit after two and one-half years to take up a training course with the Civil Aeronautics administration. He enlisted in the U.S. army air corps in Sept. 1941 and became a flier in Jan. 1942. In the autumn of that year, he was sent to the Southwest Pacific with the 5th fighter command. He was credited with downing 40 enemy planes, a feat which brought him 26 decorations including the congressional medal of honour. He shot down his 40th plane over Mindoro in the Philippines in Dec. 1944. His knowledge gained in battle experience was considered so important that he was returned to the U.S. and assigned to “nonhazardous” duty. Maj. Bong crashed to his death during a test flight of a jet-propelled plane, one of the army’s newest fighter models, near Burbank, Calif., Aug. 6.

**Book-collecting and Book Prices.** The rare-book trade, alike in England and the United States, had been undergoing a metamorphosis for some years before World War II. The young men were taking over—young men who knew the internals as well as the externals of the books they were handling. The war years took many of these young men into service, but most of them were back in the running by the end of 1945. These restored booksellers would oppose certain practices that obtained in the past. They were alert bibliographically; they did not hold with the “whatever was once thought right will always be right” school which was established and maintained by some of their elders. They had for long been gravely concerned about the inadequacy of auction house cataloguing, and there were indications that the early weeks of 1946 might see sensational developments in this regard.

Considerable bibliographical research was conducted, but with little hope of adequate presentation until a day of fewer critical shortages in the publishing field. The University of Pennsylvania Press issued George Parker Winship’s *The Cambridge Press 1638–1692*, described on the title page as “a re-examination of the evidence concerning the *Bay Psalm Book* and the *Eliot Indian Bible* as well as other contemporary books and people.” This distinguished monograph by a distinguished bookman gave the world for the first time an exhaustive and (unless new data turned up, which seemed not to be likely) a definitive account of the beginnings of printing in British America. Jay Monaghan’s *Lincoln Bibliography*, issued by the Illinois State Historical society, listed nearly 4,000 items in its two volumes.

*American Book-Prices Current* initiated its second half-century with its editor pro tem, Colton Storm of the Clements

Library at the University of Michigan, welcoming Staff Sergeant Edward Lazare back to the permanent editorship.

Prices continued to mount, though in general falling short of the excesses of 1929. That was the year of the fantastic Jerome D. Kern sale. Mr. Kern died late in 1945, and it is mildly ironic that few of the obituary notices made more than passing mention of his reputation as a book collector. It is heartening to note that inflation, so far as the rare book trade is concerned, did not reach the point it attained 17 years earlier, just before the most disastrous deflation in modern history.

The most important sale of 1945 was the dispersal of the first two parts of the Frank J. Hogan library. The American portion, sold in January, and the English (18th-20th centuries), sold in April, brought together \$285,828. The remainder of the Hogan library, English literature before 1700, including a Caxton Chaucer, a first *Pilgrim's Progress*, and a superb first folio Shakespeare, was scheduled for dispersal in the spring of 1946. The third and fourth parts of the John Gribbel collection (the first two parts were sold the previous season) brought, together, \$118,297. Important lots which changed hands during the year included: John Keats's *Poems* (London, 1817), presentation copy from Keats to William Wordsworth, \$9,750; James Fenimore Cooper's *The Spy* (New York, 1821), presentation copy from the author, \$7,600; William Makepeace Thackeray's *Vanity Fair* (London, 1847-48, original parts), \$4,500; Jonathan Swift's *Gulliver's Travels* (London, 1726), \$4,200; Percy Bysshe Shelley's *Adonais* (Pisa, 1821), \$3,250.

In quite another category was a somewhat frayed pamphlet written by one Lansford W. Hastings, the cover title of which is worth giving in full: "The Emigrant's Guide, to Oregon and California, Containing Scenes and Incidents of a Party of Oregon Emigrants; A Description of Oregon; Scenes and Incidents of a Party of California Emigrants; And a Description of California; With a Description of the Different Routes to Those Countries; And All Necessary Information Relative to the Equipment[,] Supplies, and the Method of Traveling." Hastings was identified as "Leader of the Oregon and California Emigrants in 1842." The publisher, George Conclin of Cincinnati, offered this manual in 1845 for "50 cents for single copy, or \$5 per dozen." A dozen would not have been a bad investment, for exactly 100 years later a "single copy" sold at auction in New York for \$1,250. (J. T. W.)

**Book Publishing.** The steady wartime slump in title production by U.S. publishers seemed at an end in 1945, with only 422 fewer titles than in 1944, as against a drop of 1,355 in 1944 from 1943. Peacetime interests were reflected in the expansion of such classifications as law, philosophy, ethics, fine arts and business. Juvenile books showed the greatest single increase for the year. History, which included war correspondents' reports, dropped from 530 to 343, which was to be expected. Technical and military subjects continued to decline and there was a drastic cut in titles for religion and theology. As in previous war years, although the number of titles grew smaller, the total number of books published remained at record high, limited only by a continued paper shortage and, in many cases, a shortage of manpower. Table I, compiled by *Publisher's Weekly*, summarizes U.S. book publication for 1944 and 1945.

**Best Sellers.**—Kathleen Winsor's *Forever Amber* moved up from fourth place in 1944 to head the 1945 list of fiction best sellers, with a sale of 868,630 copies during the year. *The Robe* by Lloyd C. Douglas, first on the list in 1944, moved down to second place with total sales of almost 2,000,000. T. B. Costain's *The Black Rose*, published in 1945, took third place, followed by James Ramsey Ullman's *The White Tower*, Sinclair Lewis' *Cass Timberlane*, Adria Locke Langley's *A Lion Is in the Streets*, James Hilton's *So Well Remembered*, Samuel Shellabarger's *Captain from Castile*, Gwethalyn Graham's *Earth and High Heaven* and Irving Stone's *Immortal Wife*. Leading the nonfiction best sellers in 1945

were three war books, headed by Ernie Pyle's *Brave Men* which rose from second place in 1944. It sold 687,450 (bookstore) copies during the year. In second and third place, respectively, were *Dear Sir*, Juliet Lowell's book of war humour and *Up Front* by Bill Mauldin, both published in 1945. Other nonfiction leaders were *Black Boy*, the autobiography of Richard Wright, *Try and Stop Me*, by Bennett Ceri, *Anything Can Happen*, by George and Helen Papashvily, *General Marshall's Report*, *The Egg and I*, by Betty MacDonald, *The Thurber Carnival*, by James Thurber and *Pleasant Valley*, by Louis Bromfield.

**Great Britain.**—British title production showed a negligible decrease for 1945 below that of 1944, but still represented a higher total than that of 1943, the lowest production point during the war period. Law and parliamentary books registered a gain for the year, as did art, architecture and sociology. Restrictions due to paper shortage continued to limit the total number of books produced. Table II, compiled by *The Book-*

Table I.—U.S. Publication of Books, 1944 and 1945

International Classification	New books	1944 New editions	Total	New books	1945 New editions	Total	Net change
Philosophy, Ethics . . .	140	16	156	183	24	207	+ 51
Religion, Theology . . .	489	52	541	396	42	438	-103
Sociology, Economics . .	300	21	321	279	22	301	- 20
Law . . . . .	73	15	88	101	16	117	+ 29
Education . . . . .	131	13	144	115	9	124	- 20
Philology . . . . .	141	38	179	117	34	151	- 28
Science . . . . .	271	61	332	266	75	341	+ 9
Technical and Military Books . . . . .	418	123	541	275	101	376	-165
Medicine, Hygiene . . .	197	76	273	185	117	302	+ 29
Agriculture, Gardening .	34	10	44	42	8	50	+ 6
Domestic Economy . . .	83	28	111	94	22	116	+ 5
Business . . . . .	105	15	120	130	22	152	+ 32
Fine Arts . . . . .	127	13	140	170	8	178	+ 38
Music . . . . .	38	2	40	48	7	55	+ 15
Games, Sports . . . . .	69	11	80	57	11	68	- 12
General Literature . . .	240	27	267	230	35	265	- 2
Poetry, Drama . . . . .	377	30	407	351	29	380	- 27
Fiction . . . . .	905	435	1,340	860	433	1,293	- 47
Juvenile . . . . .	608	37	645	666	25	691	+ 46
History . . . . .	475	55	530	298	45	343	-187
Geography, Travel . . .	130	21	151	86	12	98	- 53
Biography . . . . .	375	47	422	344	48	392	- 30
Miscellaneous . . . . .	81	17	98	93	17	110	+ 12
Total . . . . .	5,807	1,163	6,970	5,386	1,162	6,548	-422

Table II.—British Publication of Books, 1943, 1944 and 1945

Classification	1943	1944	1945
Aeronautics . . . . .	148	88	67
Art and Architecture . . .	67	116	140
Biography and Memoirs . .	281	252	246
Children's Books and Minor Fiction . .	671	785	715
Educational . . . . .	312	374	365
Engineering, Electricity and Mechanics . .	101	132	112
Essays and Belles-Lettres . . . . .	124	127	170
Fiction . . . . .	1,408	1,255	1,246
History . . . . .	192	161	135
Law and Parliamentary . . . . .	103	151	234
Medical and Surgical . . . . .	212	238	256
Naval and Military . . . . .	229	160	124
Poetry and the Drama . . . . .	329	328	287
Politics and Political Economy . . . . .	596	576	503
Religion and Theology . . . . .	425	467	464
Sociology . . . . .	165	175	194
Travel and Adventure . . . . .	102	78	82
Other . . . . .	1,240	1,318	1,407
Total . . . . .	6,705	6,781	6,747

seller, gives statistics for the British book publishing industry, 1943-45. (See also AMERICAN LITERATURE; ENGLISH LITERATURE; NEWSPAPERS AND MAGAZINES.)

**Books:** see CHILDREN'S BOOKS; BOOK PUBLISHING; see also under AMERICAN LITERATURE; ENGLISH LITERATURE; FRENCH LITERATURE; etc.

**Book Sales:** see BOOK-COLLECTING AND BOOK PRICES.

**Boothe, Clare:** see LUCE, CLARE BOOTHE.

**Borates.** The production of boron minerals in the United States increased from 256,633 short tons in 1943 to 277,586 tons in 1944, but still fell short of the 1941 peak of 301,282 tons. Five producers reported outputs of borax, anhydrous sodium tetraborate, kernite, boric acid and colemanite, all from California. The glass industry is the major consumer, but use in fertilizers was expanding.

Normally the United States supplies a large share of the world demand, and one-third or more of the domestic output



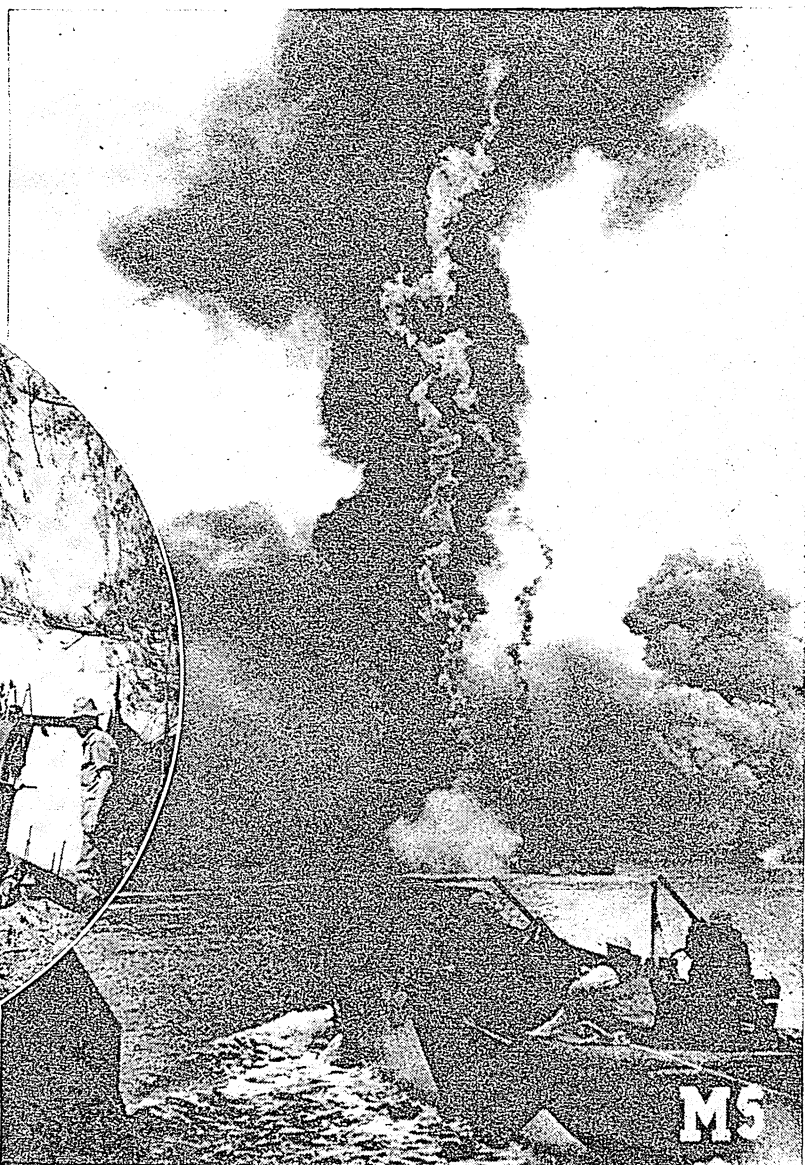
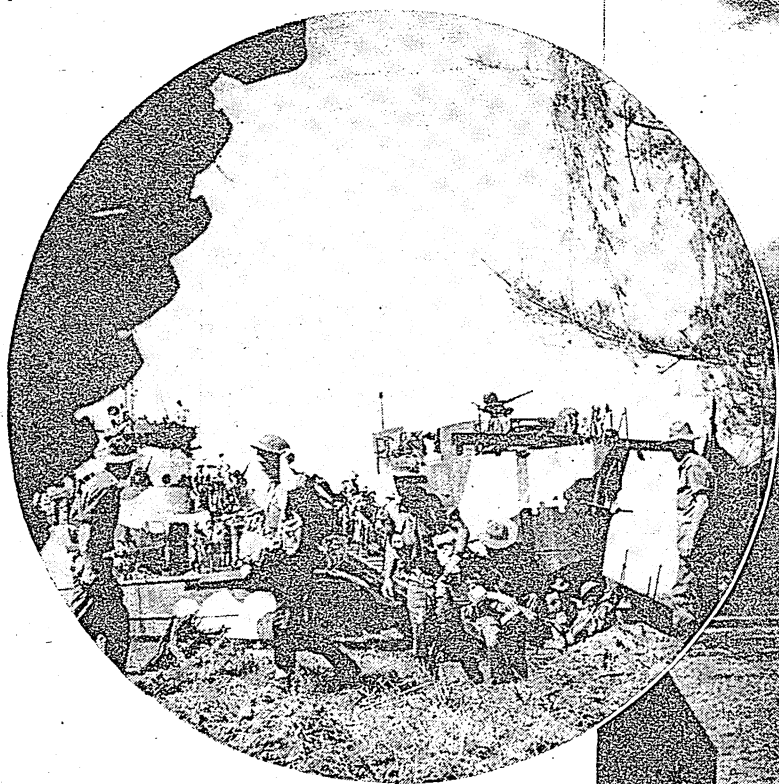
Above: A GUNNER in the Australian infantry piles up a formidable stack of empty cartridge belts in the attack at Balikpapan on the east coast of Borneo. Landings were made on July 2, 1945



Above: A BORNEAN WOMAN, surrounded by Australian troops who landed at Tarakan in 1945, reflects in her face the fear instilled by Japanese propaganda

Below: TARAkan ISLAND, off northeastern Borneo, is obscured by smoke from oil tanks hit by artillery during the invasion of May 1, 1945. On landing, Australian veterans found burning oil wells fired by retreating Japanese

Below: AUSTRALIAN INFANTRYMEN land on Labaun Island off the northwest coast of Borneo, during the invasion of June 10, 1945. The island was cleared of Japanese resistance within a week



M5



was exported. During World War II exports dropped heavily, but a renewal of export sales after the war was expected to ease the shock of shrinking home consumption in markets no longer stimulated by war demands. (G. A. Ro.)

**Borneo.** A great island of the Malay archipelago, between 7° N. and 4° 20' S., 108° 53' and 119° 22' E.; 830 mi. long N.E. to S.W., 600 mi. maximum breadth; area (calculation of Topographical bureau, Batavia, 1894), 293,496 sq.mi. Pop., about 3,100,000, divided as follows: Dutch Borneo, 2,168,661 (census of 1930); British North Borneo, 270,223 (census of 1931); Sarawak, 600,000 (estimated); Brunei, 30,135 (census of 1931). About 5,000 Europeans and 250,000 Chinese are residents of Borneo. Most of the natives are Malay and Dyak tribesmen, living on a very primitive level of culture and social organization.

**History.**—The coastal towns of Borneo and the rich oil area around Balikpapan were seized by the Japanese during the first weeks of their southward advance after Pearl Harbor. The primitive life of the interior went on much as before. Some of the outlying areas of Borneo were retaken by Australian forces in 1945; and Japanese control came to an end entirely after the surrender in Aug. 1945. There were no reports of an extension to Borneo of the political disturbances which broke out in more thickly populated and socially advanced Java after the end of the war.

**Political Subdivisions.**—There are four administrative areas in Borneo: British North Borneo, the British protected states of Brunei and Sarawak and Dutch Borneo. The latter is much the largest part of the island, British North Borneo, Brunei and Sarawak being located in the northern and northwestern sections.

**British North Borneo.**—Area 29,500 sq.mi. Pop. (1931) 270,223. This included 340 Europeans, 236 Eurasians, 47,799 Chinese, 11,494 Malays. Principal towns: Sandakan (13,826) on the east coast and Jesselton on the west coast. Revenue in 1940, £503,436. Expenditure, £249,138. Imports, £1,164,198; exports, £2,364,891. There are 127 mi. of railways. The chief products are rubber, timber, copra, coconuts, dried and salt fish, tobacco, manila hemp, sago and rice.

**Dutch Borneo.**—Administratively Dutch Borneo is divided into three districts, the western and the south and eastern respectively. Population is sparse, averaging about eight per square mile. Most of the people live near the rivers and the practice of head-hunting, which is linked with the *adat*, or system of primitive superstitions and taboos which governs the lives of the natives, tends to act as a check on the growth of population. There was some migration from Java and Sumatra into the more accessible regions of Borneo.

Heads are believed to possess magic power and are preserved as trophies after being taken in raids on neighbouring tribes. Dutch administration and missionary influence helped to curb this habit; but it is still to be found in the regions of the interior which are far removed from the few towns and centres of administration. A feature of Borneo tribal life is the long house. The average length of these structures is 600 or 700 ft. and the house is divided into two parts, one for communal use, the other separated into quarters for single families.

The tribes fall into two categories, those which remain in their kampongs, or settlements, and those which lead a nomadic life, such as the Punans, Hebans and Bukats. The latter are fiercer and more enterprising and develop remarkable skill in jungle woodcraft and in canoeing through the treacherous rivers of Borneo, with their many rapids. There are great differences of language among the tribes, and there is no written script. Tattooing is widely practised and possesses ceremonial and re-

ligious significance.

**Economics.**—Most of the tribesmen maintain a simple subsistence economy, with rice as the staple food and pork as a luxury. They possess varied degrees of skill in such crafts as boat and house building, basket and mat work, weaving and carving. The oil wells in the neighbourhood of Balikpapan represent the most productive industry of the island. Borneo is known to possess mineral wealth in diamonds, gold, coal, rock salt, copper, iron and marble, but development has been on a very small scale. (See also BRITISH EMPIRE; NETHERLANDS COLONIAL EMPIRE; NETHERLANDS INDIES.) (W. H. CH.)

**Bose, Subhas Chandra** (1897–1945), Indian politician, was born of high-caste Hindu parents in Cuttack, Bengal. He was educated at Presidency college, Calcutta, and later at Cambridge university, England. Returning to India, he joined the Indian civil service and became a judge. He resigned his judgeship, however, and became mayor of Calcutta, 1930, and was named president of the India congress in 1938. In the period between these two posts, he spent a number of years in jail for his revolutionary activities. He was forced out of the presidency of the congress in 1939 when moderate elements objected to his ultimatum calling for independence or civil disobedience. He opposed India's entry into World War II and the "exploitation of India's resources for war purposes." Bose was again arrested in 1940. Following his release in Jan. 1941, he fled to Germany where he worked for the nazi propaganda minister. In June 1943, Tokyo announced that Bose had arrived in Japan. Shortly thereafter reports from Singapore stated that he had been elected to the leadership of the Indian Independence league and that he had set up the provisional government of Free India, under Japanese sponsorship. In Jan. 1944, he transferred his headquarters to Burma, and when the military situation became too tense he moved on to Bangkok. Bose died in an aeroplane crash in Formosa while en route to the Japanese capital, Aug. 19, according to a Tokyo radio announcement.

**Boston.** Ninth largest city of the United States, with a population of 770,816 by the federal census of 1940, Boston is a seaport at the head of Massachusetts bay and is the capital of the state of Massachusetts. Area, 43.9 sq.mi., comprising most of Suffolk county.

In Jan. 1945 the Massachusetts legislature suspended the sections of the city charter which required a special election to replace Mayor Maurice J. Tobin, who resigned on Jan. 4 to take office as governor of Massachusetts. Acting-mayor John E. Kerrigan became mayor for the unexpired term. In the regular nonpartisan election on Nov. 6, 1945, a mayor (4-yr. term), 22 councilmen (2-yr. term) and two school committee members were elected to take office Jan. 7, 1946. U.S. Rep. James M. Curley (Dem.) received 114,930 of the 247,477 votes cast for the six candidates for mayor. Rep. Curley (aged 71) had been three times mayor (first elected in 1914) and once governor of Massachusetts. At election time he was under a federal indictment charging misuse of the mails. A referendum proposal to raise councilmen's salaries from \$2,000 to \$3,500 was overwhelmingly rejected.

Boston celebrated victory in World War II enthusiastically. Great receptions were given Gen. George S. Patton, Gen. George C. Kenney, Adm. William F. Halsey and Gen. Dwight D. Eisenhower. Even more attention was given to planning to meet the problems of reconversion. The Greater Boston Development committee was formed. Little progress was made with the acute problems of traffic congestion and housing shortage but the Boston Port authority was reorganized and rapid

progress was made with the extension of Logan International airport. Regular commercial air service to London was inaugurated. Commonwealth pier was returned to commercial use. Shipping to Pacific ports was resumed.

Gov. Tobin headed a delegation which went by air to London to present the advantages of Boston as the permanent seat for the United Nations organization. The U.N.O. committee arranged to inspect the area in Jan. 1946.

All naval installations were combined into the Boston naval base. The Boston port of embarkation with the great Castle Island army base handled great quantities of troops and cargo. Its use for troops was discontinued Dec. 31, 1945.

The 1945 tax rate was \$42.50 (1944=\$39.90) on an assessed valuation (real and personal) of \$1,479,172,000, an increase of \$37,163,600. Budget: \$80,145,296.47, an increase of \$3,495,576.67 for the same services. Welfare expenditure (old age and dependent children) was \$9,960,000, including federal grants of \$3,430,000. The retirement fund (1944) had 14,131 members and disbursed \$13,603,139 to 2,000 beneficiaries. In the period Jan.-Oct. 1945, bank clearings increased 6.4%; bank debits increased 8.8%; department store sales increased 11%; manufacturing employment increased 10.3%; manufacturers' payrolls decreased 8.4%. (S. J. McK.)

**Botanical Gardens:** see BOTANY.

**Botany.** During 1945, botanical investigations in most countries of the world were profoundly influenced by wartime conditions. While it is true that most of the standard botanical journals continued to publish regularly, the amount of material which they printed was considerably below prewar levels. This reduction was caused not so much by a reduction in total activity but rather by a shift to war work, the results of which were often confidential and not immediately available for publication. The close of the year, however, saw a beginning in the release of material previously held secret, and it was expected that a large accumulation of such material would be published during 1946.

Many botanists found opportunity for war research in the fields of medicine, chemistry and physics. A large number, however, made their contribution in some field of plant science. One of the most active of these fields had to do with the antibiotics, of which penicillin is the best known example. The discovery of this substance, produced by one of the common blue moulds, *Penicillium notatum*, stimulated many botanists and bacteriologists to a search for other organisms containing this or comparable substances. The search covered not only bacteria and fungi, but also green plants including algae and the higher plants. Antibiotics have been found in many different plants, including very diverse strains of soil bacteria, fungi, algae and the flowering plants. A number of these were investigated intensively in 1945. In addition to this work, attempts were made to increase the yields of the best strains of *Penicillium* by the use of various types of radiations, such as X-rays and ultra-violet light. Considerable success attended these efforts.

On the other hand, it was found that strains of bacteria susceptible to the action of specific antibiotics may mutate and thus become immune. The danger was thus recognized that indiscriminate use of antibiotics may serve merely to eliminate nonresistant strains, leaving the field to the resistant ones. An extensive program of research was, therefore, begun in 1945 to study mutation in disease micro-organisms in order to learn how best to cope with this situation.

Plants constituted the chief or only source of many substances other than antibiotics which were important in the war effort, such as certain of the vitamins, and reagents such as

glycerol, butyric acid, acetone and ethyl alcohol. Many botanists were engaged in a search for new and superior natural sources of these and other products and in attempts to increase production of them.

Another important field of botanical research involved work with rubber-producing plants, particularly with the Russian dandelion (*Taraxacum kok-saghyz*), guayule (*Parthenium argentatum*) and *Cryptostegia*. The United States department of agriculture carried on an extensive program involving a search for new and better sources of natural rubber, as well as investigations designed to increase yield and improve quality.

The search for new sources of quinine also continued actively during 1945. A number of expeditions were in the field in various parts of the Andean region. As a result, new species containing quinine were discovered and the cinchona plant was found in large areas not hitherto known to contain it. Investigation of a variety of seaweeds as potential sources of agar and of other important colloids continued, an excellent summary of this situation appearing in *Science* for June 15, 1945. A comprehensive study of the deterioration of fabrics and many other products, including optical glass, through the action of fungi, occupied the attention of many botanists. Many others were engaged in the development of new insecticides, including DDT.

During 1945 extensive search was made in many parts of the world for plants which would provide new sources of medicinals, insecticides, foods and drugs, oils and many other products. Thus, in the U.S.S.R., an extensive search was made for new vitamin-bearing plants, especially for better sources of vitamin C, as well as for new medicinal plants, tea and coffee substitutes, etc. Many new products were developed, some of which would no doubt have a permanent value.

An important botanical activity during World War II was the publication of handbooks, for the use of the armed forces, dealing with food and medicinal plants and other plant resources in the several war theatres. Several of these appeared during 1945. For the most part they were not made available to civilians. A few became available, however, and these are listed at the end of the article. These handbooks were of great help, especially in the western Pacific areas.

Fewer botanical events of importance occurred during 1945 than in most years, as a result of the war. Mention may be made, however, of the 50th anniversary of the New York Botanical garden celebrated during May 1945; announcement that the John Innes Horticultural institution had procured a large tract of land at Bayfordbury, Hertfordshire, England, to which it would move; and the establishment by the Academia Sinica of a new research institute of botany at Pehpei, near Chungking. On account of travel restrictions, most botanical societies in the U.S. cancelled their annual meetings in 1945, and official activities were largely in abeyance. In a few parts of the world, however, such as Sweden, botanical activities were little affected by the war, and large quantities of research were published.

Graduate students in botany were few in number in the U.S. in 1945 owing to the fact that they were not given occupational deferment from military service. As a result, a serious shortage of well-trained young botanists was expected to handicap the profession for years to come.

Books published during the year include: *Structure and Reproduction of the Algae*, vol. 2, by F. E. Fritsch; *Industrial Mycology*, by George Smith; *Manual of the Aspergilli*, by Charles Thom and Kenneth P. Raper; *Plants and Plant Science in Latin America*, by Franz Verdoorn; *A Manual of Soil Fungi*, by Joseph C. Gilman; *Native Woods for Construction Purposes in the Western Pacific Region*, and *Native Woods for Construction Purposes in the South China Sea Region*, by J. H. Kramer (booklets for the armed forces). (See also BIOCHEMISTRY; GENETICS.)

BIBLIOGRAPHY.—U.S. Dept. of Agri., *Bibliography of Agriculture; Annals of Botany; American Journal of Botany; Botanical Gazette; Science; Nature; Biological Abstracts; Botanical Reviews*. (R. E. Cd.)

**Botanical Gardens.**—It was possible by the end of 1945 to get a comprehensive picture of the damage done to botanical gardens by World War II. The herbarium and library of Komarov Institute of Botany at Leningrad, U.S.S.R., suffered no loss, but living plants in the greenhouses were destroyed because of glass breakage. The Siberian part of the herbarium at Kharkov was moved to Leningrad and saved. The Germans confiscated the herbarium at Kharkov, the herbarium of Ukrainian Academy of Science at Kiev and the Nikita Botanical garden herbarium near Yalta. The botanical library and herbarium of Caen, France, were completely destroyed, also the library, greenhouses and herbarium of the Berlin Botanical garden. No loss was suffered by great historical botanical collections at Muséum d'Histoire Naturelle, Paris. The botanical department of the British museum lost many monocotyls but saved all type specimens. Oxford had its important ancient herbarium below ground. While Kew had greenhouses damaged, the staff and materials were moved to Oxford, suffering slight loss. The British Museum of Natural History had a near miss but the Arctic botanical collection was saved.

Soviet Academy of Sciences was planning a new botanical garden of 650 ac. at Moscow with Nikolai Tsitsin, the originator of perennial wheat, as director. It was to consist of large conservatories, laboratories, halls and ornamental plantings. Cornell plantations, Ithaca, N.Y., a domain of more than 3,000 ac. including lands of the university and state agricultural colleges, were to be developed as an integral unit under the direction of Dr. L. H. Bailey. A study would be made of the effect of climate, sites, soils, etc. on plant societies. There were to be permanent wildlife areas, areas planted as beauty spots, and recreational and agricultural areas. New York Botanical garden had botanical expeditions in Mexico, Ecuador and in the intermountain region of the central U.S. The botanical institutions of Harvard university were winding up several government and military projects. Brooklyn Botanic garden discontinued the garden *Record* and publishes instead a quarterly, *Plants & Gardens*, a semipopular gardening and horticultural journal; instituted a pension and annuity plan; and elected Dr. Conrad B. Link to fill the position of horticulturalist left open by the resignation of Mr. Montague Free. The University of Wisconsin arboretum, Madison, Wis., added 15,000 trees to its Tamarack association and 1,500 *Thuja occidentalis* trees to the White Cedar association. The University of Washington arboretum, Seattle, Wash., held its first display of flowers of hybrids of azaleas and rhododendrons from crosses made in 1940. A number of colour forms superior to types on the market appeared. Missouri Botanical garden, St. Louis, Mo., continued its extensive studies on light relations of plants, on growth of orchids in culture solutions and published results in the garden *Bulletin*. They studied the relation of cattle to the establishing of bluegrass meadows. The *Annals* published material on corn studies in Central America, a continuation of the *Flora of Panama*. Morton arboretum, near Lisle, Ill., issued a graphic illustrated bulletin and work sheets for plant study classes which were being used in nature schools throughout the U.S. Montreal Botanical garden started a new department of plant breeding and applied plant physiology. At the request of their own gardeners they started a course in basic botanical training for practical gardeners.

(See also HORTICULTURE.)

**BIBLIOGRAPHY.**—E. D. Merrill, "Notes on Russian and other European herbaria," *Science*, vol. 101, no. 2623, p. 355 (April 6, 1945) and "News from abroad," *ibid.*, vol. 102, no. 2650, p. 372 (Oct. 12, 1945); "Report on bomb damage to botanical material in England," *Torrey*, vol. 45, no. 3, p. 96 (Sept. 1945). (W. C.)

**Bougainville:** see SOLOMON ISLANDS.

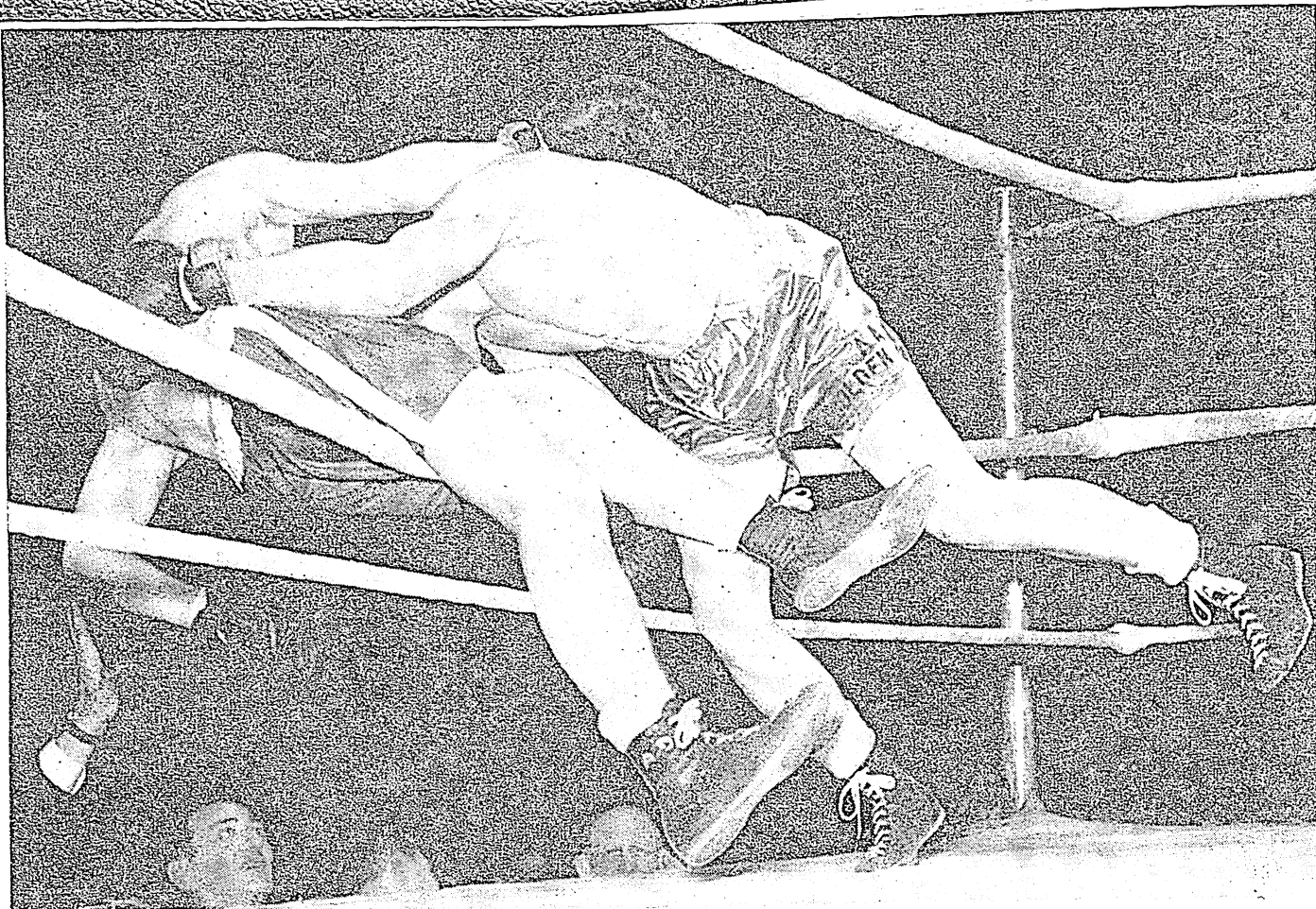
**Bovard, Oliver Kirby** (1872?–1945), U.S. newspaper editor, was born in Jacksonville, Ill. From grammar school he went on to clerical jobs and started his newspaper career with the *St. Louis Star* in 1896. Two years later, when that paper refused to run an exposé he had written, he went to the *St. Louis Post-Dispatch* where his article was accepted and he was given a job. In 1900, he was made city editor and in 1908, managing editor. Shortly afterward, Joseph Pulitzer, founder of the *Post-Dispatch*, invited him to work on the *New York World* of which Pulitzer was director. After ten months, Bovard was offered the choice of becoming assistant managing editor of the *World* or returning to St. Louis as managing editor of the *Post-Dispatch*. He chose the latter. Among newspaper men, he enjoyed the reputation of being one of the greatest editors in the United States; commensurately, he was one of the highest paid. He would ruthlessly eliminate extraneous material from stories, and his ability to detect inaccurate and incomplete facts was uncanny. His watchword to his staff, cubs and veterans alike, was: "If through his reliance on you the reader is misinformed or inadequately informed, you have failed in your professional duty." Such men as Frederick Hazlitt Brennan, author, Paul Y. Anderson, who exposed the Tea Pot Dome scandal, Joseph Driscoll, Jack Alexander and a host of other prominent figures in U.S. journalism were products of the rigorous Bovard training. In 1938, Bovard turned in his resignation to the younger Pulitzer, son of the founder, "because of irreconcilable differences of opinion as to the general conduct of the paper." Bovard died in St. Louis, Mo., on Nov. 3.

**Bowles, Chester** (1901– ), U.S. advertising executive and government official, was born in Springfield, Mass., Aug. 5. A graduate of Yale, 1924, he became an advertising copywriter and together with William Benton formed the advertising firm of Benton and Bowles, July 1929. Bowles was made chairman of the board of that company in 1936. In Jan. 1942, he took a leave of absence to work on a dollar-a-year job in Connecticut, later becoming OPA administrator for the state. On July 15, Prentiss M. Brown, then OPA national director, named Bowles as general manager of his agency. On Oct. 25, 1943, Bowles succeeded Brown who had resigned four days earlier as OPA administrator. Throughout 1944 and 1945, Bowles battled continually and vigorously to maintain price controls. His stand was unpopular with many businessmen, and he was subjected to a sustained barrage of intensive criticism. He denounced, Dec. 5, "the small minority of business pressure groups" in which he included the National Association of Manufacturers, who he said were trying to abolish price controls, and predicted inflation "followed by a shattering smashup" if controls were not maintained and extended to 1947.

**Bowling.** Bowling closed its restricted wartime program with new champions in singles, doubles and team, all contested in match rather than tournament competition. The sport turned to a prewar basis in 1946, scheduling the American Bowling congress for Buffalo, N.Y., and the women's international for Kansas City, Mo.

Joe Wilman, late of U.S. army, won the individual championship with a 210-pin average in the 16-man final, toppling 13,437 pins in 64 games. The firing of the 40-year-old Berwyn, Ill., bowler dethroned Herbert "Buddy" Bomar of Chicago, who finished 12th in his attempted title defense. Wilman, who as an army private finished second in 1944, accounted for 310.12 in the points scoring to 305.37 for Pvt. Thurman Gibson of Detroit. Andy Varipapa of Hempstead, L.I., was third, 303, fol-





BOTH CONTESTANTS topple through the ropes in their light-heavyweight bout during the semifinals of the 1945 Golden Gloves boxing tournament in Chicago. Robert Wilson, on the bottom, won the decision from Sgt. Truman Swingle

lowed by Walter Ward, Cleveland, 296.26, and Ned Day, West Allis, Wis., 296.13.

William Kenet and Walter Reppenhagen of Detroit wrested the doubles title from Bomar and William Flesch, Chicago, by a score of 27½ to 20½. Reppenhagen and Kenet were runners-up in the 1944 doubles competition. The E. and B. team of Detroit ended a four-year reign of the Stroh Bohemians, also of Detroit, as match game champions, winning the title test by 254 pins. (M. P. W.)

**Boxing.** Boxing was a sport of contradictions in the U.S. during 1945. Champions were conspicuous by their absence on the competitive horizon, yet the sport boomed. Inferior boxers were paired for spectacular bouts. Mediocre boxers commanded unbelievable purses. A bout with a normal box-office value of \$3.30, including tax, assayed at a box-office maximum of \$16, including tax, and people, figuratively, trampled each other in the rush to buy tickets.

Joe Louis, world heavyweight champion, was inactive; so was his most dangerous challenger, Billy Conn, Pittsburgh, Pa. They did no fighting because they were serving their country. Gus Lesnevich, world light-heavyweight champion; Tony Zale, world middleweight champion; Freddie (Red) Cochrane, world welterweight champion; Bob Montgomery, one of the recognized lightweight champions; Manuel Ortiz, world bantamweight champion—all were idle so far as defense of their titles was concerned. Like the foremost challengers in the different ring divisions, all champions received discharges from the army, the navy, the coast guard soon after the war's actual fighting ceased. But the amazing fact remained that, even with the lack of championship appeal, boxing enjoyed a remarkable year.

Two championship bouts were held. Only one of them was an undisputed championship. In this event Willie Pep, Hartford, Conn., world featherweight titleholder, held his honours

against Phil Terranova, the Bronx, New York city. They fought in Madison Square Garden on Feb. 19 and Pep won a 15-round decision. A crowd of 10,427 persons saw the battle, paying receipts of \$48,701. The other championship was in the light-weight class. Ike Williams, Camden, N.J., knocked out Juan Zurita, Mexican, who was recognized as champion by the National Boxing association, in two rounds of a bout held in Mexico City in April, to gain N.B.A. recognition. In New York state, and in those states which co-operate with New York in the administration of boxing, Bob Montgomery, Philadelphia, Pa., was recognized as champion. He was in service until early December.

As a barometer of the remarkable year, Madison Square Garden in New York offered the greatest illustration. In 43 boxing carnivals under the direction of Mike Jacobs, president of the Twentieth-Century Sporting club, more than \$2,250,000 was attracted to the box office, a figure paid by more than 500,000 sport followers. The only championship event on the Garden's calendar was the February battle between Pep and Terranova. For the rest, the competition was supplied by run-of-the-mine boxers, many of them of moderate national reputation. Tommy (Rocky) Graziano, of New York's east side, who was little more than a preliminary boy when the year started, was the most conspicuous performer on the basis of results and receipts. He boxed five times in the Garden, scored five knockouts, included two ten-round knockouts over welterweight champion Cochrane among his exploits, and was a participant in two of the three matches which grossed in excess of \$100,000, including the year's largest gate.

Graziano knocked out Harold Green of Brooklyn in three rounds in September, before 18,592 persons who paid \$103,970, the year's largest crowd as well as the year's greatest gate receipts. Graziano knocked out Cochrane for the second time in ten rounds in August, before 18,071 persons who paid receipts of \$100,469. Graziano had knocked out Cochrane in ten rounds in June before 14,972 persons who paid \$72,861. The other

match to exceed \$100,000 in receipts was a heavyweight bout in which Tami Mauriello, Bronx, New York city, defeated Lee Oma, Detroit, Mich., in March. A crowd of 18,291 saw this bout, and the receipts amounted to \$101,918. Several matches exceeded \$90,000 in receipts.

An unusual feature of the Garden's year was the arena's use as a boxing centre between April and September for the first time in history. Promoter Jacobs conducted 15 carnivals there between the departure of the circus, normally the summer's closing time, and Labor day.

Boxing was relatively popular, too, in such centres as Chicago, Ill., Philadelphia, Pa., Boston, Mass., Washington, D.C., Cleveland, O., Detroit, Mich., Baltimore, Md. and in California cities.

Amateur and collegiate boxing proceeded on a restricted scale. Finals in the Amateur Athletic union's national championships, held in Boston in April, attracted 8,613 persons and saw a wide distribution of titles. Boxers from New Orleans, La., Oklahoma City, Okla., Philadelphia, Chicago, Buffalo, Alexandria, Va., and Cleveland were returned champions. A feature of the tournament was the success of two Indian participants, Amos Aitson and Virgil Franklin, members of the Oklahoma City team, who won the bantamweight and featherweight championships, respectively.

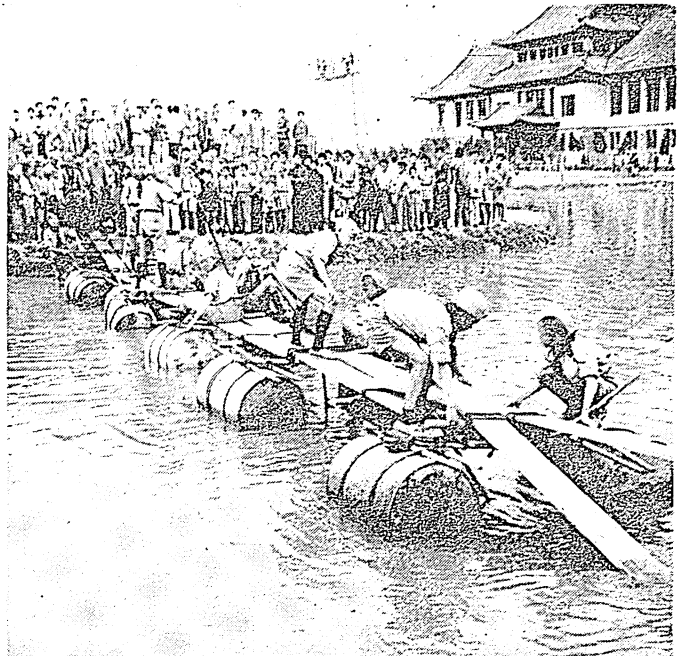
The United States Coast Guard academy at New London, Conn., won the Eastern Intercollegiate Athletic association boxing championship team title, in the annual title tournament held in March in New London. The coast guard amassed 31 points, dislodging West Point as champions. (J. P. D.)

**Boyington, Gregory** (1913?— ), U.S. air officer, was born in Coeur d'Alene, Ida. He was graduated as an aeronautical engineer from the University of Washington (Seattle), and worked as a draftsman before he joined the marines as a cadet in 1935. During the Sino-Japanese war, Boyington joined Gen. Claire Chennault's "Flying Tigers." After the United States entered World War II, he rejoined the marines, soon won a commission as a major and commanded a fighter squadron in the Southwest Pacific. A remarkably steady and cool-nerved pilot, he shot down 20 Japanese planes in that area, which, added to the six he had destroyed while a Flying Tiger, brought his total to 26, equalling the record Capt. Edward Rickenbacker established during World War I. Some sources credit Boyington with having shot down 28 planes in all. On Jan. 3, 1944, he was shot down while on a mission over Rabaul, New Britain. It was later learned that he was picked up by a Japanese submarine and was imprisoned in Japan where he was brutally mistreated by prison guards. On Aug. 30, 1945, it was disclosed that Boyington was rescued from the Omori prison camp. He was subsequently returned to the United States.

**Boy Scouts.** Emphasis by the Boy Scouts of America in 1945 was on world scouting. The theme of the year was "Scouts of the World—Brothers Together." This was developed in several ways.

The World Friendship fund to help rebuild scouting abroad was developed. The first allocation was made to the Philippines. The World Friendship edition of *Scoutmastership* by the founder of scouting, Lord Baden-Powell (1857-1941), was published for the benefit of scouts in foreign countries. The International Scout committee met in London in Nov. 1945. World scouting matters were discussed, including plans for the next World Jamboree or gathering of representatives of all the scout nations, which was scheduled for 1947.

Scouts carried on important war service in 1945 at the request of the government. Some spectacular activities included: two war loan campaigns, in recognition of which minute man



CHINESE BOY SCOUTS convert old gasoline barrels into a pontoon bridge. The scouts rendered valuable service to their country during World War II, as air-raid signallers, medical attendants and aids at the front

flags and banners were awarded; the General Eisenhower Waste Paper campaign in March and April and months following in which more than 500,000 tons of paper were collected; the United Nations' clothing collection, in which one-tenth of all the clothing collected was the result of scout efforts; the Green Thumb campaign in which thousands of scouts helped grow food for freedom.

Senior scouting, which includes air scouting, explorer scouting and sea scouting, attracted thousands of boys. A new unit of scouting, the senior scout outfit, was authorized.

The 35th meeting of the National council, streamlined to meet wartime conditions, was held in New York city in May 1945.

There was a large increase in membership over the previous years. As of Dec. 31, 1945, the membership was as follows:

Total boys.....	1,533,718
Total leaders.....	443,745
Total membership.....	1,977,463
Scout units.....	61,026

**Great Britain.**—Lord Rowallen was elected chief scout of the British Boy Scout association. John Skinner Wilson was appointed director of the International Scout bureau located in London. The International Scout bureau, which had been maintained in spite of overwhelming handicaps during World War II, resumed full-time operation. Plans were developed to bring up to full prewar status *Jamboree*, the international scout magazine, and the *Scouter*, the British headquarters publication. These were issued regularly during the war in reduced format. St. Georges day, April 23, which is International Scout day, was observed by special exercises. Many scout organizations from invaded countries, which had developed temporary headquarters in England, reopened their headquarters in their home lands. (L. W. BA.)

**Bracken, John** (1883— ), Canadian political leader, was born at Ellisville, Ont., on June 22, and graduated from the Ontario Agricultural college, and the University of Illinois. After graduation Bracken went into the prairie provinces as a seed inspector for the Canadian government. He became professor of field husbandry at the University of Saskatchewan, and later president of the Agricultural college

of Manitoba. In 1922 he was offered, and accepted, the leadership of the newly formed Agrarian or Progressive party in the province of Manitoba. He was returned to the legislature in a by-election held in Le Pas. In 1932 he headed a coalition government of Progressives and Liberals, and later the coalition principle was extended to include Conservatives, Co-operative Commonwealth Federationists and Social Credit members. In Dec. 1942, he emerged as a national figure, when he was chosen national leader of the Conservative party by a nominating convention meeting at Winnipeg. In deference to his views, the name of the party was altered to Progressive Conservative.

Bracken did not seek election to the house of commons, but on Oct. 20, 1944, he accepted nomination for Neepawa, Manitoba, in the general elections. In Jan. 1945, Bracken returned from a visit to western Europe, in the course of which he interviewed Canadian troops. With the opening of the general elections campaign, he made an extensive political tour which covered the entire country. In this way he was able to meet the electors and place the program of the Progressive Conservative party before them. In the polling on June 11, Bracken was returned for the riding of Neepawa. With the beginning of the session, he became the official leader of the opposition in the house of commons.

(J. I. C.)

**Bradley, Omar Nelson** (1893— ), U.S. army officer, was born in Clark, Mo., on Feb. 12. He was graduated from the U.S. Military academy in 1915 and later from the Infantry school, the Command and General Staff school and the Army War college. Early in 1941 he was commandant of the Infantry school, and in Feb. 1943 he was sent to North Africa where he assumed command of the 2nd corps, which he led to victory at Tunis and Bizerte. In Jan. 1944 Gen. Dwight D. Eisenhower disclosed that Bradley had been made commanding general of the U.S. ground forces for the invasion of Europe. When the invasion started, June 6, Bradley headed the U.S. 12th army group. On Aug. 30 it was disclosed that Gen. Bradley had been given equal status with Gen. Bernard L. Montgomery. The U.S. armies under Bradley's command hammered their way into the Siegfried line by the winter of 1944. During the German counterattack in the Ardennes forest, Dec. 1944, the 1st and 9th U.S. armies were shifted from Bradley's command to Montgomery's until the nazi drive was contained. Both armies were subsequently returned to the 12th army group. Explaining the German breakthrough, Bradley declared that the thinness of the U.S. line at the Ardennes bulge was the result of a "calculated risk" in which surplus divisions were used to attack in other sectors. He was nominated, March 13, 1945, to the temporary rank of a full general and on June 7, he was named by Pres. Truman as administrator of veterans' affairs.

**Brandeis, Alice Goldmark** (1866?–1945), U.S. suffragist, was born in Brooklyn. In 1891 she married Louis Dembitz Brandeis (later an associate justice of the U.S. supreme court) and they settled in Boston where her husband was on the faculty of Harvard law school. Mrs. Brandeis took an active interest in social reform, women's suffrage and juvenile delinquency. In 1928 she became vice-chairman of the Progressive League for Alfred E. Smith, the Democratic nominee for president. She campaigned among those elements who had cast their ballots for Sen. Robert M. La Follette in 1924, urging them to swing their votes to Smith. After her husband's death in 1941, she maintained an active role in the World Zionist organization and the Jewish Agency for Palestine. Following the race riots in Detroit in 1943, Mrs. Brandeis was among the many prominent and influential people

who signed an appeal calling for racial amity, which was submitted to the president. She translated *Recollections* (1929), the work of her uncle, Karl Goldmark, the noted Hungarian composer. Mrs. Brandeis died in Washington, D.C., Oct. 11.

**Brazil.** A republic in eastern and central South America and the most populous Latin country in the world; language: Portuguese; religion: predominantly Roman Catholic; capital: Rio de Janeiro (1945 pop.: 1,941,700); president: until Oct. 29, 1945, Dr. Getulio Vargas (from 1930), and for the remainder of the year (until inauguration in February 1946, of president-elect General Eurico Gaspar Dutra), Dr. José Linhares, former chief-justice.

Brazil has an area of 3,291,416 sq.mi., second only to Canada in size in the western hemisphere. The country is divided into 20 states, a federal district and 7 territories, including the island of Fernando de Noronha, 225 mi. off the coast. (For individual areas and population see table.)

The population (1940 census: 41,570,341) was officially estimated at 45,300,000 as of Jan. 1, 1945. Twenty-two per cent of the population of Brazil is classified as urban, 9% as sub-urban and 69% as rural. The capital, Rio de Janeiro (coterminous with the federal district) is the largest city of Brazil.

**History.**—To Brazil's previous contributions to the United Nations Relief and Rehabilitation administration were added the promise to increase in 1945 by about 300,000,000 yards its exports of cotton fabrics to alleviate the acute United Nations textile situation. Although the Conference of Foreign Ministers of the American Nations (scheduled to be held in Rio de Janeiro in Oct. 1945) was postponed at the suggestion of the United States government, this action in no way was considered as derogatory to Brazil. During World War II the Brazilian navy acquired (mostly from the United States) about 30 warships, including sub-chasers, destroyers and corvettes.

Economically, the country continued prosperous although the cost of living continued to rise in an alarming way. At the end of 1944 the average percentage of increase in the cost of living was estimated officially at 250.78%. This led some to declare that no increase in the real national income had taken place. In fact, foodstuff production had declined on the per capita basis, since output had remained about 18,500,000 metric tons during a ten-year period, despite the increase in population.

Industrialization was declared to be the key to national prosperity. An Economic Planning commission was organized and at its first meeting (Jan. 10, 1945) it established three committees to consider plans for the improvement of transportation, development of electric power and fostering of immigration. Several important economic congresses were held during 1945; among them, the First Economic Congress of the West (including representatives of the states of Goiaz and Mato Grosso), and the National Economic Congress of Teresopolis (under the auspices of the federal departments of agriculture and commerce) were the most important.

The most dramatic event in the political history of Brazil in 1945 was the bloodless revolution of October which resulted in the overthrow of President Getulio Vargas. For some time there had been unrest throughout the country and dissatisfaction with the strict dictatorship of Vargas. The president had promised several times that elections would take place after World War II and that he would not seek re-election. On March 28 he issued a call for national elections to be held on Dec. 2. State executives and legislatures were to be elected on May 6, 1946. Most of the press, at last free from the restraints of censorship (abolished Feb. 22, 1945), poured criticism on the Vargas regime. Fearing that Vargas might break his promise and present himself as a candidate for re-election, the democratic ele-



ments rallied behind Air Brigadier Eduardo Gomes, a hero of the 1930 revolution, well-known throughout the country. Vargas countered with two important measures: the announcement of the candidacy of General Eurico Gaspar Dutra, his minister of war; and his reconciliation with communist leader Luis Carlos Prestes (in jail from 1936). This action was followed by the recognition of the U.S.S.R. on April 2. His opponents feared that Vargas intended, first, to divide the army between the two announced candidates, and then to win the backing of the labour party. He thus could, at any time, if he so wished, step in and present his own candidacy as the only way to preserve the peace of the country.

On Oct. 2, 1945, the Supreme Electoral Tribunal ruled that the congress to be elected Dec. 2 would have legislative, as well as constituent powers. This frustrated the efforts of the democratic elements who urged the postponement of the congressional elections until after the convening of the constituent assembly.

A few days later (Oct. 10) Vargas issued a decree advancing the date of the elections for state governors and legislatures from May 6, 1946, to Dec. 2, 1945. Suspicion that Vargas wanted to postpone all elections led General Pedro Aurelio de Goes Monteiro, minister of war, to declare publicly that the army was ready to see to it that the elections were held in freedom for all on the announced date. On Oct. 29, President Vargas appointed his brother, Benjamin Vargas, to be chief of police in the capital. Fearing that this was part of Vargas' plan to continue in power, General Goes Monteiro submitted his resignation which he withdrew only at the instances of the army and after Benjamin Vargas had been removed from his new position. During the night army troops occupied all strategic points in the capital and a guard was thrown around the presidential palace. A group of officers then visited Vargas and demanded his resignation, transferring his powers to Chief Justice Jose Linhares, in accordance with the constitution.

On Oct. 31 Getulio Vargas left Rio de Janeiro for his ranch in southern Brazil.

The new president pledged himself to hold elections on the announced date and to help to build up a democratic structure with the help of the armed forces. He revoked decrees providing for simultaneous elections of members of the constituent assembly and president of the republic, as well as state governors and legislatures. On Nov. 26 a decree was issued empowering the new congress to act as a constituent assembly.

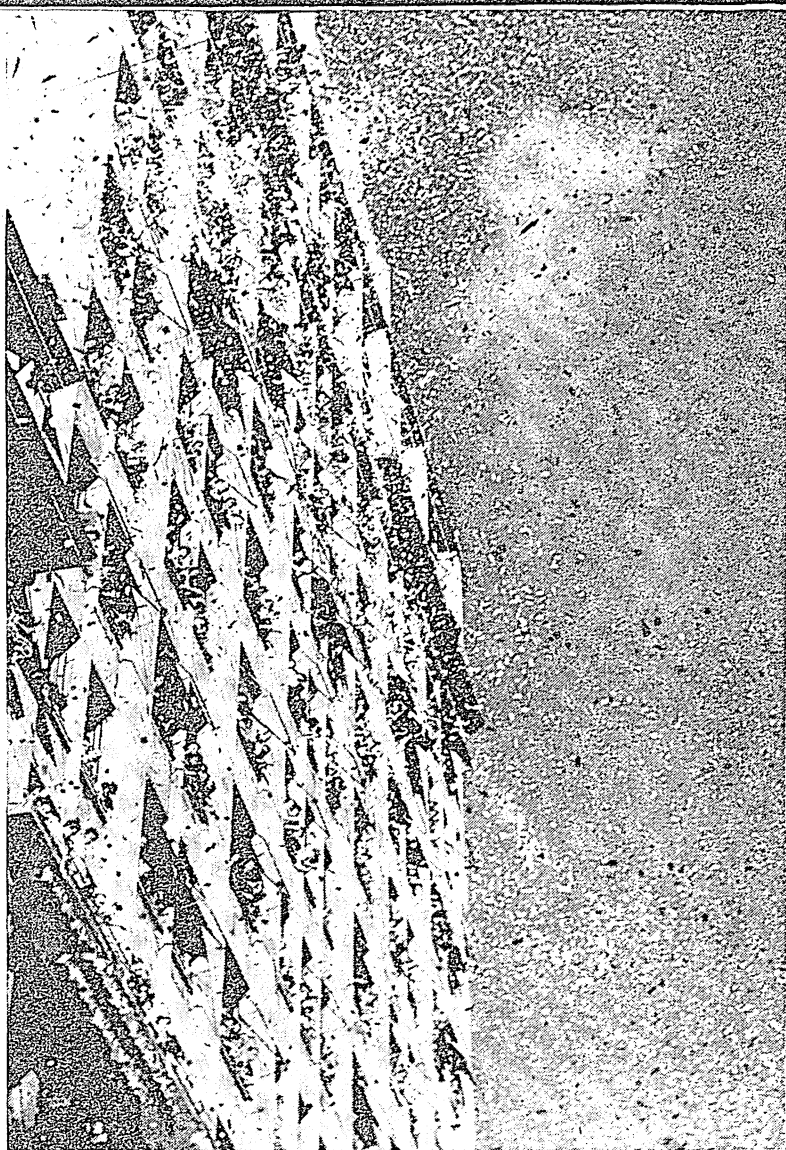
Meanwhile, former president Vargas issued a declaration urging all Brazilian workers to join the Labour party as the heir and continuator of the 1930 revolution.

On Nov. 18, 1945, the Communist party announced that Yeddo Fiuza (former mayor of Petrópolis) would be its candidate to the presidency. The other candidates were: General Dutra, for the Social Democratic party; Brigadier Gomes, for the National Democratic union; and Mario Rolim Teles, for the National Agrarian party. The old (and abolished) Integralist party (fascist) supported General Dutra's candidacy. The workers were divided in their sympathy toward Dutra and Gomes.

The people responded enthusiastically to the invitation to participate in the first free election after 1930. A total of more than 7,600,000 people registered. Despite the high hopes of the National Democrats, General Dutra, the candidate of the Social Democrats was elected by a large majority.

Former president Getulio Vargas was elected to the senate for his native state of Rio Grande do Sul and seemed to have remained the power behind the throne.

At the end of 1945 it was reported that President Linhares had written a new provisional constitution based on the con-



CONFETTI showered from the buildings of Rio de Janeiro as the city welcomed the Brazilian expeditionary forces returning from Italy on July 18, 1945

stitution of 1891, which would be presented to the people and later possibly taken up as a basis for discussion by the constituent assembly scheduled to meet in Feb. 1946.

**Education.**—At the end of 1944 it was estimated that there were some 40,000 schools, with about 3,710,000 students. Of these schools, 39,000 were elementary and the remainder secondary, vocational and universities. There were seven universities, all of them state institutions except the University of Brazil (Rio de Janeiro), which is maintained by the federal government. There were also in many states schools of law, medicine and engineering maintained by the state governments but not organized as universities.

**Finance.**—The cruzeiro is the monetary unit, divided into 100 centavos. One cruzeiro is worth approximately 5 cents U.S. (free market rate, spring of 1945, U.S. \$0.0513).

In 1945 the estimated expenditures of the federal government totalled 8,205,300,000 cruzeiros, and receipts 8,232,400,000 cruzeiros, which left a nominal balance of 27,100,000 cruzeiros, as compared with a balance of 26,700,000 cruzeiros in 1944, and a deficit of 501,400,000 cruzeiros in 1943.

On June 9, 1944, when Brazil signed a new agreement with the representatives of the foreign bondholders, the Brazilian debt stood at 1,990,968,797 cruzeiros (including £17,500,656 and \$42,684,615). As of Dec. 31, 1944, the total paper money in circulation was 14,457,000,000 cruzeiros, which contrasted with 10,974,000,000 cruzeiros on Dec. 31, 1943. The value of money fell 60% between 1939 and 1943.

On Feb. 2, 1945, a controller of currency and credit was appointed with the main purpose of directing to government bonds available funds. It was reported that the government had sold about \$20,000,000 worth of gold in the open market to defend its currency from further depreciation.

**Trade and Communications.**—During the first seven months of 1945 the Brazilian exports totalled 6,089,602,000 cruzeiros (\$304,480,100) as against 5,789,411,000 cruzeiros (\$289,470,550) during the same period in 1944. The imports, during the first six months of 1945, totalled 2,099,952 metric tons, valued at \$213,172,450, as compared with 1,828,975 metric tons, valued at \$178,051,150 during the same period in 1944. During the first six months of 1945, the following export items were the most important: coffee \$81,436,250; cotton textiles \$28,663,750; raw cotton \$14,991,200; rubber \$9,532,700; pine \$8,895,200; carnauba wax \$8,698,200; hides and skins \$6,438,600; castor beans \$5,254,950; cocoa beans \$5,050,200; preserved meat \$3,882,600.

The United States continued to be the largest purchaser of Brazilian goods (54.15% of total in the first six months of 1945) and the largest exporter of goods to Brazil (61.5% of total during 1944). The total of Brazilian exports to the United States in the first six months of 1945 amounted to \$133,781,250.

Coffee continued the leading export item of Brazil, although its proportional importance had decreased to about 30% of total in the last few years. Brazil exported 13,558,122 bags of coffee of 132 lbs. each in 1944, valued at 3,900,000,000 cruzeiros, as compared with 10,100,000 bags, valued at 2,800,000,000 cruzeiros in 1943. There was considerable dissatisfaction over the ceiling prices for coffee established in the United States. It was alleged that those prices in terms of pre-1934 dollars, were roughly 8 cents a pound, compared with averages of 23 cents and 22 cents in 1928 and 1929 respectively. In Washington, D.C., the authorities at first refused to revise the prices, but later authorized an increase of 3 cents per pound, which permitted resumption of private exports of Rio coffees with reasonable margin of profit. The finer brands of Santos coffee remained, however, unprofitable. The Brazilian exporter claimed that the new prices remained lower than the prices paid by European countries.

The Inter-American Coffee board, which supervises the quota agreement with Latin American countries, also took action to encourage the increase of exports of coffee to the United States, ordering a substantial increase in marketing quotas for the year ending Sept. 30, 1945. This increase was considered of slight importance to Brazil. The Brazilian government authorized (June 11, 1945) a subsidy to the coffee growers involving a payment of about \$60,000,000 a year. The National Coffee department was extended to June 30, 1947, and the creation of a coffee credit bank was being considered.

The rubber purchasing agreement with the United States was extended until June 30, 1947, with the same prices retained. Other important export products were: Paraguayan tea (mate), oranges, babassu nuts, vegetable oils, mica, diamonds, quartz crystal, manganese, tungsten, tantalite, beryl, lumber, raw silk and silk textiles, bananas and other fruits. Before World War II Brazil exported about 5,000,000 boxes of oranges every year; during 1944 and 1945 the total was not more than 1,300,000 boxes.

Leading import commodities included machinery and miscellaneous manufactures, foodstuffs (largely Argentine wheat) and petroleum products. On Aug. 11, 1945, the import duty on wheat was abolished to ease the bread shortage.

External communications by air and sea improved in 1945 particularly after the surrender of Germany. Pan American World airways continued to provide daily air transportation north and south, with a connection through Corumbá to Bolivia

and the west coast of South America and a transatlantic link from Natal to Africa and thence to Europe.

The only external land connection consisted of a railway to Uruguay and highways to that country and Argentina, but a railway connecting with Bolivia and Chile was being constructed, Brazil having agreed to build a branch line from Corumbá to Santa Cruz, Bolivia; and Bolivia agreeing to build a highway connecting Santa Cruz to Cochabamba. Brazil was also building a branch line from Campo Grande, 894 km. west of Baurú, to connect with the Paraguayan port of Concepción on the Paraguay river. There was regular international communication by river boats plying the Upper Amazon and from Corumbá down the Paraguay and the Paraná rivers.

Seven aviation companies operated in Brazil during 1944. Brazilian military planes also flew regular mail schedules over numerous economically unprofitable domestic routes and to Asunción, Paraguay. In 1944 the air lines of Brazil totalled 116,165 km., and transported 244,516 passengers, 4,031,981 kg. of baggage, 774,091 kg. of mail and 3,469,207 kg. of freight.

Under normal conditions, coastwise and river steamer services are the main links between north and south Brazil and within the Amazon basin. In 1945 there were in operation about 21,750 mi. of railways, of which 90% were of one metre gauge and most of them south of Bahia. An extensive building program was being carried out by both private-owned and government-owned railways. This program also included improvements such as electrification, gauge-widening, double-tracking and general improvement.

Surface roads totalled about 37,280 mi. and common roads about 124,000 mi. Work continued on highway connection as planned on March 20, 1944, including 6 major north-south, 15 west-east, and 7 connecting roads, of some 24,000 mi. in total length. Imports of gasoline increased after June 1944, alleviating somewhat the transportation problem.

The U.S. Export-Import bank granted Brazil a \$38,000,000 credit for the purchase of 14 merchant ships to be built in the United States.

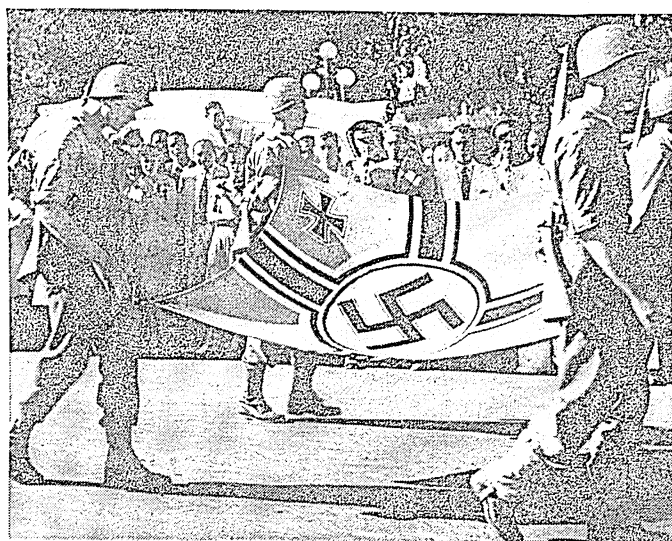
**Agriculture.**—Agriculture continued to be the basis of Brazil's economy, accounting, with livestock and forest products, for 80% of total value of the country's exports. Beef production declined because of killings for the supply of meat to the Allied nations. In 1944 beef exported totalled 33,600 metric tons, as against 57,500 in 1943. In 1945 killings were probably less than in 1944.

In 1944 the total cotton production in Brazil was more than 2,675,000 bales, or 23% of total United States production. The state of São Paulo alone produced about three times the total of the other Brazilian states.

The production of corn in 1943-44 was estimated at 200,000,000 bu. Sugar cane production in 1944 was 1,300,000 metric tons, and in 1945 it was expected to be even larger. Most of the sugar produced is sold in the domestic market and surplus is converted to alcohol. A private corporation, the Fundação Brasil Central, established to promote the economic development of central Brazil, planned to establish in 1945-46, 22 sugar centrals and 2 distilleries in Mato Grosso and Goiás. Pine exports in 1944 totalled 298,000 metric tons, as compared with 287,000 in 1943.

The coffee production in 1944 was estimated for the whole country at 9,400,000 bags of 132 lb., as against 11,800,000 in 1943, and 13,600,000 in 1942. The coffee crop for 1945 was estimated at about 14,000,000 bags.

The rice crop of 1944 was estimated at about 1,800,000 metric tons, mostly sold in the domestic market. Cacao, produced mainly in Bahia, is an important export item. The 1944-45 crop was estimated at 1,850,000 bags. In 1944 the tobacco crop was



VETERANS returning to Rio de Janeiro, Brazil, in 1945 display the swastika flag captured from a German division in Italy

estimated at 100,000 metric tons. Other important agricultural products are beans, mandioca, citric fruits, bananas, pineapples, coco-nuts, Brazil nuts, carnaúba, castor beans, babassú nuts and wheat.

The rubber production in 1945 was estimated at about 50,000 metric tons. On Dec. 26, 1945, the government issued a decree authorizing the transference to Brazil of the Ford Motor company's plantations on the Amazon river. The Brazilian government agreed to pay \$250,000 for the property in which the company invested about \$9,000,000. Brazil planned to spend some \$1,215,000 for the development of the property.

**Manufacturing.**—Although manufacturing continued to be primarily for domestic consumption, the rapid industrialization of Brazil continued in 1945. There were more than 100,000 factories of all types, employing about 1,500,000 workers who turned out more than \$1,600,000,000 worth of manufactured goods in 1943. The leading industrial products were: foodstuffs, textiles, chemicals and pharmaceutical products, metallurgical products, clothing, leather, glass and porcelain, paper and rubber articles. In the first six months of 1945, more than 253,000 tires and more than 169,000 tubes were manufactured. Plans for increased industrialization over a ten-year period (1945-55) re-

quired at least \$2,500,000,000 and possibly \$4,000,000,000, to be spent mostly in machinery and capital goods.

The government had adopted vast plans for the development of hydroelectric power in ten different areas, including the São Francisco valley, where a series of dams were to be constructed along the 1,800 mi. course of the river.

A motor plant, owned and operated by the government, initiated the manufacture of aeroplane engines in 1944, with materials received under lend-lease from the United States. A private concern announced plans to build automobiles, tractors, trucks and agricultural machinery. A large rayon factory, costing some \$18,000,000, to produce about 20,000,000 lb., was to be constructed in São Paulo state backed by Brazilian capital and operated by the Brazilian Nitro Chemical company. This factory was to begin production in 1947.

Cement production in 1944 totalled 809,900 metric tons, against a total consumption of 902,400 metric tons.

**Mineral Resources.**—There exists throughout Brazil a great variety of minerals, including manganese, iron, mica, tantalite, diamonds, quartz, rock crystal, tungsten ores, semiprecious stones, wolfram, bauxite and coal. The production of coal in 1944 was estimated at 1,860,000 metric tons, as against 2,000,000 in 1943. Petroleum was being extracted in small quantities mainly in Baía. Uranium, important in the development of atomic energy, was produced and exported to the United States in 1945. In 1943, 784,000 metric tons of iron ore, valued at 770,950,000 cruzeiros, were extracted.

The Volta Redonda steel plant, established with the aid of a loan from the U.S. Export-Import bank, is owned and operated by Companhia Siderúrgica Nacional, financed by Brazilian and U.S. capital. Actual production of steel in Volta Redonda was scheduled to begin in 1946. The capacity of this plant was expected to be 350,000 metric tons of steel ingots per year. (See also ARGENTINA.)

FILMS.—*Brazil* (Encyclopædia Britannica Films Inc.). (R. d'E.)

**Bread and Bakery Products.** During 1945 the baking industry in the United States continued its effective efforts to co-operate with governmental agencies and, despite shortages of adequate manpower, ingredients and transportation facilities, continued its high rate of production. Although accurate statistics were not available at the close of 1945, leaders in the industry computed that more than 1,000,000,000 loaves of bread were baked commercially each month. Ingredients such as sugar and shortening, which were in relatively scarce supply and of which at the end of 1945 sugar still remained on the ration list, were reduced in formulas of all bakery products in order to permit greater utilization of flour, an unrationed ingredient in relative abundance. Estimates of the retail value of all bakery products indicated that it was slightly in excess of \$2,000,000,000 for the year, more than half of which is accounted for by bread. The price of bread and other bakery products was controlled by the Office of Price Administration (OPA). Statistics of the U.S. department of labour showed that the average retail selling price of a pound of white bread during 1945 was 8.8 cents as compared with 8.7 cents in 1942. The industry employed approximately 300,000 workers.

A report on the composition of United States army bread by R. E. Meckel and G. Anderson (*Cereal Chemistry*, 22:429, 1945) showed that it more than met the minimum standards for B vitamins and iron of enriched bread. Army bread was made according to ordinary baking formulas by the army's own bakers, many of whose key men were trained in the advanced school conducted by the American Institute of Baking in Chicago, Ill.

With the termination of World War II, demand for a whiter

Area and Population of States and Territories of Brazil, 1945

State or territory	Area (sq.mi.)	Pop. (Jan. 1, 1945)	Capital
<b>North</b>			
Acre (terr.)	57,153	88,700	Rio Branco
Amazonas	595,474	463,900	Manaus
Rio Branco (terr.)	97,438	15,100	Boa Vista
Pará	470,752	1,017,200	Belém
Apupá (terr.)	55,489	25,600	Macapá
Guaporé (terr.)	96,986	27,300	Pôrto Velho
<b>Northeast</b>			
Maranhão	133,674	1,354,300	São Luís
Piauí	94,819	900,600	Teresina
Ceará	57,371	2,290,100	Fortaleza
Rio Grande do Norte	20,236	844,100	Natal
Paraíba	41,591	1,561,400	João Pessoa
Pernambuco	38,315	2,935,600	Recife
Alagoas	11,031	1,043,600	Maceió
Fernando de Noronha (terr.)	7	1,200	.....
<b>East</b>			
Sergipe	8,321	595,000	Araçajú
Baía (Bahia)	204,393	4,292,900	Salvador
Minas Gerais	228,469	7,458,400	Belo Horizonte
Espírito Santo	17,688	851,000	Vitória
Rio de Janeiro (state)	16,372	2,030,200	Niterói
Federal District	451	1,941,700	Rio de Janeiro
<b>South</b>			
São Paulo	95,459	7,890,200	São Paulo
Iguazú (terr.)	25,426	93,200	Foz do Iguazú
Paraná	57,315	1,316,100	Curitiba
Santa Catarina	31,118	1,242,800	Florianópolis
Rio Grande do Sul	110,150	3,651,100	Pôrto Alegre
<b>Central-West</b>			
Goiás	225,266	907,800	Goiânia
Mato Grosso	446,317	366,100	Cuiabá
Ponta Porá (terr.)	39,088	94,800	Maracajú



loaf in England brought about a revision of government requirements to permit the use of a somewhat more refined flour in baking. Considerable discussion of nutritive properties of bread took place in both England and Canada but these countries did not adopt up to the close of 1945 the vitamin and mineral enrichment program which proved successful in the United States and elsewhere. During 1945 12 additional states adopted a uniform bill for the enrichment of family flour and bakers' bread and rolls, this bill being approved by the organized milling and baking industries and sponsored by persons concerned with nutrition and public health. Thus, at the end of the year 18 states and 2 territories, having a total population of about 50,000,000 people, had compulsory enrichment legislation on their statutes. In other states, bread enrichment would be on a voluntary basis following the termination of the order of the department of agriculture's War Food administration, which went into effect in Jan. 1943, and remained in effect throughout 1945.

Much interest was developed in the commercial production of frozen bakery products which were introduced in several localities in the United States. The products are prepared by the baker who, instead of baking them in his oven, freezes them quickly and packages them. The consumer does the baking. Some products are baked first, then frozen. This method of merchandising was in its infancy in 1945 and, as William H. Cathcart pointed out (*The American Baker*, 13:68, Dec. 1945), many of the technologic phases of production remained to be ascertained. The same investigator reported some interesting observations on the application of high frequency heat in the thawing of frozen fruit and other bakery ingredients, and in the prevention of mould in bread (*The Northwestern Miller*, 223:26, July 11, 1945; *The American Baker*, 13:94, Dec. 1945). The thawing of packages of frozen peaches, used in the production of pies, can be reduced from 20 hours to about 15 minutes by electronic heating. The passing of wrapped and sliced bread through an electronic oven in five seconds destroys mould spores. The annual loss of bread owing to mould development was estimated to be more than 150,000,000 lb. (See also FLOUR AND FLOUR MILLING.)

FILMS.—*Bread; Principles of Baking* (Encyclopædia Britannica Films Inc.). (F. C. Bg.)

**Breadner, Lloyd Samuel** (1894— ), Canadian airman, was born July 14, at Carleton Place, Ont. He was educated at Ottawa. He had a distinguished record in World War I, becoming a flight sublieutenant in the royal naval air service in 1915. He later transferred to the royal air force, and by Nov. 1918 had attained the rank of major (equivalent to the present rank of squadron leader). From Oct. 1920, Air Marshal Breadner was associated with the royal Canadian air force, becoming certificate examiner to the air board. In 1922, he became director of civil aviation and had much to do with shaping civilian and commercial flying in Canada between the two world wars. From 1928 onward, however, he was drawn into military aviation, serving as acting director of the R.C.A.F. till 1932. In 1936, he became air staff officer at National Defense headquarters. In 1940, he was made air vice-marshal, and chief of air staff. He became air marshal in 1941 and on Nov. 11, 1943, was named air officer commanding the R.C.A.F. overseas. In the King's Honour List of 1943, Air Marshal Breadner was created a companion of the Order of the Bath. On March 17, 1945, he retired as air officer commander in chief of the royal Canadian air force overseas. A few days later, he was raised to the rank of air chief marshal. Before returning to Canada, the air chief marshal was received by his majesty, the king, at Buckingham palace

(April 7). In company with the other leaders of the Canadian armed forces, and of President Conant of Harvard university, Air Chief Marshal Breadner received an honorary doctorate of laws from McGill university in October. (J. I. C.)

**Brereton, Lewis Hyde** (1890— ), U.S. army officer, was born June 21 in Pittsburgh, Pa., and graduated from the naval academy at Annapolis, 1911. Two days after he was commissioned as an ensign he resigned to become a lieutenant in the army's coast artillery corps. He took flight training in 1912, served as a pilot in the Philippines and commanded one of the first U.S. flying units on the western front during World War I. In July 1941 he was made head of the army air force in the Philippines. After the loss of the Philippines, he became chief of U.S. air forces in India. Transferred to the middle east, July 1942, as U.S. air commander, in Feb. 1943 he became U.S. commander in chief of the middle east. In Aug. 1944 the Allies revealed that Brereton was given command of a new air-borne army. Brereton's force launched an air-borne invasion of the Netherlands, Sept. 17, in a daring attempt to cross the Rhine river at Arnhem. The Germans, however, prevented Allied ground forces from establishing contact with the air-borne troops, and the operation ended in failure. On March 24, 1945, about three divisions of Brereton's 1st Allied air-borne army landed behind German lines on the east bank of the Rhine. This operation, smoothly coordinated with other Allied crossings, was successful. After the end of the war in Europe, Gen. Brereton was a member of Gen. Courtney Hodges' U.S. 1st army staff.

**Bretton Woods:** see BANKING; EXCHANGE STABILIZATION FUNDS; INTERNATIONAL LAW; UNITED NATIONS MONETARY AND FINANCIAL PROGRAM.

**Brewing and Beer.** The word beer covers the entire malt beverage group—beer, ale, porter, stout, etc. Malt beverages are sold, under regulation and licence, in all 48 states of the U.S.A., which generally treat beer apart from distilled liquors because of its low alcoholic content. They are taxed by the federal and state governments.

The industry's production and sales statistics are based on U.S. internal revenue reports of tax-paid withdrawals (sales) for the fiscal years ending June 30. As cited here, the reports cover the period after beer's relegalization by the act of congress effective April 7, 1933 (which preceded the effective date of repeal of the prohibition amendment by eight months).

**Sales Records.**—Following are the sales records in U.S. barrels (31 gal.) by fiscal years ending June 30: 1933 (85 days), 6,277,728; 1934, 32,266,039; 1935, 42,228,831; 1936, 48,759,840; 1937, 55,391,960; 1938, 53,926,018; 1939, 51,816,874; 1940, 53,014,230; 1941, 52,799,181; 1942, 60,856,219; 1943, 68,636,434; 1944, 76,969,764; 1945 (official but not audited), 79,256,000.

Package sales, considered significant of the extent of home use, maintained their progressive gains in 1945 when 64.3% of all beer—a new record—was sold in bottles. There was also considerable canned beer sold for overseas shipment, but this is not included in the sales record figures, since this beer was withdrawn for consumption outside the continental limits of the U.S. In 1934, 75% of all beer was sold in barrels.

**Taxes.**—Federal excise and special taxes on beer for the fiscal year 1945 totalled \$641,811,737, bringing the cumulative total after relegalization in 1933, to \$4,114,028,796. State and local taxes and licence fees in 1945 were estimated at \$170,000,000, raising the cumulative figure after relegalization to about \$1,520,000,000. From 1933, the combined public revenues from

beer approximated \$5,635,000,000. In 1945 beer carried the heaviest tax burden in the industry's history. Its federal tax rate was \$8 a barrel, as compared with \$1 a barrel 30 years before. To this was added state taxes, nonexistent before World War I, making the combined tax rate in some instances 15 times as high as 30 years previously.

**U.S. Beer Abroad.**—The overseas army demand for beer as a moderate refreshment and an aid to morale could not be entirely fulfilled because of transportation difficulties. This made it desirable to obtain as much of the beverage as possible from nearby breweries in Europe. For this purpose, a number of Italian and North African breweries were taken over by U.S. army authorities in 1944, and placed under the supervision of expert brewers from the armed services. This was extended in 1945 to include breweries in areas liberated in France and those in the American zone of occupation in Germany. The result was the production of American type of beer in European breweries, supplemented by beer imported from the U.S. as shipping facilities permitted.

**By-Products.**—Nearly one-third, dry weight, of grains used by brewers is returned to the farm in the form of spent grains which form a concentrated protein-rich feed for livestock, particularly dairy cattle. Recovery of spent grains is estimated at nearly 60 lb. (wet weight) per barrel. On this basis, American brewers produced an estimated equivalent of 2,371,000 tons of spent wet grains during 1945. About one-third of this amount was dried for long-distance shipment.

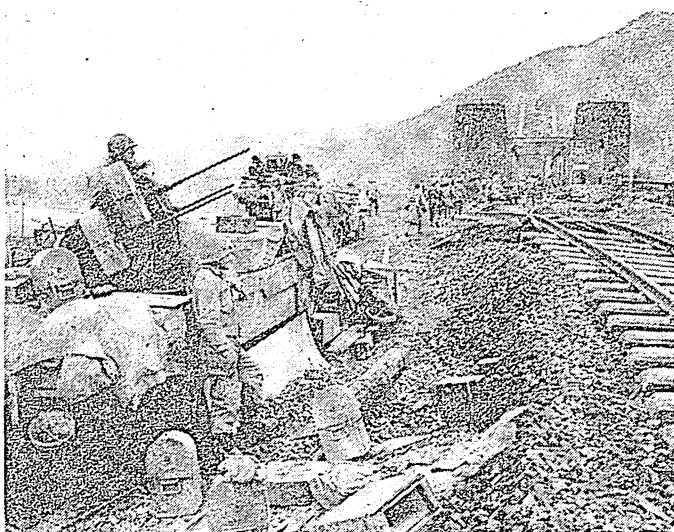
Another valuable by-product of the brewing process is brewers' yeast, one of the richest natural sources of vitamins of the B-complex group. Under a program set up in 1942 in co-operation with the U.S. War Food administration and National Research council, the brewing industry during 1945 continued its nationwide project of processing and drying of brewers' yeast for use as a concentrated food, not only for American armed forces and war workers, and the peoples of allied and liberated nations, but also as an extremely important adjunct in the feeding of animals and poultry.

**Moderation and Law Enforcement.**—In 1938 the brewing industry launched a self-regulation program, sponsored by the United States Brewers' foundation in 16 states. Designed to promote moderation and sobriety and to maintain wholesome, orderly conditions wherever malt beverages are sold, the program utilizes trained investigators to observe the conduct of retail beer outlets and to report to law-enforcement authorities those licensees who refuse to correct law violations. An outgrowth of this activity was the brewing industry's army and navy co-operation program, initiated with the enactment of selective service in 1940 and which was continued despite the end of the war and consequent reduction of personnel and activities at most army centres. This program, endorsed by the war and navy departments, enlisted the aid of brewers, wholesalers, retailers and their associations for co-operation with military and civil authorities in the vicinity of military posts. (See also LIQUORS, ALCOHOLIC.) (C. D. Ws.)

**Bridge, Contract:** see CONTRACT BRIDGE.

**Bridges.** Plans have been made (1945) for rebuilding, on a new design, the Tacoma Narrows bridge, Tacoma, Wash., that was dramatically destroyed by aerodynamic action in 1940.

A contract was let in 1945 for \$1,300,000 for strengthening the Bronx-Whitestone bridge, New York city, N.Y. (2,300-ft. span), by adding deep trusses to the shallow stiffening girders in order to increase the resistance of the span to aerodynamic oscillations.



TROOPS of the U.S. 1st army crossing the Rhine into Germany over the Ludendorff bridge at Remagen, Germany, after its capture on March 7, 1945. Failure of the Germans to destroy the bridge gave U.S. forces a foothold on German soil, the first invasion of Germany from the west in more than a century.

A number of vertical vibration recorders were installed on the Golden Gate bridge, San Francisco, Calif. (1944), to measure and record the amplitudes and modes of the aerodynamic oscillations of the 4,200-ft. span.

The postwar plans (1945) of British engineers include two new long-span bridges, one over the Severn and one over the Firth of Forth. The proposed suspension bridge over the Severn is to have a main span of 3,200 ft., with towers 500 ft. high, representing an entry into a new order of span magnitude for British bridge building.

The Justo-Vargas International bridge connecting Brazil and Argentina over the Uruguay river, commenced in 1938, was completed and officially dedicated in Oct. 1945.

The famous Plougastel bridge across the Elorn river near Brest, France, was destroyed by the Germans in 1944. Built by E. Freyssinet in 1929 as a combination railway and highway bridge, its three 612-ft. spans jumped existing span lengths for concrete arches to a sensational extent and held the record for 11 years as the world's longest concrete arch spans, since exceeded by only two other concrete arches (Esla in Spain, and Sando in Sweden). An innovation in its construction was the installation of 28 horizontal jacks in the crown of the arch to prestress the rib and at the same time to lift it free of the centring. The bold design used an unusually high stress of 1,000 lb. per square inch in the arches, for which concrete having the unprecedented ultimate strength of 8,500 lb. per square inch was specified.

All of the bridges over the Danube at Budapest, Hungary, including the two famous chain suspension bridges (Lancz bridge, 663-ft. span, 1845, and Elizabeth bridge, 951-ft. span, 1903) were destroyed during World War II.

Bold span lengths of continuous plate-girder bridges were attained in Germany before World War II. A bridge at Mangfall (1935) had a plate-girder span of 354 ft.; a bridge crossing the Elbe (1938) on the Berlin-Halle express highway had a plate-girder span of 411 ft.; and a bridge over the Rhine at Frankenthal (1939) had a plate-girder span of 591 ft. Another bridge (unidentified) was reported to have a span of 623 ft., which would make it the longest plate-girder span in the world. And the ambitious bridge project at Hamburg, commenced in 1938 and interrupted by the war in 1939, included a proposed continuous plate-girder span of 854 ft.

Over the Albert canal in Belgium, more Vierendeel rigid-joint

truss bridges, both riveted and welded, were built between 1930 and 1940 than existed in all the rest of the world combined. All were destroyed, mostly by the Belgians themselves, in 1940. At Liège a Vierendeel bridge not yet erected was found and utilized by U.S. army engineers to build a temporary crossing and was subsequently completed (1945), becoming the only surviving example of this interesting bridge type over the Albert canal.

A bridge at Hasselt, Belgium, which collapsed due to weld failure in 1938, was rebuilt 14 times in the changing fortunes of war.

A unique aerial transporter bridge was constructed 1944-45 over the Espiritu Santo river (one of the tributaries of the upper Amazon) in Bolivia. The need for natural rubber made this crossing vital. The transporter car, suspended from the cable tramway, carries a six-ton loaded truck across the 885-ft. span in 1½ minutes, yet requires only a 20-hp. motor. The track cables are kept horizontal by being supported at intermediate points from the overhead supporting cables; in addition, self-balancing counterweight anchorages and spring-loaded compensating ropes help still more to prevent sag at the load concentrations. The complete transporter bridge was fabricated in the United States and carried by mule and canoe far into the Bolivian jungles where it was erected in eight weeks by unskilled local workers.

A concrete pontoon bridge completed in 1944 across the Derwent river at Hobart, Tasmania, is novel in design, forming a three-hinged horizontal arch, with the crown of the arch upstream. The arching in plan dispenses with cable anchorages. The entire 3,165-ft. length of the floating arch moves freely up and down with the 8-ft. tides. Each of the two arch segments consists of 12 cellular pontoons, 132 ft. long, rigidly united by welding the projecting reinforcement and then concreting. The 40-ft. width includes a 30-ft. roadway, a sidewalk and space for a water main. A vertical lift span in the approach provides a clear channel 180 ft. wide and 150 ft. high for navigation. In 1943, before final completion, a severe storm built up heavy seas which battered and damaged the structure. The period of the waves matched the natural period of vibration of the bridge in a horizontal plane; this resonance caused excessive amplitudes and resultant stresses. The structure was repaired and strengthened, and timber breakwaters were built for protection from wave action. Built as a toll bridge at a cost of \$1,100,000, the structure was acquired from the private owners by the government of Tasmania in 1944.

A novel and ingenious bridge type, developed to meet a wartime need, is a four-lane retracting pontoon bridge built in 1944-45 to carry a four-lane highway across Cerritos channel in Long Beach harbour, Calif. With structural steel at that time a highly critical material, a solution of the problem was found in a design using two retractable, concrete pontoons arranged to slide back under the approach ramp on either shore. This arrangement required very little steel, eliminated heavy foundation work, and left the channel entirely unobstructed when the pontoons were retracted. The clear span between fenders is 170 ft. With a 40-hp. motor for each pontoon the bridge can be opened or closed in 1½ minutes. The two concrete pontoons, 50 ft. by 132 ft. in plan and weighing 1,200 tons each, were cast in dry excavations on shore, which were then flooded and the pontoons floated out. The pontoons were designed as cellular structures for strength, also to provide a central section that can be used as a ballast tank for decreasing freeboard to reduce wave exposure and to adjust clearance in the retracted position.

European engineers recorded outstanding pioneer work in the development of prestressed concrete. To replace bridges destroyed in France during World War II, Freyssinet built a number of prestressed concrete beam spans of 164 ft. with girders 6½ ft. deep. In 1942 Freyssinet built a prestressed-concrete girder bridge over the Seine with a record-breaking span exceeding 100 metres (328 ft.) and a girder depth of only 8 ft.

Fortunately no war damage occurred to any of the two dozen beautiful and famous bridges crossing the Seine within the city of Paris, but bombs and demolition took their tolls of nearly all of the bridges outside of Paris. About 5,000 bridges in France were wrecked, many of them a second time after reconstruction in 1943.

The new bridge (built 1945) over the Seine at Neuilly has an arch span of 269 ft., the longest welded arch span in the world. Each arch contains 12 two-hinged, welded box-section ribs built up of high-strength chrome-copper steel plates. The bridge replaces Perronet's famous stone arch built 1768-1780.

Forming part of a projected superhighway, the new bridge over the Seine at St. Cloud, built early in the war, consists of five 100-ft. continuous girder spans, also of welded construction and also using chrome-copper steel. It replaces a 16th century bridge of ten arch spans that had been destroyed by floods and wars and rebuilt countless times. In the new bridge a distinctive appearance was secured by the use of copper sheets enclosing the exterior girders and the use of exposed varicoloured aggregates in all concrete surfaces of piers, abutments and retaining walls.

The Suresnes bridge over the Seine, commenced in 1937 but interrupted in 1942, was to be a concrete cantilever of 259-ft. span with 130-ft. anchor spans. The welded structural steel reinforcement (2,200 tons) was erected first so as to provide a support for the concrete forms.

Replacing a bridge of seven cast-iron arches, wrecked by the French army engineers in 1940, the new bridge over the Seine at Bezons was to be a concrete arch of 310-ft. main span with 180-ft. cantilever side spans, requiring special erection procedures.

The Seine crossing at Bry-sur-Marne, of unusual type and span, a concrete cantilever of 186-ft. span, completed in 1938 and wrecked by the French army engineers in 1940, was replaced by a temporary suspension bridge in 1941. Rebuilding of the original bridge was commenced in 1945, involving the raising of the suspended section of the main span from the bottom of the river.

In the 120-mi. stretch of the lower Seine below Paris, where few bridges remained standing, France would be able to carry out its long-planned program of bridge replacement with longer spans where the piers of the old short-span bridges cramped the channel, aggravating floods and blocking navigation.

The prestressing principle was used in a highway bridge built in Aue, Ger., in 1936, using a reinforced concrete cantilever girder 392 ft. long, with a centre span of 226 ft. A novel feature in this structure was that the adjustable steel tension chord, used to prestress the girders, was not embedded in the concrete.

A bold extension of the same principle was applied in the design for a self-anchored suspension bridge, 3,100 ft. long with 2,000-ft. main span, proposed in 1940 for a crossing over the harbour of Rouen at Tancarville, France. In this design the suspended structure is of reinforced concrete, precast in 100-ft. sections, each section being connected to the towers by adjustable steel diagonals which provide the prestressing as well as the suspension. This system facilitates cantilever erection, and the usual parabolic cables may be either omitted or added later.

The pioneer application of structural aluminum as a bridge material was for the replacement (1933) of the suspended floor (including floor-beams, stringers, roadway and sidewalks) of the two 360-ft. lenticular truss spans of the 50-year-old Smithfield Street bridge over the Monongahela river at Pittsburgh. This reconstruction reduced the dead weight of the structure by 800 tons, thereby increasing the live-load capacity by that amount and prolonging the usefulness of the old bridge to carry modern loading. After 12 years of service the experiment was pronounced fully successful in a report (1945) by the U.S. Public Roads administration.

A bridge constructed entirely of structural aluminum (a plate-girder span) was to be built in 1946 at Massena, N.Y.

The \$2,250,000 President Harry S. Truman bridge, carrying a single track railroad across the Missouri river on the outskirts of Kansas City, Mo., was officially opened to trains in May 1945. The bridge, designed for E-72 loading, includes a 420-ft. vertical lift span weighing 1,600 tons.

The new Pecos River viaduct, carrying the Southern Pacific railroad across the deep gorge of the Pecos river in Texas, just north of the Mexican border, was commenced in 1943 under an emergency wartime priority and was completed in Dec. 1944. It parallels and replaces the original Pecos River viaduct, built in 1891, long famous as the world's highest railway viaduct (320 ft. high). The new structure, carried on two hollow concrete piers, one 275 ft. high, is a continuous cantilever deck truss with a main span of 374½ ft. The trusses were erected as cantilevers, but the joints were then riveted to make the spans continuous under live load. The location is a centre of earthquake shocks, so that earthquake forces had to be considered in the design.

A new bridge (built 1944) for the Southern Pacific railroad over the Pajaro river in California crosses the San Andreas fault and was designed with novel earthquake-resistant features. The main structure is a three-span continuous deck girder 364 ft. long. Projections built on the pier tops are to prevent the spans from falling off the piers in case severe temblors occur, and automatic block signals to stop trains are set by any serious track disalignment.

A new double-track bridge spanning the Colorado river near Topock, Ariz., built by the Atchison, Topeka and Santa Fe railway (1942-45), is designed for E-72 loading and is 1,507 ft. long, including three 350-ft. deck truss spans. The new bridge parallels and replaces the Santa Fe's old Red Rock cantilever bridge of 660-ft. span, which made bridge history as the largest cantilever span at the time it was built (1890). In 1901 the old bridge required strengthening, and in 1910 a concrete pier was built under the middle of the span to reduce the stresses. After 1931 more frequent repairs and strengthening were necessary; engine weights had to be limited and train speeds restricted to 10 mi. per hour.

In building the 1,265 mile pipeline, 24-in. diameter, to carry Texas gas to Pittsburgh furnaces (1943-44), suspension type aerial crossings were used to carry the line across the Colorado, Brazos, Sabine, Red, Buffalo and Dix rivers, with spans varying from 560 to 1,280 ft. The pipe is suspended from two overhead cables over high towers and is held in line by two side or sway cables in the same horizontal plane. The Red river crossing has a main span of 1,280 ft. with one loaded side span 640 ft. long.

After four years of interruption by World War II, construction was resumed early in 1946 on the North State Street bridge over the Chicago river in Chicago. The design is a double-leaf trunnion bascule bridge of 210-ft. clear span, with over-all width of 108 ft. The new span would be the fifth bridge in this location in 80 years.

The Darien River bridge on the Coastal highway in Georgia, completed early in 1945, is a three-span plate-girder cantilever, with a central span of 150 ft.

The longest continuous girder bridge of reinforced concrete in Georgia was built over the Chattahoochee river near Atlanta in 1944. The critical shortage of steel at the time caused the bridge to be designed in concrete, using a continuous girder structure of 65-90-65-ft. span.

To carry a four-lane divided highway over the Big Piney river in southern Missouri, a pair of identical twin bridges of reinforced concrete was completed early in 1945. Each bridge includes three open-spandrel arches of 100-160-100-ft. span.

To meet wartime needs, construction of the \$14,000,000 Terminal Island bridge and access highways to U.S. navy installations in Long Beach harbour, Calif., was commenced in 1945. The first unit includes a lift span and a mile of approaches.

In 1945 three 306-ft. spans of a bridge over the Tennessee river were moved upstream 78 mi. to a new location near Camden, Tenn. Abandoned by the Illinois Central railroad when its line was changed by the construction of the Kentucky dam, the bridge was moved to serve another railroad across the same river. The spans were raised by hydraulic jacks, lowered to barges, and then taken endwise through the lock at Kentucky dam to the new location, where piers were built before the reservoir filled.

The continuing demand for steel for war purposes caused a sharp progressive drop in the number of bridges built in the United States during the war. Expenditures for bridge construction showed a 50% drop each year, from a high of \$112,000,000 in 1941 to a low of \$16,000,000 in 1944. Many bridge shops concentrated on the fabrication of military invasion bridges including Bailey bridges and other, more secret, types of military bridges. Nation-wide surveys in 1944 indicated the immediate need for more than \$1,000,000,000 of new bridge construction in the United States.

During World War II the U.S. army developed the portable scissors



bridge as a mobile self-launching bridge, providing a rapid means of spanning small streams with an 80-ft. span for vehicles and tanks weighing up to 35 tons. The bridge is a 13-ton aluminum girder assembly hinged at the centre to fold in half. It is carried in folded horizontal position on a trailer, from which it is mechanically launched by first raising the assembly to a vertical position and then spreading the scissors until the far end rests on the opposite shore. The 80-ft. span can be installed in 15 to 30 minutes by six men.

Under security blackout during the war, U.S. bridge designers developed the demountable V-type bridge for the speedy replacement of demolished railroad bridges at the battlefield. It can be quickly erected either as a deck or a through structure, either square-ended or skewed, of 40-ft. to 90-ft. span for railroad equipment (single track, E-40 loading) and of 240-ft. span for highway use (two lanes, H-20 loading). When erected as a deck truss it has two top chords but only one bottom chord. The entire bridge contains only one type of joint, one type of angle, and one type of plate. It is designed for mass production, needs a minimum of shipping space, and can be easily assembled by combat troops without bridge experience. A standard 10-ft. panel length is used, and all the joints can be bolted simultaneously for speedy erection.

The latest development in floating bridges by U.S. army engineers during the war was the M4 or Division Army bridge, made of structural aluminum and designed for vehicle loads up to 50 tons, a greater load capacity than any previous floating bridge. It is extremely simple in that the balk, or longitudinal supporting members, also form the roadway. The balk sections, 15 ft. long, are aluminum alloy box sections, and are normally carried by two-section aluminum pontoons. For light traffic crossings, the balk sections are used as both pontoons and treadways.

For pneumatic pontoons, the M2 treadway bridge is the heaviest yet designed, good for vehicle loads up to 45 tons. The light open-grid treadways, 45½ in. wide, are supported on steel saddles on pneumatic pontoons spaced 12 ft. on centres and consisting of rubberized canvas tubes made up into a unit 8 ft. wide by 33 ft. long.

To carry the Ledo road across the Irrawaddy, during the Allied push into Burma in 1944, U.S. army engineers built a pontoon bridge of record length, 1,200 ft. within the short time of 14 hours and 45 minutes. The bridge was anchored against the current by a horizontal parabolic cable strung upstream.

The longest single-span military bridge in existence was built in 1945 by U.S. army engineers across the Shweli river on the Stilwell (Ledo) highway near the China-Burma border. It is a suspension bridge of 420-ft. main span, without side spans, and of 40-ton capacity. The towers and suspended span were assembled entirely of standard 5-ft. by 10-ft. Bailey bridge panels. The cables and suspenders are of 0.83-in. prestressed wire rope; each cable consists of six of these ropes side by side. The towers, 55 ft. high, are of rocker type. The anchorages are buried Bailey panels to which the wire ropes are connected by special quick-acting clamps, permitting easy adjustment of cable length without cutting. This type of military suspension bridge has been standardized. From the standard equipment, an engineer company can quickly build bridges of any span from 220 ft. to 420 ft. in 20-ft. increments. Half of the span is assembled complete on each bank and manually rolled through the towers, the ends being supported by tackle from carriages on the cables.

Up to the end of Jan. 1945, U.S. army engineers had rehabilitated 7,000 mi. of vital European railroads to provide the Allied armies with supply routes to the western front. This included the reconstruction of 172 major railroad bridges destroyed by bombing or enemy demolition. Unit construction railroad trusses were used, designed for rapid assembly and erection. Although built for temporary military needs, the reconstructed lines and bridges could be used for years until permanent post-war reconstruction would be undertaken.

The unit construction railway truss, developed by the British early in the war, is a precision-built Pratt-type truss that can be quickly erected as a through or deck bridge in span lengths up to 85 ft.

A spectacular Bailey bridge was built by a combat battalion of the U.S. 9th army, in Dec. 1944, to span the Albert canal in Belgium at a point where it runs through a deep wide cut. The unusual feature of the bridge was the use of 5-ft. x 10-ft. Bailey truss panels to form the 52-ft. high piers as well as the superstructure, but the bridge was also notable for its span lengths, 151-152-121 ft. The builders, without previous experience, completed the bridge in 24 hours. A bulldozer was used in pushing the assembled span out over the edge of the bank until the assembly "nose" was over the successive piers.

Preceding the Rhine offensive early in 1945, the most dangerous bridging operations were the first crossings of the Roer and other rivers with light pontoons and heavy treadway pontoons, placed by combat battalions under enemy fire. They were the kind of bridge that could be statistically catalogued as requiring so many engineers' lives per foot of crossing.

A bridge that made military history, speeding the end of World War II, was the Ludendorff bridge over the Rhine at Remagen. Built in 1916-18 during World War I, it was a railroad bridge of 512-ft. main span in the form of a tied arch continuous with 277-ft. side spans. On March 8, 1945, advance patrols of the U.S. army found it still standing, although damaged, when all other bridges over the Rhine had already been demolished; and its quick capture, only ten minutes before the time set for its planned demolition by the Germans, enabled armoured troops and supplies to be poured across the Rhine in a steady stream for ten days without the delay of building a military crossing under enemy fire. U.S. army engineers worked feverishly to save the bridge by repairing its shattered steelwork, and would have succeeded if it had been able to hold itself up another ten hours. But weakened by continued artillery blasts and by German shells, the bridge collapsed on March 17, hurling 200 engineers into the river. It had functioned long enough, however, to enable the Allied forces to get the floating bridges across and to secure the bridgehead. This unexpected crossing of the Rhine shattered the morale of the Germans and accelerated their early surrender.

For the invasion of Germany in 1945, U.S. army engineers built 14 fixed bridges across the Rhine. Characterized as semipermanent, they are of deck-girder or military-truss type supported on framed pile bents. Five of them are railroad bridges—at Wesel, Duisburg, Mainz, Ludwigs-

haven and Karlsruhe. The other nine provide highway crossings of the Rhine—at Wesel, Cologne, Neuwied, Mainz, Oppenheim, Gernsheim, Frankenthal and Ludwigshafen. In addition there were at one time more than three dozen floating bridges—treadways, heavy pontoon, Bailey pontoon, and Bailey trusses on Rhine river barges—spanning the river along the then-occupied U.S. sector, and some of these floating bridges have remained in service (1946). All of the German bridges over the Rhine had been demolished.

The railroad bridge over the Rhine at Mainz, dedicated (1945) as the Franklin D. Roosevelt Memorial bridge, 2,200 ft. long, was built in 9 days and 22 hours, breaking the record for Rhine river crossings, including that of Julius Caesar who recorded that he had done it in ten days 2,000 years ago.

The record was again broken when another regiment of U.S. engineers built the 2,800-ft. railroad crossing over the Rhine at Duisburg in 6 days and 15 hours (April 1945). Prefabricated metre-beam spans (28 spans of 75 ft. and one 90-ft. span) were set on the 30 piers by a floating derrick. Eighteen of the piers were built of hollow steel piles captured from the Germans.

When the U.S. army engineers were bridging the Rhine in the spring of 1945 for the invasion of Germany, the river was clogged with the wreckage of many world-famous bridges. These included the Hohenzollern bridge at Cologne (actually three parallel bridges, two railway and one highway) with arch spans of 390-544-422 ft., built 1911; the South bridge at Cologne, a railroad bridge of three tied arches, 333-540-333 ft., built 1911; the handsome Cologne-Deutz self-anchored suspension bridge, 605-ft. main span and 302-ft. side spans, with nickel-steel stiffening girders and plate link chains, built 1913-15; the Dusseldorf-Neuss highway bridge, a 676-ft. span cantilever completed 1929; the Dusseldorf-Hamm railroad crossing, consisting of two parallel bridges each of four 352-ft. tied arches, built 1912; the Duisburg-Homberg highway crossing, which was the largest cantilever bridge in Germany, with span lengths of 296-405-678-427-279 ft. and 54 ft. wide, completed in 1907; the Duisburg-Hochfeld highway bridge, a cantilever bridge of unusual design, built 1926, with two main spans 620 and 413 ft. long and 65 ft. deep that cantilevered one panel beyond their end supports to be continuous with 341-ft. end spans, which were only 32 ft. deep; and the Adolf Hitler bridge at Krefeld-Uerdingen, which combined cantilever and suspension action, with a main span of 820 ft., built 1935.

The Carquinez Strait bridge in California (the longest cantilever bridge in the United States), also the nearby Antioch bridge, both built in 1923, became toll free in 1945. The two bridges were purchased by the state toll bridge authority in 1940 for \$5,500,000; their gross toll revenue amounted to \$1,500,000 annually.

In 1944 the Gandy bridge, between Tampa and St. Petersburg, Fla., was taken from its private owners by order of the secretary of the navy as an aid to the war effort, and was made toll free. By subsequent court decision, the federal government paid the owners \$2,382,000 for the bridge.

Nine out of a total of 12 state-owned toll bridges in Kentucky, including some over the Ohio river, became toll free in 1945.

South Carolina's last toll bridge, the 2,650-ft. John P. Grace Memorial bridge over the Cooper river at Charleston, completed 1929, was to become free of tolls in July, 1946.

In 1945 there were more than 400 old covered bridges still surviving in the United States, and many of these were in service.

The historic covered bridge at Bowling Green, Ind., built in 1854 and once saved from demolition by an eloquent appeal of the Indiana Historical society, finally succumbed to the elements and collapsed in 1945. Some years earlier the span was officially closed as unsafe, but the local farmers promptly ripped the barricades down.

The 104-year-old covered bridge at Newfane, Vt., was dismantled in 1945 to make way for the construction of a new state highway span. Local citizens formed the 1841 Covered Bridge association to re-erect the historic timber bridge at a new site.

The 55-year-old timber bridge at Franklin Junction, N.H., one of the few remaining covered railroad bridges in the United States, collapsed because of the undermining of an abutment by a 1945 flood. The hand-hewn oak structure of 200-ft. span carried a single-track railroad until 1936, when weakened footings caused the bridge to be abandoned. (See also ROADS AND HIGHWAYS.) (D. B. S.)

**Briquettes, Fuel:** see FUEL BRIQUETTES.

**British Borneo:** see BORNEO.

**British Columbia.** The crown colonies of Vancouver Island (1849) and of British Columbia (1858), after uniting in 1866, joined the Canadian confederation on July 20, 1871, to form the most westerly province of the Dominion of Canada. Bordering on the Pacific ocean, the province occupies an area of 366,255 sq.mi., of which 6,976 sq.mi. are water. The total population, as of June 1, 1945, was estimated to be 949,000. The principal ports of Vancouver (275,353 in 1941), New Westminster (21,967) and Victoria (44,068) lie in the southwestern corner—not far from the United States border. At the 1941 census, urban dwellers numbered 443,394, and rural dwellers 374,467; the bulk of the population (558,085) was reported to be of English, Irish or Scottish descent; native Indians numbered 24,875, and persons of Asiatic descent, 42,472. Wartime immigration from neighbouring provinces increased the population of the coastal cities; based on the

distribution of ration books in 1943, the population was: Greater Victoria, the capital, 82,390 (including Oak Bay, Saanich and Esquimalt municipalities); Greater New Westminster, 36,778; Vancouver, 306,167; Prince Rupert, 11,926.

**History.**—In the fourth session of the 20th parliament, which occurred during February and March, 1945, John Hart, premier and minister of finance, reported to the legislative assembly that the revenue of \$38,760,635, collected during the fiscal year ended March 31, 1944, was \$1,196,717 less than the total revenue collected in the preceding year (\$1 Canadian=90.9 cents U.S.); that the net public debt on Dec. 1, 1944, amounted to \$132,418,832, which represented a decrease of \$1,262,030 from 1943; that the anticipated revenues were \$37,267,713 and expenditures \$37,198,960 in the fiscal year 1945-46. Measures passed by the assembly included provision for a \$5,000,000 building program at the University of British Columbia; an arrangement for the purchase of land-clearing machinery and its rental to farmers; financial assistance to accredited districts for the irrigation of land; provincial guarantees to assist village municipalities to finance self-liquidating water and sewage works; the Electric Power act, which created the British Columbia Power commission and authorized the government to lend the commission up to \$10,000,000 for the acquisition and operation of power plants, and provided for the wholesale distribution of power.

In August the development of northern areas and future of the provincially owned Pacific Great Eastern Railway was referred for study, by Premier Hart, to a joint committee comprised of Dominion, British Columbia, Alberta, Canadian Pacific and Canadian National Railways representatives.

In the October provincial election, the Coalition government, headed by Premier John Hart (Liberal) and Attorney-General R. L. Maitland (Conservative), was returned to office. The Co-operative Commonwealth federation, headed by Harold E. Winch, again became the official opposition. Standing of the various parties in the new legislative assembly was: Coalition members, 37; C.C.F., 10; and Labour, 1. Other members of the provincial executive council and their portfolios, at the close of the year were: G. S. Pearson, provincial secretary and labour; H. Anscomb, public works, railways and municipal affairs; E. C. Carson, mines and trade and industry; E. T. Kenney, lands and forests; Dr. G. M. Weir, education; F. Putnam—who succeeded Dr. K. C. MacDonald, deceased—agriculture.

In November, at the meeting of the co-ordinating committee, comprised of federal ministers and provincial premiers, Premier Hart indicated that the provincial government endorsed the full employment objectives advanced by the Dominion at the Dominion-Provincial conference in August; that the province would consent to Dominion administration of the income and inheritance tax fields, if satisfactory financial arrangements could be devised, but that the Dominion's financial proposals, as presented in August, were not adequate. In the same month the report of Dr. M. A. Cameron, sole commissioner inquiring into the cost of education, was made public. In recommending that the system of local school boards be retained, the commissioner advocated reformed school districts, equalized assessments and a basic provincial program—to be financed in part by increased provincial grants-in-aid and a uniform tax of 5 mills upon property. In December, H. Carl Goldenberg was appointed sole member of a royal commission to study provincial-municipal financial relations; the hearings were to begin in Feb. 1946.

**Education.**—During the school year ending June 30, 1944, 119,043 students were enrolled: in the elementary (80,034), junior high (15,998), superior (3,688) and high (19,323) schools of the province. Teaching staffs comprised 2,621 teachers in

elementary, 509 in the junior high and 1,032 teachers in superior and high schools.

**Communications.**—Provincial highways were maintained approximately at their 1942 level; the total mileage in 1942—excluding the Alaska highway—amounted to 21,726 mi., of which 9,131 mi. were surfaced; 10,069 mi. were improved earth; 2,526 mi. were unimproved earth roads. Contracts calling for the completion by 1947 of a 251-mi. road between Dawson creek on the Alaska highway and Prince George were awarded in July. Little change occurred in the railway mileage, which amounted to 3,849 mi. of single track in 1942. In the same year, the total number of telephones, 162,518, included 56,795 on automatic switchboards.

**Manufacturing, Agriculture, Mineral Production.**—Preliminary provincial estimates indicated that the net value of production in the primary industries, during 1945, slightly exceeded that of the previous year; the details were: \$100,000,000 in agriculture (1944, \$97,738,000); \$39,500,000 in fisheries

*Economic Activity in British Columbia, 1943-45*

	Unit	1943	1944	1945 (Est.)
<b>AGRICULTURE:</b>				
Total value of production	\$	86,917,546	97,738,000	100,000,000
Livestock . . . . .	\$	10,840,000	11,139,000	...
Poultry products . . . . .	\$	11,493,000	11,421,000	...
Dairy products . . . . .	\$	18,438,111	19,714,000	...
Fruits and vegetables . . . . .	\$	19,533,982	22,983,000	...
Field crops . . . . .	\$	22,256,000	22,287,000	...
Miscellaneous . . . . .	\$	4,356,453	5,193,000	...
<b>FISHERIES:</b>				
Total value of production	\$	32,477,964	34,900,990	39,500,000
Pack of canned salmon	case	1,258,221	1,097,558	1,738,000
<b>FORESTRY:</b>				
Total value of production	\$	118,434,000	146,611,000	150,000,000
Timber scaled . . . . .	M.B.M.	3,078,767	3,096,333	...
Paper production . . . . .	ton	274,722	310,734	...
<b>MINING:</b>				
Total value of production	\$	65,892,395	54,923,803	54,630,000
Lead . . . . .	\$	15,214,417	13,265,886	15,315,000
Zinc . . . . .	\$	13,405,481	12,055,328	14,540,000
Coal . . . . .	\$	7,742,030	8,217,966	6,150,000
Gold . . . . .	\$	9,101,786	7,547,309	6,940,000
<b>INTERNAL TRADE:</b>				
Index of wholesale sales, 1935-39=100		186.9	196.9	220.0
Index of retail department store sales, 1935-39=100		161.7	177.1	193.0
Railway freight loaded . . . . .	ton	9,245,155	9,541,029	...
Consumption of electric power . . . . .	000 kw.hr.	2,567,830	2,580,329	2,760,000
Construction, building permits . . . . .	\$000	7,698	17,538	23,000
Bank debits . . . . .	\$000	3,297,400	3,735,622	4,300,000
Index of employment, 1926=100		190.0	185.7	175.0
Salaries and wages paid . . . . .	\$000	394,953	378,118	...

(1944, \$34,900,990); \$150,000,000 in forestry (1944, \$146,611,000); and \$54,500,000 in mining (1944, \$54,923,803). Building activity was reported to have reached its highest point in 15 years. But, reflecting the influence of slackened war activity in the manufacturing industries, and heightened by an influx of demobilized personnel, during the last quarter of the year applications for unemployment insurance benefits reached new high levels in the coast cities.

FILMS.—*Pacific Canada* (Encyclopædia Britannica Films Inc.). (G. N. P.)

**British East Africa.** Under this heading are grouped British colonial territories on the east coast of Africa, of which certain essential statistics are given in the table. See BRITISH EMPIRE for population, capital towns, status and governors. (See also RHODESIA.)

Common plans for demobilization were discussed throughout 1945, notably by a conference of East African governors in May, whose findings were published for the first time. The plans included an ordered demobilization by groups through district commissioners, considerable new training facilities, mainly located in Kenya, and some measure of after-care, through a new African branch of the British legion. General postwar development schemes had received, to March 31, £3,500,000 from the colonial development and welfare fund. To June 30, 1944, there were £24,827,962 circulating compared with £6,499,776 in 1939. New regional organizations included

## British East Africa

Territory and Area in sq. mi.	Principal Products (in short tons)	Imports and Exports Merchandise (in thousand \$)	Road, Rail and Shipping	Revenue and Expenditure (in thousand \$)	Education: Elementary and Secondary
KENYA 224,960	(1943 exports) coffee 7,767 (\$2,165,000) sisal 27,235 pyrethrum 4,047 tea \$2,065,000 gold \$1,338,000 hides & skins \$1,340,000	(1943) imp. 44,490 exp. 17,020	(1937) rds. arterial 3,160 mi.; rlys. 1,290 mi.; shpg. cleared 2,158,767 net tons	(1943) rev. 23,330 exp. 12,400	(1937) Europ.: schls., 35, schlrs., 2,091; African: schls., 52, schlrs., 4,593; Indian: schls., 7,635; mission schls., 100
MAURITIUS (dependencies, 87) 720	(1939) sugar 252,450 copra 1,760	(1942) imp. 11,560 exp. 13,030	(1939) rds. 700 mi.; rly. 141 mi.; shpg. cleared 776,454 net tons	(est. 1941-42) rev. 7,110 exp. 6,650	(1938) schls., 126, schlrs., 39,952
NYASALAND 37,374	(1944) tobacco 8,580 tea 6,820	(1944) imp. 6,520 exp. 6,040	(1939) rds. main, 1,852 mi.; rly. 289 mi.	(est. 1944) rev. 3,785 exp. 3,780	(1939) elem. Europ.: schls. 4, schlrs., 117; African: schls., 4,279, schlrs., 204,761
SEYCHELLES 156	(1939) export: copra 5,170 cinnamon leaf oil 74	(1940) imp. 327.5 exp. 355.5	(1939) 60 mi. of first class cart road	(1944) rev. 298 exp. 285	(1939) elem. schls., 26; schlrs., 3,105; sec. schls., 3, schlrs., 415
BRITISH SOMALILAND 68,000	(1939) export: gums and resins 608.5 skins, number 1,952,512	(1941-42) imp. 2,565 exp. 770	(1938) rds. for wheeled traffic c. 2,000 mi.	(1941-42) rev. 870 exp. 762	(1938) elem.: govt. schls., 2, schlrs., 121; private-aided schls., 14, schlrs., 514
TANGANYIKA 362,688	(1943 exports) coffee 11,984 (\$2,233,000) sisal 99,550	(1943) imp. 17,200 exp. 24,230 re-exp.	(1939) rds. 2,927 mi.; rly. 1,377 mi.; shpg. cleared 3,077,951 net tons	(est. 1944) rev. 14,336.4 exp. 15,760.7	(1938) elem.: Europ., schls., 19, schlrs., 934; Indian: schls., 67, schlrs., 5,128; African: schls., 1,014, schlrs., 76,360
UGANDA 93,981	(1943 exports) coffee 22,037 (\$4,615,000) cotton 24,563 (\$13,010,000)	(1943) imp. 10,600 exp. 22,730	(1938) rds. 7,488 mi. rly. 332 mi.	(est. 1944) rev. 9,490.3 exp. 9,809	(1938) elem.: schls., 300, schlrs., 34,232; sec.: schls., 22, schlrs., 1,250
ZANZIBAR and PEMBA 640 380	(1943 exports) cloves 7,865 copra 11,644	(1943) incl. bullion and specie imp. 4,360 exp. 4,570	(1939) rds.(Z.) 151 mi. (P.) 71 mi.	(est. 1944) rev. 1,924.7 exp. 2,126.4	(1938) elem.: schls. (govt. schls.) 2,428, (private schls.) 2,930

an interterritorial civil directorate of demobilization, and an interterritorial transport conference. Powers were sought for an electric power line from Tanganyika to Kenka. On Dec. 12 an economic high commission was announced for the four territories.

**Kenya.**—On July 25, 1945, the legislative council passed a scheme for a functional redevelopment of the central government, under which five posts were created on the executive council: native affairs; finance; law and order; development and reconstruction; and agriculture, animal husbandry and natural resources. The chief secretary's office was abolished, and he became development member and also chairman of a new development authority. The reform was opposed by Indian members, but supported by the African, who required safeguards about African representation and security of tenure. In July, at one of the *barazas* he was holding throughout the native areas, the governor promised greater representation, a closer organization of African local government, and a new cadre of African administrative assistants. These administrative reforms were to be read in conjunction with new development plans, involving £18,000,000, proposed by a development committee, and providing for accurate statistics, control of water supplies and soil erosion, African resettlement, bulk selling of produce, and a new doctrine for African land tenure as tenants of the tribe.

**Mauritius.**—A disastrous year included two destructive cyclones, and the world's greatest outbreak of infantile paralysis in which more than 1,000 people died—both during the spring of 1945. On the other hand, plans were on foot for a new and more democratic constitution, with a wider franchise, and a British trade union expert visited the island to advise on labour reforms. A modern hospital and rehabilitation centre was inaugurated with space for 300 patients at Floreal in the centre of the island.

**Tanganyika.**—The new governor in his first speech in May 1945 looked forward to intensive development. Published plans included: a scheme to build 3,000 mi. of road; an agricultural development fund to be set up from the £300,000 profits from cotton and coffee control; a pioneer cottonseed oil mill at

Dar-es-Salaam, and experiments in spraying the new insecticide DDT from low-flying aircraft. A mining consultant was also being sought. There were considerable diamond finds reported from Shinyanga. On welfare, £50,000 came from London for a system of community centres. A scheme for graduated income tax in the Pare district failed after a two-year trial. In November the legislative council was modified to include more unofficials, including two Africans.

**Uganda.**—Widespread riots broke out in Jan. 1945 in Buganda, during which eight Africans were killed. Although the trouble was ostensibly caused by the high cost of living, an official inquiry revealed in June that the main reason was an attempt by younger Nationalist elements to gain control of affairs, against the young Kabaka and an efficient but unpopular finance minister. On Sept. 5 a new prime minister was assassinated. His successor was a son of Sir Apolo Kagwa. Meanwhile the Kabaka decided to go to England for two years' study at Cambridge university. Reforms included the appointment of three Africans as members of the legislative council, held at Kampala rather than Entebbe; an appeal for greater democratic representation in the native government of Buganda; and greater concentration on development work for which £1,300,000 had come from London, half for a new hospital at Mulago. Other development plans included a drive against the tsetse fly, and £300,000 to be spent on technical training centres for 4,000 returned soldiers, who brought back £1,000,000 in pay.

**Zanzibar.**—Development plans included two new hospitals, a town centre, drainage schemes, a stock farm, and better educational facilities, particularly for girls. A social and economic survey was also provided for. £100,000 had come from London toward this program.

(H. V. L. S.)

**British Empire.** The governments of the British empire and the governors and premiers were as follows as of Dec. 31, 1945 (for British empire territories under military occupation during 1945 other than those indicated in the table, *see* WORLD WAR II and articles under individual territorial headings):



## British Empire

	Country	Area sq. miles (approx.)	Popu- lation (000's omitted) (est. Dec. 1939)	Capital	Status	Governors and Premiers
Europe						
Great Britain and Northern Ireland . . . . .		93,991	48,182*	London	Kingdom	George VI, King-Emperor. Prime Minister of Great Britain: C. R. Attlee. Governor of Northern Ireland. Vice-Adm. Lord Granville. Prime Minister of Northern Ire- land: Capt. Sir Basil Brooke.
Channel Islands . . . . .		75	96	{ St. Helier St. Peter Port	Part of kingdom of Great Britain and N. Ireland	Jersey: Maj. Gen. F. G. Hyland. Guernsey: Maj. Gen. Philip Neame.
Eire . . . . .		26,601	2,951§	Dublin	Dominion	President: S. T. O'Kelly. Prime Minister: Eamon de Valera.
Gibraltar . . . . .		2	20	Gibraltar	Colony	Lt. Gen. Sir Ralph Eastwood.
Isle of Man . . . . .		227	49	Douglas	Part of kingdom of Great Britain and N. Ireland	Air Vice-Marshal Sir G. Bromet.
Malta . . . . .		122	271†	Valletta	Colony	Lt. Gen. Sir E. C. A. Schreiber.
Asia						
Aden, Perim, etc. . . . .		80	65	Aden	Colony	} R. S. Champion. Ruler: Sheikh Sir Hamad bin 'Isa al Khalifah.
Aden Protectorate . . . . .		112,000	600		Protectorate	
Bahrein Islands . . . . .		213	90†	Manama	Protectorate	
Borneo:						
State of North Borneo . . . . .		29,500	302	Sandakan	Protectorate	Under military occupation.
Brunei . . . . .		2,226	39	Brunei	Protectorate	
Sarawak . . . . .		50,000	c. 450	Kuching	Protectorate	Rajah: Sir Charles Vyner Brooke
Burma . . . . .		261,610	16,824†	Rangoon	Member of the British Common- wealth of Nations	Sir R. Dorman-Smith.
Ceylon . . . . .		25,332	6,197§	Colombo	Colony	Sir H. Monck-Mason Moore.
Cyprus . . . . .		3,572	395§	Nicosia	Colony	Sir C. C. Woolley.
Hong Kong . . . . .		391	980†	Victoria	Colony	Sir M. A. Young.
Indian Empire . . . . .		1,575,187	388,998†	New Delhi	Member of the British Common- wealth of Nations	Emperor of India: H.I.M. George VI. Secretary of State: Lord Pethick- Lawrence. Viceroy and Governor General: Field Marshal Lord Wavell.
Malaya:						
The Straits Settlements . . . . .		1,357	1,435†	Singapore	Colony	Sir Shenton Thomas.
Federated Malay States . . . . .		27,540	2,194†		Protectorates	Special British Representative: Sir H. MacMichael. The Rulers of Perak, Selangor, Negri Sembilan and Pahang. The Rulers of Johore, Kedah, Perlis, Kelantan, Brunei and Trengganu.
Unfederated Malay States. . . . .		24,728	1,912§		Protectorates	Lt. Gen. Sir Alan Cunningham, High Commissioner. Emir Abdullah ibn Hussein.
Palestine . . . . .		10,100	1,651§	Jerusalem	Mandated territory	
Trans-Jordan . . . . .		34,740	350	Amman	Mandated territory	
Africa						
Kenya Colony and Protectorate . . . . .		224,960	3,724§	Nairobi	Colony and protectorate	Sir P. E. Mitchell.
Uganda Protectorate . . . . .		93,981	3,898†	Entebbe	Protectorate	Sir John Hall.
Zanzibar . . . . .		1,020	250	Zanzibar	Colony and protectorate	Maj. E. A. T. Dutton (Act. Res.)
Mauritius . . . . .		807	426§	Port Louis	Colony	Sir Donald Mackenzie-Kennedy.
Nyasaland . . . . .		37,000	2,184§	Blantyre	Protectorate	Sir E. C. Richards.
St. Helena and Ascension. . . . .		81	5	Jamestown	Colony	Major W. B. Gray.
Seychelles . . . . .		156	32	Victoria	Colony	Sir W. M. Logan.
Somaliland Protectorate . . . . .		68,000	350	Berbera	Protectorate	Under military occupation (British).
Basutoland Protectorate . . . . .		11,716	590	Maseru	Protectorate	C. N. Arden-Clarke.
Bechuanaland Protectorate . . . . .		275,000	275	Mafeking, in Cape Province	Protectorate	A. D. Forsyth-Thompson.
Southern Rhodesia . . . . .		150,533	1,579§	Salisbury	Self-governing colony	Vice-Adm. Sir C. Taft.
Northern Rhodesia . . . . .		290,323	1,382*	Lusaka	Colony	Sir John Waddington.
Swaziland . . . . .		6,705	160	Mbabane	Protectorate	E. K. Featherstone.
Union of South Africa . . . . .		472,550	10,889§	{ Seat of government, Pretoria } { Seat of legislature, Capetown }	Dominion	G. B. van Zyl.
South-West Africa . . . . .		323,000	321†	Windhoek	Mandated territory	Premier: Field Marshal J. C. Smuts. Dr. D. G. Conradie, Adminis- trator.
Nigeria, including British Cameroons . . . . .		372,674	20,155†	Lagos	Colony and protectorate and mandated territory	Sir A. Richards.
Gambia . . . . .		3,999	205	Bathurst	Colony	Sir Hilary R. Blood.
Gold Coast, including British Togoland . . . . .		91,843	3,572*	Accra	Colony and protectorate and mandated territory	Sir Alan Burns.
Sierra Leone and Protectorate . . . . .		27,926	2,000	Freetown	Colony and protectorate	Major Sir H. C. Stevenson.
Anglo-Egyptian Sudan . . . . .		967,500	6,362†	Khartoum	Condominium	Sir H. Huddleston.
Tanganyika Territory . . . . .		360,000	5,321†	Dar-es-Salaam	Mandated territory	Sir W. D. Battershill.
America						
Bahamas . . . . .		4,404	69§	Nassau	Colony	W. L. Murphy.
Barbados . . . . .		167	201*	Bridgetown	Colony	Sir H. Grattan Bushe.
Bermudas . . . . .		19	33†	Hamilton	Colony	Lord Burghley.
British Guiana . . . . .		80,500	364§	Georgetown	Colony	Sir G. J. Lethem.
British Honduras . . . . .		8,598	62†	Belize	Colony	Sir J. A. Hunter.
Canada . . . . .		3,729,665	11,812§	Ottawa	Dominion	Field Marshal Sir H. Alexander. Premier: W. L. Mackenzie King.
Falkland Islands and Dependencies . . . . .		4,618	3	Port Stanley	Colony	Sir A. W. Cardinall.
Jamaica and Dependencies. . . . .		4,846	1,250§	Kingston	Colony	Sir John Huggins.
Leeward Islands (Antigua, St. Kitts-Nevis, Montserrat, and the Virgin Islands) . . . . .		422	99†	St. John (Antigua)	Colony	L. B. Freeston.
Newfoundland and Labrador . . . . .		c. 152,000	300*	St. John's	Colony, constitution suspended	Vice-Adm. Sir H. T. Walwyn.
Trinidad and Tobago . . . . .		1,980	520†	Port of Spain	Colony	Sir Bede Clifford.
Windward Islands (Grenada, Dominica, St. Vincent, and St. Lucia) . . . . .		825	275†	St. George's (Grenada)	Colony	Sir Arthur Grimble.
Oceania						
Commonwealth of Australia . . . . .		2,974,581	7,246§	Canberra	Dominion	H.R.H. the Duke of Gloucester. Premier: J. B. Chifley.
Fiji . . . . .		7,055	234†	Suva	Colony	Sir A. W. Grantham.
New Zealand . . . . .		103,415	1,643	Wellington	Dominion	Lt. Gen. Sir B. Freyberg.
Papua . . . . .		90,540	280	Port Moresby	Part of Commonwealth of, Australia	Premier: Peter Fraser. H. L. Murray, Administrator.

\*Pop. est. 1940. †Pop. est. 1941. ‡Pop. est. 1942. §Pop. est. 1943. ||Pop. est. 1944.

## British Empire—Continued

Country Oceania (Continued)	Area sq. miles (approx.)	Popu- lation (000's omitted) (est. Dec. 1939)	Capital	Status	Governors and Premiers
Pacific Islands . . . . .	c. 11,900	162		Colonies and protectorate	Sir A. W. Grantham.
New Hebrides . . . . .	5,700	50	Vila	Condominium	Sir A. W. Grantham.
New Guinea, Territory of . . . . .	93,000	804§	Rabaul	Mandated territory	Brig. Gen. W. Ramsay McNicoll.
Western Samoa . . . . .	1,133	62§	Apia	Mandated territory	A. C. Turnbull, Act. Administrator.
Nauru . . . . .	8	3		Mandated territory	Lt. Col. F. R. Chalmers.

§Pop. est. 1943.

**British Guiana.** A British crown colony in northeastern South America. Area, 89,480 sq.mi.; pop. (1931 census), 310,933; pop. est. (1943), 364,694. Racial groups in the population include 159,249 East Indians, 135,364 Negroes, 9,419 aborigines, 8,361 Portuguese and 3,557 Chinese (1943 est.). The latest birth and death rates available in 1945 were 35.3 and 20.4, respectively, per thousand. Agriculture claims 28% of the population. The capital and principal city is Georgetown (1943 pop. est., 73,171, of whom only about 1,400 were white). The only other important town is New Amsterdam (pop. 10,525). Governor and commander-in-chief in 1945: Sir Gordon James Lethem.

**History.**—The colony was chiefly concerned in 1945 with economic reconversion. The government inaugurated elaborate plans to promote the rice industry and also to encourage fishing. Interest continued in a plan to irrigate the whole coastal belt of 270 mi. at a cost of \$12,000,000<sup>1</sup> over a 20-year period.

**Education and Religion.**—The government in 1943 operated 189 schools (plus 59 in remote areas) with 60,021 pupils; 1,620 teachers, and an average daily attendance of 44,552; the government grant for education was £140,584. Of children of school age, 97% were on the registers. Illiteracy was estimated at 30%. The principal churches are the Anglican and Roman Catholic.

**Finance.**—The British Guiana dollar is tied to the pound sterling at 4s.2d. (1945 value: \$0.83404 U.S.). Quotations of government finances are variously quoted in B.G. dollars and sterling. Estimated revenues in 1944 were £1,968,347 (1943: £2,600,717); estimated expenditures were £2,144,293 (1943: £2,288,802). On Jan. 1, 1944, the public debt was £4,038,603 and the treasury surplus was £1,242,780. Customary chief items of revenues are tariffs, excises and licences, internal revenues and income taxes; principal expenditures are usually for debt servicing, public works, medical services, education and police. Total proposed government subsidies for 1945 were \$1,931,925 (1944: \$1,642,668); the program was adopted as a wartime measure to control living costs.

**Trade.**—Exports in the first quarter of 1945 were valued at \$5,468,100 (last quarter of 1944: \$6,257,724) and imports at \$4,920,879. Customary chief export items are sugar, rice, bauxite, gold, rum and balata; principal import items are usually machinery, flour and wheat, textiles, manufactured fertilizers and wearing apparel. Shipments of rum, shingles and timber fell in the first quarter of 1945 as against the last quarter of 1944 but rice exports rose slightly. Molasses exports in the first quarter of 1945 were 44,750 imperial gal. (1944: 1,664,421 gal.). Exports of round and hewn timber in the third quarter of 1945 were 40,882 cu.ft. valued at \$44,066 (second quarter of 1945: 80,984 cu.ft. valued at \$90,539); exports of sawed lumber in the third quarter of 1945 were 24,375 cu.ft. valued at \$39,042 (second quarter of 1945: 22,545 cu.ft. valued at \$36,296). Gold exports in the third quarter of 1945 were 2,348.7 oz. valued at \$77,679, all of which went to the U.S. Bauxite exports in the same period were 236,350 long tons val-

ued at \$1,138,583; 227,910 tons of the bauxite went to Canada, the rest to the United Kingdom. Diamond exports in the same period were 3,899.5 carats (of which 2,896.6 carats went to the U.K.) valued at \$119,586. Butter imports in the first half of 1945 were 133,449 lb. valued at \$64,590 (1944: 494,439 lb.) and cheese imports in the same period were 98,270 lb. valued at \$38,216 (1944: 200,768 lb.). Machinery imports dropped greatly in the first quarter of 1945 as against 1944 but in the second quarter of 1945 they increased more than 100% over the first quarter. Imports of boots and shoes in the first seven months of 1945 totalled 7,754 doz. pairs valued at \$246,865 as against 25,522 doz. pairs valued at \$812,755 in the same period in 1944.

**Communication.**—Steamship connections operate to Great Britain, the U.S., the Canal Zone and Venezuela. Pan American Airways operates a weekly service between Miami and Georgetown. Railway mileage is 110 and highway mileage 500 in automobile roads and 177 in forest roads. The government was planning an extensive road-building program in the interior. Post offices Jan. 1, 1945, numbered 107, of which 54 were telegraph and radio stations; telegraph lines totalled 415 mi. Telephones on Jan. 1, 1945, numbered 2,800.

**Production.**—Sugar is the main crop; more than half the population is estimated to depend on it. Production in 1943 was 131,186 long tons valued at \$7,519,067. British Guiana is the chief rice producing region of South America; 72,000 acres (of a total of only 155,000 acres of cultivated land in the colony) are devoted to it. With government encouragement, farmers in 1945 began paying more attention to seed selection, planting, irrigation and drainage, with the result of a gradually increasing yield per acre. The legislative council in 1945 appropriated \$996,240 for improvement of the rice industry. Coconut production is estimated at 40,000,000 nuts annually. Coffee production fluctuates widely. Other agricultural and forest products include fruits, maize, rubber and woods (chiefly greenheart, mora and crabwood). Mineral production consists entirely of bauxite, gold and diamonds, though others, including platinum, silver, copper, manganese, mica and lignite were thought to exist. Copra production in 1944 was 2,586 long tons; the output dropped early in 1945. Cigarette production in 1944 was estimated at 210,000,000. A livestock census in 1942 showed 157,712 cattle, 3,726 horses, 13,190 goats, 47,550 sheep and 25,180 hogs. (See also WEST INDIES, BRITISH.)

**BIBLIOGRAPHY.**—*West Indies Year Book* (1944); *South American Handbook* (1945); E. Fitz-Moore, *A Modern Geography of British Guiana* (1944); *Canada-West Indies Magazine* (Montreal, monthly); *Crown Colonist* (London, monthly).

**FILMS.**—*Colombia and Venezuela* (Encyclopædia Britannica Films Inc.). (R. H. FN.)

**British Honduras.** A British crown colony on the Caribbean side of Central America, bounded on the north by the Yucatan peninsula, on the east and south by the Caribbean sea, on the west by Guatemala. Area: 8,867 sq.mi.; the southern part of the colony was technically in dispute with Guatemala, however, because of alleged British non-fulfilment of provisions in a boundary treaty in 1859. Pop.

<sup>1</sup>All dollar quotations used herein are in British Guiana currency.

(1944 est.), 63,390. The population is approximately 50% Negro and mestizo and 25% Indian; white population is estimated at less than 2,500. The chief towns are Belize, the capital and principal port (pop., 1931, 16,687); Stann Creek (2,844); Corozal (2,197); El Cayo (1,260); Benque Viejo (1,500). Governor in 1945: Sir John Adams Hunter.

**History.**—Principal developments in 1945 were concerned with economic rehabilitation following World War II. The shipping shortage eased and hope was expressed in government circles that such facilities would be restored to near normal by 1946. Minor excitement was caused by a warning given July 19 by Ramón Blanco that German residents in the colony would join with Germans in the department of Alta Verapaz in Guatemala to create a dangerous situation. The Guatemalan government continued to assert a technical claim to the southern part of British Honduras but no specific developments took place in 1945 in the controversy.

**Finance.**—The monetary unit is the British Honduras dollar, theoretically equal to the U.S. dollar, but restricted in circulation to British Honduras and pegged in practice to the pound sterling. Estimated revenues and expenditures in 1944 were approximately \$2,250,000. Colonial debt at the beginning of 1943 was £551,996.46 and \$178,300.

**Production.**—The principal items of production are woods (cedar, mahogany and pine), bananas and coconuts. Virgin stands of mahogany, long one of the chief economic resources of the colony, were rapidly being cut. Merchantable pine was estimated in 1945 at 100,000,000 bd.ft., though many difficulties existed in marketing it. About 50% of the annual consumption of pine lumber, estimated at 2,000,000 bd.ft., was in 1945 produced locally. No important mineral production exists. Industrial production is limited; some 15,000 pairs of leather-soled shoes (of an annual consumption estimated at 70,000 pairs) were produced in British Honduras in 1945, according to estimates late in the year.

**Trade and Communication.**—Chief items of export, most of which goes to the United States, are cedar, mahogany, coconuts and bananas. Banana exports, it was hoped, would increase in 1946 because of relaxation of shipping restrictions. The principal imports, most of which come from the United States and Mexico, are lumber, flour and other foodstuffs, cotton cloth, clothing, gasoline and oils.

Most external communication is normally by steamer service although the colony is linked to Mexico and Honduras by air lines. Less than 200 mi. of highway, not all of it improved, exist. Belize opened a new airport in January; possession of a 6,000-ft. runway would, it was hoped, lead to more frequent and varied aeroplane service. Vehicle registration, Jan. 1, 1945, included 145 automobiles, 228 trucks, 2 busses and 69 motorcycles. (See also WEST INDIES, BRITISH.)

FILMS.—*Central America* (Encyclopædia Britannica Films Inc.). (R. H. FN.)

**British Isles:** see GREAT BRITAIN & NORTHERN IRELAND, UNITED KINGDOM OF.

**British Legion.** Affiliation fees in 1944-45 showed a record membership of the British legion, and the Earl Haig poppy fund, which supports benevolent work, reached its highest total at £973,562 (\$3,928,322.67). In the field of pensions the legion was proposing that a

man's lost earning capacity be taken into account, up to £600 (\$2,421) in the case of a pensioner and £400 (\$1,614) of a widow. This was a revolutionary change. In matters of employment the legion was working closely with the ministry of labour, and had representatives on all board of trade committees to license the opening of shops.

British Legion Village, Kent, for tuberculosis victims and their families, was to be further developed. New machinery was being installed at the poppy factory, Richmond, which employs nearly 400 disabled men. Cambrian weaving factory in mid-Wales was extended to employ 30 additional disabled men. A furniture-making factory was acquired at Warminster, Wilts. In different parts of the country the legion was opening homes for elderly and infirm ex-service men and women. In the autumn the women's section, which also has rest and convalescent homes, was about to open a children's home.

**British Malaya:** see FEDERATED MALAY STATES; STRAITS SETTLEMENTS; UNFEDERATED MALAY STATES.

**British Pacific Islands:** see PACIFIC ISLANDS, BRITISH.

**British Possessions in the Mediterranean:** see MEDITERRANEAN, BRITISH POSSESSIONS IN THE.

**British Somaliland:** see BRITISH EAST AFRICA.

## British South African Protectorates.

Under this heading are grouped the British protectorates in the south of Africa, of which certain essential statistics are given in the table. See BRITISH EMPIRE for population, capital towns and status. High commissioner: Hon. Sir Evelyn Baring. For other territories of the British empire in the south of Africa, see SOUTH AFRICA, THE UNION OF.

**History.**—By the end of March 1945 advances from the colonial development and welfare fund totalled £973,356 (£1 = 403.5 cents U.S.), in roughly equal proportions. From this fund grants over the succeeding ten years were, it was announced on Dec. 12, to be £2,500,000. In Basutoland the first Roman Catholic university on African soil was founded at Roma. In Swaziland a free grant of £100,000, announced in May, provided for teacher training, better salaries for teachers and six new schools with better classrooms and equipment.

In May, the resident commissioner sent a letter to members of the Basuto council, informing them that the government intended to consult them and the paramount before passing laws affecting administration or life and welfare; at the same time he suggested that the council should become more representative of the bulk of the nation, proposing a system of district councils to make recommendations and to elect one representative for nomination as a member on the central council. Furthermore he suggested that paramount and resident might nominate other members from among agricultural associations, progressive associations, school teachers, businessmen and ex-soldiers. The letter also suggested a standing committee of five of the council to advise the paramount and resident when the council was not in session.

Basutoland and Swaziland both suffered from the prolonged

### British South African Protectorates

Territory and Area in sq. mi.	Principal Products (in short tons)	Imports and Exports (in U.S. \$)	Road and Rail	Revenue and Expenditure (in U.S. \$)	Education Elementary and Secondary
	(1939-40)	(1942)		(1942-43)	(1939)
BASUTOLAND 11,716	wheat, 39,820 maize (1938) 75,680	imp. 4,163,000 exp. 1,851,785 (1941-42)	rds. 502 mi.	rev. 1,962,200 exp. 1,535,600 (1942-43)	Elem. schls.: native 848; other schools 69; total schls. 82,941 (1940)
BECHUANALAND c. 275,000	gold (1942) 0.528	imp. 2,100,800 exp. 1,657,100	rds. 2,048 mi. rly. 396 mi.	rev. 1,242,850 exp. 1,049,000	Europ. schls. 11, scholars 189; native schls. 139, scholars 15,906
SWAZILAND 6,705	gold (1940) 0.037 tin ore (metal content) (1940) 110 maize (1938) 6,490		rds. 654 mi.	(1943-44) rev. 731,500 exp. 847,900	(1940) Europ. schls. 10, scholars 377; native schls. 219, scholars 8,263
		In customs union with South Africa			



drought in South Africa, the worst for many years, which broke only in mid-October after great damage had been done to cattle and crops. In Bechuanaland, the South African minister of mines and irrigation led an expedition in August to explore the possibilities of restoring the water system round the dried up Lake Ngami. He and his experts reported the distinct possibility, by canalizing the Okovango and Chobe rivers, of irrigating 4,000,000 ac. of "possibly the finest ranching land in South Africa." Later in the year, the young chief of the Bamwangwato, Seretse Khama, paid a visit to England. (H. V. L. S.)

**British-U.S. War Boards.** Combined Food Board (United States, United Kingdom and Canada).—Acting jointly, the president of the United States and the prime minister of Great Britain on June 9, 1942, authorized the creation of the Combined Food board to obtain a planned and expeditious utilization of the food resources of the United Nations. In Oct. 1943, Canadian Prime Minister Mackenzie King accepted membership on behalf of the government of Canada.

The board was established to investigate and formulate plans with regard to any question relating to supply, production, transportation, disposal, allocation or distribution, in or to any part of the world, of foods, agricultural materials from which foods are derived and equipment and nonfood materials ancillary to the production of such foods and agricultural materials.

Although the board was originally created for the purpose of assisting the United Nations in the conduct of World War II, it was decided after the end of hostilities that in view of the scarcity of many types of food, the board should continue to exercise its functions.

During 1945 the U.S. member was Marvin Jones, war food administrator, later succeeded by U.S. Secretary of Agriculture, Clinton P. Anderson; the United Kingdom member was M. I. Hutton, head of the British food mission; the Canadian member was J. G. Gardiner, Canadian minister of agriculture.

**Combined Production and Resources Board** (United States, Great Britain and Canada).—The Combined Production and Resources board was created by President Roosevelt and Prime Minister Churchill on June 9, 1942, in order to complete the organization needed for the most effective use of the combined resources of the United States and the United Kingdom for the prosecution of World War II. On Nov. 10, 1942, the board was expanded to include a Canadian member.

It was the function of the board to co-ordinate the war effort of the member countries and, as appropriate, of other United Nations, in the production, allocation and supply of those products (other than raw materials and foodstuffs) which required combined planning in order to meet military and essential civilian requirements. It was also charged with responsibility for determining availability and sources of supply for finished products (other than raw materials and food) required to meet the needs of liberated areas.

The three member governments officially terminated the board on Dec. 31, 1945, but the plans for its dissolution contemplated that the coal and textiles committees which it had sponsored would continue to function as long as needed, but on an autonomous basis.

Throughout the greater part of 1945, J. A. Krug, chairman of the War Production board, was the U.S. member of C.P.R.B. W. L. Batt was U.S. deputy member and he continued to represent the U.S. after the War Production board was abolished on Nov. 3. The Rt. Hon. Oliver Lyttelton was the U.K. member during the first half of 1945. Changes due to the British elections and to the absorption of the ministry of production by the board of trade were so soon followed by the end of the war that no formal substitution was made in the U.K. membership, the necessary continuity being provided by Sir Henry Self, who continued in Washington, D.C. as the U.K. representative on the board. Throughout the whole of 1945, C. D. Howe was the Canadian member and G. C. Bateman, Canadian deputy member. Executive officers were: for the U.S., Ogden White (succeeded by Robert C. Turner in November); for the U.K., Viscount Strathallan; for Canada, G. C. Monture (succeeded by G. Powell Hamilton in November). Secretaries were Stanley L. Phraner for the U.S., and P. Hayward for the U.K.

**Combined Raw Materials Board** (United States and Great Britain).—The Combined Raw Materials board was established on Jan. 26, 1942, to plan and co-ordinate the raw materials programs of the two countries and to collaborate with the other United Nations to secure the most effective utilization of all raw material resources at their disposal.

The activities of the board included analysis of the supply and requirements position of the United Nations for the major critical and essential raw materials; allocation of supplies of scarce raw materials among the United Nations when necessary; and working out agreements

to expand supplies, to conserve the use of raw materials in short supply, and to co-ordinate the purchasing activities of the United States and Great Britain in foreign raw material markets.

Members of this board at the end of 1945 were William L. Batt, U.S. member; Robert C. Turner, U.S. deputy member; R. B. Whiting, U.S. executive secretary; Sir Henry Self, U.K. member; R. D. Fennelly, U.K. acting deputy member; and Howard O. Hooper, U.K. executive secretary.

The two governments terminated the board on Dec. 31, 1945, and in co-operation with other United Nations established international commodity committees to take over the functions of the board in allocating tin, metal, rubber and hides and leather which were the major raw materials under board allocation that continued to be in short supply at that time.

**Combined Shipping Adjustment Board** (United States and Great Britain).—Creation of the Combined Shipping Adjustment board was announced Jan. 26, 1942. The function of the board was to co-ordinate the work of the British ministry of war transport and the War Shipping administration.

Member for the United States in 1945 was Rear Admiral Emory S. Land, chairman of the U.S. maritime commission and administrator of the War Shipping administration. R. M. Bissell, Jr., assistant to the administrator of the War Shipping administration was executive officer. Member for Great Britain was W. O. Hart. Executive officer for Great Britain was F. V. Cross.

**Munitions Assignment Board** (Washington) (United States and Great Britain).—This board's establishment was also announced Jan. 26, 1942. Working in close collaboration with the corresponding London organization, the board maintained full information of the entire munitions resources of Great Britain and the United States and translated such resources into terms of combat forces and their material reserves. The board was responsible for making assignments of stocks and production of finished war material to the United States and Great Britain and to others of the United Nations.

Members for the United States in 1945 were Harry L. Hopkins, chairman; Adm. J. M. Reeves; Rear Adm. W. R. Purnell; Rear Adm. L. D. McCormick (succeeded by Rear Adm. V. R. Murphy and Rear Adm. E. W. Burroughs); Gen. Brehon B. Somervell; Lt. Gen. B. M. Giles (succeeded by Lt. Gen. I. C. Eaker); Maj. Gen. R. L. Maxwell; Maj. Gen. John Y. York, Jr., executive; and Col. E. C. Kielkopf, secretary. Members for Great Britain: Adm. Sir James Somerville; Lt. Gen. G. N. Macready; Air Marshal Douglas Colyer; Capt. E. M. C. Abel-Smith and Group Capt. T. E. H. Birley, secretary. The Munitions Assignments board (Washington, D.C.) was abolished after the cessation of hostilities in 1945. (See also CANADIAN-U.S. WAR COMMITTEES.)

(S. L. PR.)

**British West Africa.** Under this heading are grouped the British colonial territories on the west coast of Africa, for which certain essential statistics are given in the table. See BRITISH EMPIRE for population, capital towns, status and governors.

In Oct. 1945 it was announced that the new British Labour government, which had abolished the resident ministry, recommended in its place a West African council of governors, presided over by the secretary of state, meeting two or three times a year. To the end of March, 1945, £8,600,000 (£1=40s.5 cents U.S.) had come from the colonial development and welfare fund. Grants from this over the succeeding ten years were, it was announced on Dec. 12, to be £30,400,000. Plans were being laid for the reabsorption of demobilized soldiers. The scheme for the continuation of government control of the marketing of cocoa was postponed, because of protests from various interests including African farmers, who also protested against the season's price of 15s. a load set under the existing system. In the three main territories, Africans were appointed puisne judges; in all four territories town planning schemes were published by the town planning adviser to the old resident ministry.

In June the West African commission on higher education issued its report: the majority proposed three university colleges, at Achimota, Fourah bay and on a new site at Ibadan, each to have certain degree-giving powers. The minority (including the colonial undersecretary) recommended a closer system of one college only at Ibadan, fed by territorial colleges at the two older centres and at one new site east of the Niger. Both reports urged new technical facilities, and it was estimated that the costs, considerably more than £1,000,000, would be roughly the same.

**Nigeria.**—Development plans were announced involving £40,000,000 in 11 years, and including £6,000,000 to £7,000,000 for roads, £5,000,000 each on town and country water supplies and £5,000,000 to £6,000,000 on education. The schemes also

envisaged 60 new hospitals. A new palm oil research station was established by the agricultural department in Benin province.

On March 22 the legislative council unanimously passed a new constitution which was passed at Westminster in November. This envisaged three new regional councils at Kaduna, Ibadan and Enugu, linking native authorities and the legislative council, for which they would serve as electoral colleges. Other functions of the councils included local budgeting and discussion of local legislation. All three councils, together with the central council, were to have unofficial majorities. At the same time there should be a large decentralization of technical services to regional headquarters.

These proposals, with four ordinances providing for state control of minerals and closer control of the election of chiefs, were opposed by southern educated elements centring round the national council of Nigeria and the Cameroons. This political campaign, under which African members of the legislative council were disowned, merged into an economic grievance about the cost of living, calculated in July as 170% of 1939. On June 22, a strike of technical workers, mainly railwaymen, broke out and lasted until August, when the men, who had demanded a 50% increase in wages for technical staff, and an increase of 8d. a day for manual workers, were given 30% and 3d. a day. Since grievances continued, a commission of inquiry was appointed.

**Gold Coast.**—A fresh grant of £173,000 for teacher training was issued from the colonial development and welfare fund. Plans were being laid for a general educational survey in the south. A scheme for agricultural resettlement for ex-soldiers in the north was also mooted. During the war, the government paid off a £4,000,000 loan, and issued a new loan of £3,000,000 at a lower interest. An industrial development board was set up; in September the Trade Union congress met for the first time; a youth centre was founded in May; the first retail co-operative began in the same month. In June the Town and Country Planning ordinance came into effect, granting compulsory powers of purchase, in all "planning areas." In March a new system of four grades of native courts was instituted. A constant process of federation was taking place among the smaller states. In the spring there was a grave outbreak of infantile paralysis in the northern districts of Wa and Lawra.

**Sierra Leone.**—The scheme for a new municipality for Freetown was postponed in October because of widespread criticism of its reservations mainly developed because of previous failures. The scheme, as it stood, proposed that three wards should elect four members, who in turn would select six aldermen and a mayor, with powers reserved to the governor, who could consider appeals from local staff. Two Africans were appointed education officers.

**Gambia.**—A reorganization of Bathurst, for which £691,002 was sought from the development fund, was modified as a result of representations from London. A nutrition expert was considering plans for coping with the "hungry months."

(H. V. L. S.)

**British West Indies:** see WEST INDIES, BRITISH.

**Broadcasting:** see RADIO; TELEVISION.

British West Africa						
Territory and Area sq. mi.	Principal Products (short tons)	Imports and Exports (in \$)	Road, Rail and Shipping	Revenue and Expenditure (in \$)	Education: Elementary and Secondary	
NIGERIA (including British Mandate of Cameroons) 372,674	(exports 1942) palm kernels 169,070 ground-nuts 210,310	(1941) imp. \$26,215,500 exp. \$55,545,500	(1939) rds. 20,990 mi. rlys. 1,901 mi. shpg. cleared 1,790,019 net tons	(est. 1944-45) rev. \$40,936,740 exp. \$38,821,000	(1938) elem. and middle schools 565; scholars 25,067	
GOLD COAST (including Ashanti, Northern Territories and British Mandate of Togoland) 91,843	(1942) cocoa 231,770 gold production (1944) 17.82	(1942)* imp. \$34,658,000 exp. \$49,166,000	(1942) rds. 2,390 mi. rly. 490 mi. shpg. cleared 1,842,948 net tons	(est. 1944-45) rev. \$20,374,070 exp. \$20,370,040	elem. schools 927; scholars 83,824; sec. and higher educ. scholars 2,078	
ST. HELENA (47) and Ascension Islands (34)	(1939) export flax fibre 934 tow 573	(1942) imp. \$313,130 exp. \$126,500	(1939) rds. 62 mi.	(1942) rev. \$160,800 exp. \$103,900	(1939) 810 scholars	
GAMBIA 3,999	(1940) export ground-nuts 48,070	(1943) imp. \$5,004,500 exp. \$828,600	rds. (1939) 869 mi. shpg. cleared (1940) 445,244 net tons	(est. 1944) rev. \$1,491,100 exp. \$1,475,000	(1940) elem. schools 7; scholars 1,725; sec. schools 4, scholars 200	
SIERRA LEONE 27,926	(1940 [value]) diamonds \$3,146,600 iron ore \$1,988,000	(1941) imp. \$15,370,400 exp. \$6,419,800	(1940) rds. 836 mi. rly. 311 mi. shpg. entered (1938) 2,725,573 tons	(est. 1944) rev. \$6,677,700 exp. \$6,748,300	elem. schools 253; scholars 30,851	

\*Including bullion and specie.

**Bromine.** After a decline to 32,940 short tons in 1942, bromine production in the United States made a spectacular rise to 47,043 tons in 1943 and to 51,056 tons in 1944. Since more than 90% of the output is used in the production of anti-knock fluid for motor fuel, the increase could be directly attributed to the heavy demand for motor fuels in the war program. (G. A. Ro.)

**Brookings Institution:** see SOCIETIES AND ASSOCIATIONS.

**Broomcorn.** The broomcorn crop of 1945 in the United States was estimated at 31,000 tons compared with 67,000 tons in 1944 and an average of 40,000 tons 1934-43. The lower yield of 257 lb. per acre in 1945 compared with 354 lb. in 1944 and the average of 281 lb. accounted for part of the reduction in the crop. Acreage for 1945 was only 240,000 ac. compared with 380,000 ac. in 1944. The quality of the 1945 crop was reported to be good. The leading broomcorn states were Oklahoma 9,800 tons, Colorado 9,200 tons, Texas 5,500 tons and New Mexico 3,000 tons. Prices were at the ceilings during 1945 because there was a strong demand for broomcorn. (J. C. Ms.)

**Brozovich or Broz, Josip (Tito)** (1892- ), Yugoslav soldier and statesman, was born near Zagreb in Croatia. He served in the Austro-Hungarian armies in World War I and in 1915 went over to the Russians. Returning to Croatia, he became a labour leader and communist and assumed the pseudonym Tito. After the Germans overran Yugoslavia in 1941, Tito organized a band of guerrilla followers which effectively harried the axis occupation armies. Tito's partisan forces also quarrelled with Gen. Draja Mikhailovitch's Chetniks. In this internecine struggle, Tito, whose armies were numerically larger and had a broader base of support from all races and creeds in Yugoslavia, emerged the victor and his forces won Allied recognition, which formerly had been given to the Chetniks. On March 7, 1945, Tito formed a government with himself as premier and Ivan Subasitch, representing the London Yugoslavs, as foreign minister. On May 1, Allied troops joined Tito's partisan armies and the following day the Germans in northern Italy surrendered to Gen. Mark Clark's forces. Thereupon, Tito's partisans promptly occupied the port of Trieste. This act was denounced by the western Allies and on June 9 the Yugoslav leader agreed to grant Field Marshal Sir Harold Alexander command of the military government of Trieste and withdraw



MARSHAL TITO addressing crowds of celebrants in Belgrade on March 27, 1945, the anniversary of Yugoslavia's defiance of Hitler

his troops from Trieste to Gorizia. Tito's government held elections, Nov. 11, although the political opposition stayed away from the polls. However, the Yugoslav electorate sanctioned the policies of Tito and in consequence he proclaimed the abolition of the monarchy (Nov. 29) and establishment of a republic. His rule was recognized by the United States and Britain, Dec. 22, 1945.

**Brunei:** see BORNEO.

**Bruno, Giuseppe** (1876- ), secretary of the Sacred Congregation of the Council, was born at Lezzadio, province of Alessandria, Italy. He made early studies at the seminary at Acqui, and theological and juridical studies at Rome, and was ordained in 1898.

He served on the staff of the *Acta Apostolicae Sedis*, and was later named to the Commission for the Codification of Canon Law, serving under Cardinal Enrico Gasparri. He was in 1945 a member of the Commission for the Interpretation of the Code, and had been a member of the Congregation of the Council for thirty years.

On Dec. 23, 1945, it was announced that Msgr. Bruno had been nominated to the Sacred College of Cardinals. He was the only one of the nominees to the Sacred College of Cardinals in 1945 whose duties kept him regularly in Rome. The body of which he was secretary oversees the observance of church laws in regard to such matters as fasts, abstinence, keeping of feasts and holy days, regulation of parish priests, catechetical instruction, and ecclesiastical property. It also makes plans for councils and conference of bishops.

He was created and proclaimed a cardinal on Feb. 18, 1946

**Bryn Mawr College.** A resident college for women at Bryn Mawr, Pa. In 1945 Bryn Mawr added to its academic program the following courses: history of biology, by the biology department; Latin American history, by the history department; ethics, philosophy and religion; the philosophy of mind, all by the philosophy depart-

ment; the Spanish novel, by the Spanish department. In addition, under the Anna Howard Shaw lectureship, Dr. Eveline M. Burns, consultant on social security for the National Planning Association, was in residence at the college for six weeks and gave a series of six public lectures on "Social Security in an Expanding Economy." The graduate committee and the faculty approved a request of the social economy department to give up the two-year certificate in social economy and establish instead a two-year degree of master of arts in social economy. The program for the degree provided that one-half of the student's time or more be given to theoretical course work and the remainder to field work. For students who did not desire field work in social services the department offered a degree in sociology for which all the course work would be theoretical. This degree could be secured by properly qualified students in one year. (For statistics of enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (K. E. M.)

**Bubonic Plague:** see PLAGUE, BUBONIC AND PNEUMONIC.

**Buckner, Simon Bolivar, Jr.** (1886-1945), U.S. army officer, was born July 18 near Munfordville, Ky., the son of a famous Confederate general. He studied at Virginia Military institute and then at the U.S. military academy at West Point, from which he was graduated in 1908. Later, he returned to West Point as instructor of infantry tactics (1919-23) and as commandant of cadets (1932-36). During World War I he commanded aviation training brigades. A brigadier general when he was put in command of the Alaska defense force in 1940, Gen. Buckner played a prominent role in the recapture of the Aleutians. He was awarded the D.S.M. in Oct. 1943 and subsequently was raised to the rank of lieutenant general. When his task in the Alaskan command was completed, Gen. Buckner reported to the Central Pacific command and was made commander of the new U.S. 10th army. On April 1, 1945, the 10th army, composed of regular army troops and marines, invaded Okinawa. Buckner frequently toured the front line areas, and ignored warnings against exposing himself to danger. It was while he was at a forward observation post watching his forces battle forward on southern Okinawa that he was fatally wounded by an enemy artillery shell, June 18, three days before victory ended one of the bloodiest campaigns of the Pacific war.

**Buckwheat.** The United States buckwheat crop was estimated by the United States department of agriculture to be 7,155,000 bu. in 1945 which was about 2,000,000 bu. less than the large crop of 9,166,000 bu. of 1944 and about the average of 7,121,000 bu. for 1934-43. The crop was planted late in many areas because of the wet spring, but frost damage was light. The average yield of 16.2 bu. per acre was relatively low compared with the yield of 17.8 bu. in 1944 and the average

*Estimated U.S. Production of Buckwheat in Leading States, 1945 and 1944*

State	1945 bu.	1944 bu.	State	1945 bu.	1944 bu.
Pennsylvania . . .	2,016,000	2,940,000	Wisconsin . . .	294,000	418,000
New York . . .	1,519,000	2,700,000	Indiana . . .	270,000	150,000
Minnesota . . .	630,000	945,000	Illinois . . .	225,000	82,000
Michigan . . .	420,000	512,000	West Virginia . .	172,000	185,000
Ohio . . .	306,000	294,000	Maryland . . .	141,000	120,000

of 16.9 bu. Pennsylvania led the principal producing states with the average yield of 18 bu. per acre. Some of the minor states had larger yields such as Maryland 22 bu. per acre, West Virginia 21.5 bu. and Vermont 19 bu. (J. C. Ms.)

**Budget, National.** The first postwar budget of the United States was submitted to congress by President Truman on Jan. 21, 1946. For the first time the tradi-



tional state of the union and budget messages were combined in one document by the president so as to present the government's entire legislative and fiscal program in a comprehensive and unified manner. This continued the development by which the president's budget message was used to a greater extent as the vehicle for outlining his views on the economic position of the nation and for co-ordinating the government's fiscal program with the requirements of the national economic situation.

The president's budget called for total expenditures in the fiscal year 1947 of \$35,124,982,043 and estimated that net government revenues would total \$31,512,702,700, the figures in both instances incorporating the proposals made by the president in his budget message. This contrasted with expenditures of \$100,404,596,685 in fiscal 1945 and \$67,393,679,135 in fiscal 1946 and with net revenues of \$46,456,554,579 and \$38,608,827,952 for the corresponding years. Thus, it was expected that government expenditures would be reduced to about a third of their wartime peak; an amount, however, that would be almost four times the budget expenditures of prewar years.

The main factor in the reduction of estimated government expenditures was the curtailed requirements for war and national defense consequent upon the complete ending of World War II. In the fiscal year 1945 war expenditures had totalled \$90,500,000,000. With the rapid demobilization and curtailment of war production after the end of the conflict in the Pacific, war expenditures for the fiscal year 1946 were expected to fall to \$49,000,000,000. The pace of the military demobilization is indicated by the fact that expenditures of \$32,900,000,000 for the first six months of that year were to be reduced to \$16,100,000,000 during the second six months. For the fiscal year 1947 the president estimated that the cost of war liquidation, occupation and national defense would be \$15,000,000,000. The

"MOW 'EM DOWN, PODNERS!" Jerry Costello of the *Knickerbocker News* (Albany, N. Y.) spoke in 1945 for the taxpayer, the man who ultimately foots the bill for government expenditures



war and navy departments were expected to spend \$13,000,000,000, while \$3,000,000,000 was to cover the activities of Maritime commission, War Shipping administration, the Office of Price Administration, and payments to the United Nations Relief and Rehabilitation administration. An offsetting item of \$1,000,000,000 was expected from the war activities of the Reconstruction Finance corporation.

The president stressed the immense task involved in winding up the global war effort. While he expected economy and increased efficiency to result from his recommended combining of the war and navy departments into a single department of national defense, he called attention to the large expenditures still required for war liquidation. Mustering-out pay to members of the armed forces, contract settlement, maintenance of the war-expanded naval and merchant fleets and of military installations, expenses of civilians in occupied areas and relief and rehabilitation expenditures were all placed in the category of war liquidation expenses.

The president recommended that authorizations for war and national defense which had previously been passed by the congress but which were no longer needed be repealed. He estimated that if this were done, the accumulative authorized war and national defense program through the end of the fiscal year 1947 would amount to \$376,000,000,000, of which expenditures would be \$354,000,000,000—the cost of World War II.

In addition to direct war and national defense expenditures it was estimated that federal expenditures for purposes largely inherited from the war would amount to \$11,000,000,000 in the fiscal year 1947, nearly one-third of the entire federal budget. The items in this category consisted of payments to veterans, interest on the federal debt and tax refunds.

Expenditures for veterans' pensions and benefits of \$4,207,779,400 would be required on the basis of existing legislation for the fiscal year 1947. The president proposed some liberalization of veterans' legislation which was expected to bring expenditures to \$4,787,000,000. The main factor in this increase was the proposed raising of veterans' unemployment allowances from \$20 to \$25 a week. Although pensions for veterans would constitute the largest single item in the expenditure total, many other benefits were to be provided, including unemployment allowances, provisions for education, loan guarantees for the purchase of housing and other property and medical care.

Since the major part of the national debt originated during the war years, the president included interest payments on the public debt among the expenditures resulting from the war. Interest payments in 1947 were estimated at \$5,000,000,000 as compared with \$4,750,000,000 in the fiscal year 1946. This increase was due to the further rise of the national debt occurring in the fiscal year of 1946. The president stated that the interest bill was already close to its probable postwar level.

The other item largely accounted for by wartime developments was estimated tax refunds of \$1,585,000,000. It was anticipated that half of this amount would be paid to individuals due to over-withholding and over-declaration of expected income. The remainder would be necessary in connection with loss and excess-profits credit carry-backs and similar features of the corporate income tax.

The general tendency in the remaining categories of federal expenditures, those associated with regular peacetime activities, was toward increased budget estimates for the fiscal year 1947. Under the general category of aids to agriculture, total expenditures were estimated at \$501,496,000 as contrasted with \$466,238,938 for the fiscal year 1946. The budget figure, however, was \$1,000,000,000 less than in the wartime year of 1945. In addition it was expected that net outlays for the price stabilization and the price support programs of the Commodity Credit

# BUDGET, NATIONAL

155

Table I.—General Budget Summary of the United States

Description General and Special Accounts	Estimated, 1947	Estimated, 1946	Actual, 1945
<b>Receipts—</b>			
Direct taxes on individuals . . . . .	\$12,874,200,000	\$15,844,800,000	\$19,788,893,624.36
Direct taxes on corporations . . . . .	8,191,600,000	12,393,600,000	16,399,031,961.50
Excise taxes . . . . .	6,343,890,000	6,302,490,000	5,934,575,068.46
Employment taxes . . . . .	1,856,500,000	1,581,300,000	1,792,700,136.62
Customs . . . . .	433,700,000	413,200,000	354,775,541.50
Miscellaneous receipts . . . . .	3,238,622,700	3,171,167,952	3,469,548,007.12
<b>Total receipts . . . . .</b>	<b>32,938,512,700</b>	<b>39,706,557,952</b>	<b>47,739,524,339.56</b>
Deduct net appropriation to Federal old-age and survivors insurance trust fund . . . . .	1,425,810,000	1,097,730,000	1,282,969,759.85
Changes under proposed legislation . . . . .	.....	.....	.....
<b>Net receipts . . . . .</b> (based on existing and proposed legislation)	<b>31,512,702,700</b>	<b>38,608,827,952</b>	<b>46,456,554,579.71</b>
<b>Expenditures—</b>			
National defense (tentative estimate for 1947) (See also government corporations below) . . . . .	16,000,000,000	48,800,000,000	90,029,145,512.84
Interest on the public debt . . . . .	5,000,000,000	4,750,000,000	3,616,686,048.31
Refunds . . . . .	1,585,007,000	2,715,618,000	1,714,880,287.89
Veterans' pensions and benefits . . . . .	4,207,779,400	3,346,815,000	2,043,872,734.13
International finance (based on existing and proposed legislation) (see also government corporations below) . . . . .	1,754,000,000	2,512,500,000	.....
Aids to agriculture . . . . .	501,496,100	466,238,938	602,351,648.75
Social security, relief and retirement:			
Social security program . . . . .	593,639,200	538,480,000	476,365,111.49
Work relief . . . . .	7,100,000	12,330,500	4,640,335.27
Retirement funds . . . . .	453,312,000	606,567,600	505,579,500.00
General public works program:			
Highways and airports . . . . .	316,606,000	145,486,000	41,698,418.03
Rivers and harbours . . . . .	110,120,000	79,620,000	55,789,374.47
Flood control and reclamation (including power) . . . . .	408,581,500	308,388,800	161,518,328.69
Veterans . . . . .	130,000,000	55,000,000	15,799,142.62
Housing . . . . .	90,000,000	100,000,000	.....
Other general public works . . . . .	27,598,500	52,545,900	15,779,308.45
General government:			
Legislative branch . . . . .	36,603,600	35,873,000	28,893,273.21
The judiciary . . . . .	16,556,400	14,485,000	13,006,336.70
Executive office of the president . . . . .	5,123,100	3,187,000	3,449,629.06
Civil departments and agencies . . . . .	1,500,450,089	1,244,542,797	1,069,652,796.84
Post office department (general fund) . . . . .	9,154	.....	486,898.79
District of Columbia (federal contribution) . . . . .	6,000,000	6,000,000	6,000,000.00
Expenditures from anticipated supplemental appropriations . . . . .	875,000,000	1,350,000,000	.....
Expenditures based on proposed legislation (excluding international finance) . . . . .	1,500,000,000	250,000,000	.....
Statutory public debt retirement . . . . .	.....	.....	2,000.00
<b>Total expenditures . . . . .</b> (based on existing and proposed legislation)	<b>35,124,982,043</b>	<b>67,393,679,135</b>	<b>100,404,596,685.54</b>
<b>Excess of expenditures . . . . .</b>	<b>3,612,279,343</b>	<b>28,784,851,183</b>	<b>53,948,042,105.83</b>
<b>Checking Accounts of Government Corporations and Credit Agencies with the Treasurer of the United States.</b>			
<b>Net Expenditures from Checking Accounts—</b> (based on existing legislation)			
National defense . . . . .	\$1,000,000,000	\$200,000,000	\$472,033,180.28
International finance . . . . .	1,000,000,000	101,000,000	164,811.36
Redemption of obligations in the market . . . . .	67,000,000	230,000,000	1,552,733,547.88
Other activities . . . . .	735,000,000	466,000,000	846,218,782.69
<b>Net expenditures (based on existing legislation) . . . . .</b>	<b>802,000,000</b>	<b>65,000,000</b>	<b>1,178,383,134.11</b>
Effect of Operations on the Public Debt . . . . .	.....	.....	.....
<b>Public debt at beginning of year . . . . .</b>	<b>\$275,000,000,000</b>	<b>\$258,682,187,410</b>	<b>\$201,003,387,221.13</b>
<b>Increase in public debt during year:</b>			
General and special accounts, excess of expenditures over receipts . . . . .	3,612,279,343	28,784,851,183	53,948,042,105.83
Checking accounts of government corporations and credit agencies, net expenditures . . . . .	802,000,000	65,000,000	1,178,383,134.11
Trust accounts, excess of expenditures over receipts . . . . .	273,434,140	251,999,518	—1,976,800,780.59
Statutory public debt retirement . . . . .	.....	.....	—2,000.00
Adjustment for change in treasury cash balance . . . . .	—8,687,713,483	—12,784,038,111	+4,529,177,729.45
<b>Increase in public debt during year . . . . .</b>	<b>—4,000,000,000</b>	<b>16,317,812,590</b>	<b>57,678,800,188.80</b>
<b>Public debt at end of year . . . . .</b>	<b>271,000,000,000</b>	<b>275,000,000,000</b>	<b>258,682,187,409.93</b>

corporation would increase substantially as well as other programs of government corporations operating in the agricultural field.

With the reconversion of industry expected to be accomplished largely during the fiscal year of 1946 and the reabsorption of labour into peacetime pursuits, it was expected that expenditures for work relief would decline for the fiscal year of 1947. On the other hand, the general expenditures of the social security program, covering administrative costs and grants to states for assistance programs were expected to increase by more than \$50,000,000.

The president noted the expansion of the general works program of the government, concentrated largely in the fields of transportation and resource development. Expenditures for highways and airports were to be about double that of the previous fiscal year and substantial increases were scheduled for river and harbour development and flood control projects. The president also recommended the development of the Great Lakes-St. Lawrence seaway.

In the category of general government expense, the budget estimates for fiscal 1947 were higher than those of the previous fiscal year for all three branches of the government. The president emphasized that the responsibility of the government had increased greatly in the previous decade and that consequently the government was larger than it was before the war. He pointed out that these government expenses could not shrink to prewar dimensions without avoiding responsibilities. For the civil departments and agencies, the budget for 1947 recommended expenditures of \$1,500,450,089, as compared with \$1,244,542,797 in the 1946 fiscal year. The major part of this rise was due to a general increase in employees' salaries, though it contained no provision for the further increase of such salaries which the president recommended. The increase was due also in part to the shifting of certain functions originating during World War II from the category of national defense to regular government expenditures; for example, certain functions of the Foreign Economic administration, the War Manpower commission, and international information and foreign intelligence. Another part of the increase was to be explained by the increase in functions to be performed in a peacetime world, such as civil aeronautics, aids to business by the department of commerce, certain activities of the department of agriculture, and internal revenue collection.

In view of the favourable business outlook which existed at the time of preparation of the budget message, the president recommended that no reduction in taxes be enacted at that time. He advised that the budget be brought as nearly into balance as possible on the basis of existing tax legislation, which included the tax reductions which became effective Jan. 1, 1946. It was estimated in the budget, however, that total government revenues for the fiscal year 1947 would be substantially below their wartime level due in part to tax reductions previously mentioned but also to the decline in the level of national income that was anticipated after industrial reconversion. From a 1945 total of \$46,456,554,579, net revenues were expected to decline to \$31,512,702,700 in fiscal 1947. This drop in revenues was about equally divided between taxes on individuals and those on corporations, it being estimated that the former would decline by approximately \$7,000,000,000 between 1945 and 1947 and the latter by approximately \$8,000,000,000 over the

same time period. On the other hand, an increase in excise tax receipts was anticipated despite the reduction in rates which became effective Jan. 1, 1946. This was due to the large increase in the production of taxable, durable goods that would be available after the reconversion of industry to peacetime production.

In recommending that no further reduction in tax rates be considered at the time, the president pointed out that the expected government revenues in the fiscal year of 1947 contained nonrecurring items, principally receipts from disposal of surplus property and high tax receipts from corporations due to the lag between receipts and liabilities. He estimated that existing tax legislation would yield only about \$27,000,000,000 in future years and that federal expenditures in the future could not be expected to fall below this amount. He emphasized also that inflationary pressures were still highly dangerous and that immediate tax reduction would further strengthen these pressures.

The substantial reduction in federal expenditures coupled with the much smaller shrinkage of government receipts was expected to bring the federal budget into closer balance than at any time after 1940. It was estimated that the government expenditures would exceed receipts by \$3,612,279,343 compared with almost \$29,000,000,000 in the 1946 fiscal year and almost \$54,000,000,000 in the fiscal year 1945. In view of the success of the Victory loan drive, the president proposed that the excess of expenditures in fiscal 1947 be paid out of the treasury's cash balance and furthermore that the national debt be reduced by \$4,000,000,000 in the 1947 fiscal year. On the basis of these calculations the national debt at the end of fiscal 1947 would be \$271,000,000,000, as compared with \$275,000,000,000 at the end of the previous fiscal year and \$258,682,187,409 at the end of fiscal 1945. Thus, during the 1946 fiscal year the increase in the public debt was to be limited to around \$16,000,000,000.

## BUILDING AND CONSTRUCTION INDUSTRY

Table II.—The Government's Budget and the Nation's Budget  
Calendar year 1944 and Oct.-Dec. 1945  
(In billions)

Economic group	Calendar year 1944			Oct.-Dec. 1945 (Start of reconversion) (In seasonally adjusted annual rates)		
	Receipts	Expenditures	Excess (+) or Deficit (-)	Receipts	Expenditures	Excess (+) or Deficit (-)
Consumers.						
Income after taxes . . . . .	\$134	\$98		\$132	\$107	
Expenditures . . . . .						
Excess of receipts, savings (+) .			+\$35			+\$25
Business.						
Undistributed profits and reserves	\$13			\$9		
Gross capital formation:						
Domestic . . . . .		\$4			\$15	
Net exports* . . . . .		-2			1	
Total, gross capital formation		2			16	
Excess of receipts (+) or capital formation (-) . . . . .			+\$11			-\$7
State and local government.						
Receipts from the public, other than borrowing . . . . .	\$10			\$11		
Payments to the public . . . . .		\$8			\$9	
Excess of receipts (+) . . . . .			+\$2			+\$2
Federal government.						
Receipts from the public, other than borrowing . . . . .	\$48			\$44		
Payments to the public . . . . .		\$96			\$64	
Excess of payments (-) . . . . .			-\$48			-\$20
Less: adjustments† . . . . .	\$7	\$7		\$14	\$14	
Total: Gross national product						
Receipts . . . . .	\$198			\$182		
Expenditures . . . . .		\$198			\$182	
Balance . . . . .			0			0

\*Excludes exports for lend-lease and relief which are included in federal government expenditures.

†Mainly government expenditures for other than goods and services, such as mustering-out pay and unemployment compensation.

ooo though this would require a substantial reduction of the treasury cash balance. As the statutory debt was \$300,000,000,000 it was evident that there would be ample margin for all public debt transactions through the fiscal year 1947.

In his 1947 budget message, the president again presented a consolidated table of the government's budget and the nation's budget which he had introduced the previous year. These data, shown in Table II, were derived from the statistics of national income and gross national product and were arranged to show the receipts and expenditures of the major economic groups of the nation—consumers, business, state and local government and federal government. (See also DEBT, NATIONAL; INCOME AND PRODUCT, U.S.; TAXATION; UNITED STATES.)

Great Britain.—The budget for the fiscal year 1945-46 was presented to parliament in April 1945, shortly before the end of World War II in Europe. In his budget message, the chancellor of the exchequer strongly emphasized its character as "interim budget."

He reviewed the domestic economic situation at length, stressing the limits reached in subsidizing the cost of living and the beneficial results of the low interest policy upon the budget. He further discussed the difficulties arising from the growth of overseas liabilities to £4,000,000,000 and the need for a postwar expansion of exports. For the time being he proposed only minor alterations in the present tax structure such as relief of international double taxation and small changes in the excess profits tax.

Estimates of total revenue for 1945-46 differed only slightly from actual receipts of the previous year and expenditures were tentatively placed at £492,500,000 below those in the preceding year. (M. Gr.)

Table III.—Government Receipts and Expenditures—Great Britain  
(£000,000)

Receipts			Expenditures		
	Actual receipts 1944-45	Estimate for 1945-46		Actual expenditures 1944-45	Estimated for 1945-46
Inland revenue . . . . .	2,029.4	2,065.0	Interest and management of national debt . . . . .	424.9	476.0
Income tax . . . . .	1,316.8	1,350.0	Other consolidated fund services .	7.3	8.0
Surtax . . . . .	73.5	80.0	Supply services (excluding post office) . . . . .	5,625.6	5,081.3
Estate duties . . . . .	110.9	115.0	Civil votes and revenue departments . . . . .	500.6	581.3
Stamps . . . . .	17.0	19.0	Votes of credit . . . . .	5,125.0	4,500.0
National defense contribution .	33.3		Total ordinary expenditures . .	6,057.8	5,565.3
Excess profits tax . . . . .	477.1	500.0	Sinking funds . . . . .	5.1	...
Other inland revenue . . . . .	.8	1.0	Sinking fund payments outside permanent debt charges . . . .	10.9	...
Customs and excise . . . . .	1,076.3	1,130.0	Total . . . . .	6,073.8	5,565.3
Customs . . . . .	579.4	589.0	Self-balancing revenue and expenditure		
Excise . . . . .	496.9	541.0	Post office . . . . .	116.6	112.4
Motor vehicle duties . . . . .	29.0	30.0			
Total tax receipts . . . . .	3,134.7	3,225.0			
Wireless licences . . . . .	4.8	4.9			
Crown lands . . . . .	1.0	1.0			
Sundry loans . . . . .	7.5	11.2			
Miscellaneous . . . . .	90.0	23.0			
Total ordinary revenue . . . .	3,238.1	3,265.0			

## Building and Construction Industry.

Construction in the United States in 1945 was partially channelled to civilian projects as World War II neared its end. When hostilities ceased, all em-

phasis was placed upon civilian needs. Urban building rose steadily reaching \$186,000,000 for construction started in Sept. 1945—8% above the volume of the preceding month and more than double the amount reported in Sept. 1944. The Oct. 1945 figure—\$262,000,000—was 37% greater than Sept. 1945. Even this figure, however, was far below prewar volume. Federal construction dropped 82% from Oct. 1944.

In urban areas privately financed new residential construction increased from \$20,000,000 for work begun in Sept. 1944 to \$60,000,000 for work begun in Sept. 1945 and to \$92,000,000 in Oct. 1945. New nonresidential building increased from \$12,000,000 in Sept. 1944 to \$72,000,000 in Sept. 1945, and then to \$108,000,000 in Oct. 1945. Additions, alterations and repairs rose from \$28,000,000 in Sept. 1944 to \$51,000,000 in Sept. 1945, to \$62,000,000 in Oct. 1945. No new public residential construction was begun in either Sept. or Oct. 1945.

New Construction Activity, Continental United States\*  
September and 9 months 1945

Item	(Millions of dollars)					
	Sept.† 1945	Aug. 1945	July 1945	Sept. 1944	9 months 1945	9 months 1944
Total new construction . . . . .	413	445	427	354	3,317	3,083
Total private . . . . .	274	261	239	144	1,695	1,201
Residential (nonfarm) . . . . .	78	75	68	39	432	402
Nonresidential:						
Industrial . . . . .	71	61	55	20	441	163
All other . . . . .	47	37	30	16	246	98
Farm . . . . .	23	30	34	22	167	162
Public utility . . . . .	55	58	52	47	409	376
Total public . . . . .	139	184	188	210	1,622	1,882
Residential . . . . .	4	6	7	9	64	169
Military and naval . . . . .	36	56	57	59	462	579
Nonresidential:						
Industrial . . . . .	21	47	60	64	595	551
All other . . . . .	23	20	17	15	134	92
Highway . . . . .	30	30	26	36	192	271
Sewage disposal and water supply	10	10	8	9	64	59
All other federal . . . . .	12	12	11	15	94	140
Misc. public service enterprises .	3	3	3	3	17	21

\*Joint estimates of the department of commerce, War Production board and department of labour. These figures refer to work put in place.

†Preliminary.

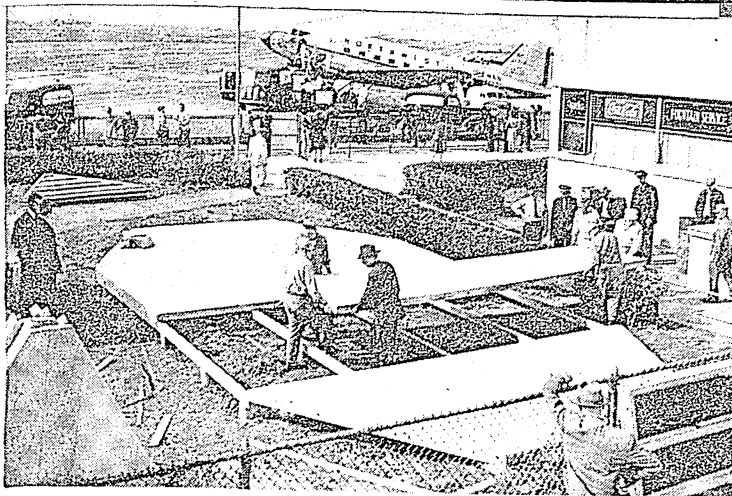
Increased employment in construction was noticeable as early as July 1945 when more than 1,000,000 persons were employed in construction for the first time after Oct. 1943. The increase was entirely on nonfederal projects, federal construction employment having dropped 12,700 from June and 65,500 from July 1944.

Construction revival was spurred by plans for building commercial, industrial and residential structures, schools, colleges, hospitals, churches and public works. F. W. Dodge reported that on May 31, 1945, there were large projects in these classifications totalling \$15,746,202,000 in the design stage or in contemplation in the 37 states east of the Rocky mountains. Since one- and two-family homes are usually built as small projects and are not usually planned far in advance of execution, relatively few of them were included. This figure, compared with that spent for actual contracts recorded by F. W. Dodge corporation in the 37 eastern states in 1939—\$3,550,543,000—indicated an unprecedented demand for materials.

The War Production board (WPB) order L41 controlling

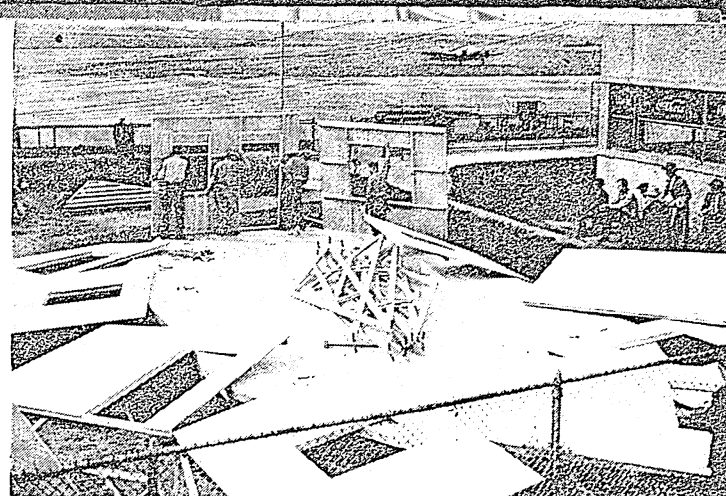
building material distribution was terminated on Oct. 15, 1945. Stock piles, however, were practically nonexistent; the production of brick and soil pipe was at a standstill until the Office of Price Administration (OPA) permitted a price rise so that in-





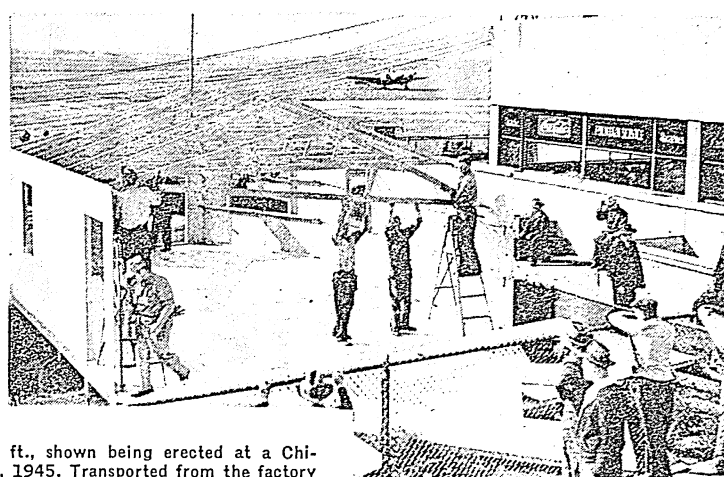
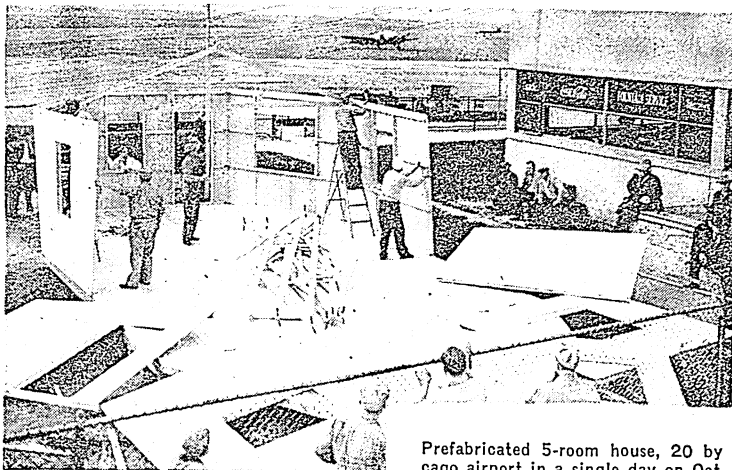
1 Above: Flooring sections are set in place and securely fastened

3 Below: First roof girder is raised and bolted to supporting walls

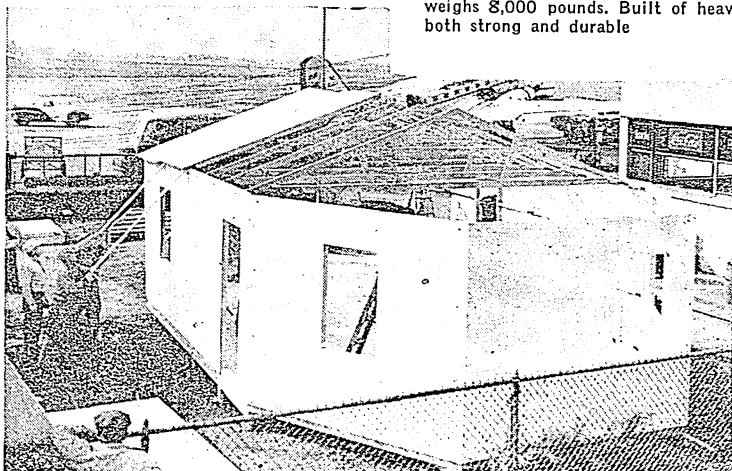


2 Above: First wall sections are erected and bolted together

4 Below: The structure takes on shape

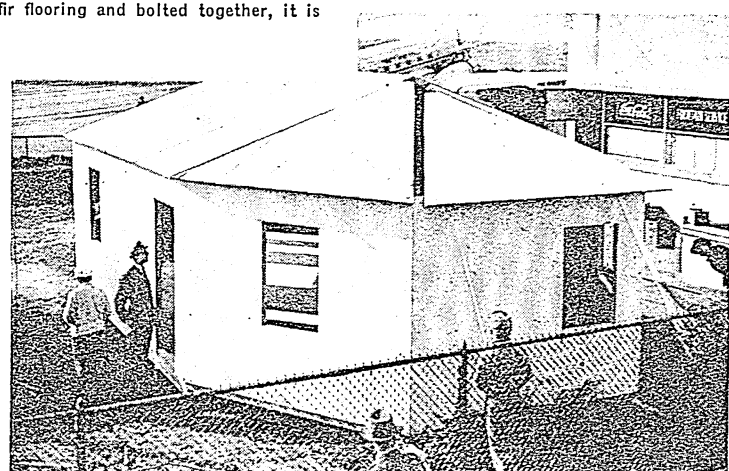


Prefabricated 5-room house, 20 by 38 ft., shown being erected at a Chicago airport in a single day on Oct. 18, 1945. Transported from the factory on one truck, the floor, walls and roof came in 30 sections. The shell weighs 8,000 pounds. Built of heavy fir flooring and bolted together, it is both strong and durable



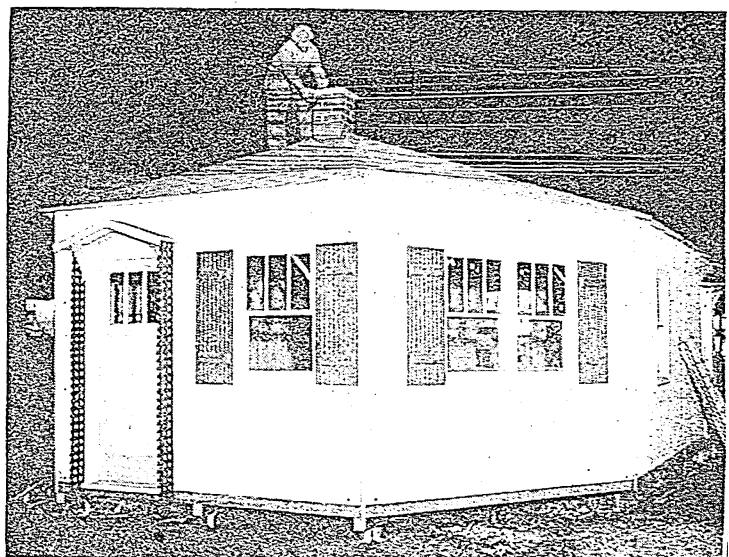
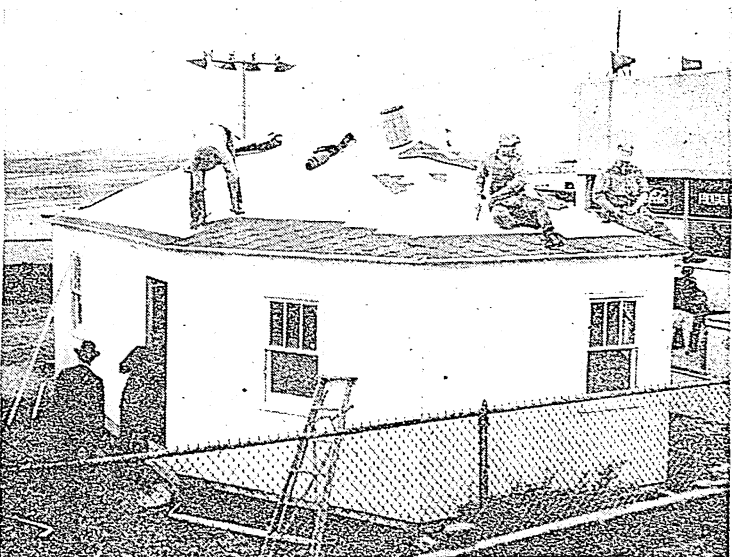
5 Above: First roof sections are moved into position over the girders

7 Below: Windows have been installed and shingling of the roof is begun



6 Above: Final section of the roof is installed

8 Below: Last touches on the chimney-ventilator are made, at dusk



dustries could pay a higher wage; lumber scarcity was made worse by strikes; heating and plumbing equipment production was slow; building labour was scarce. A prewar level of production was not anticipated before the end of April 1946. The occasion demanded a greater than prewar production.

The cost of building rose. The bureau of labour statistics' wholesale price index for building materials stood at 110.5 (1926 equals 100) in May 1943; at 115.7 in May 1944; at 117.3 in May 1945; and at 118.3 in Oct. 1945. OPA controlled the price of building materials but bootlegging was rampant. The total cost of home construction—where the demand was sharpest—was estimated to have risen 30% above 1939 costs by Sept. 1945 and to have run as high as 50% after L41 was lifted.

The housing shortage was acute and grew worse as veterans returned. Therefore, on Dec. 12, 1945, President Truman revived controls of building materials, giving priority for materials to those who built dwelling units costing not more than \$10,000. About 50% of available materials was ordered routed to this priority classification. The remaining 50% was left free for commercial, industrial and high-cost residential construction and public works to catch-as-catch-can. The president also asked congress to pass legislation controlling the sales price of old and new homes. Existing controls applied only to rental residential properties. (See also BUSINESS REVIEW; HOUSING; UNITED STATES.)

**BIBLIOGRAPHY.**—Publications of U.S. department of labour, U.S. department of commerce, Office of War Mobilization and Reconversion, F. W. Dodge corp. (D. R.N.)

**Great Britain.**—The building industry in 1945 was affected by two sudden developments. They were: the cessation of hostilities in the far east, which complicated demobilization; and the general election, which returned a government pledged to an immediate attack on the housing shortage. The popular belief that if returned the government would do its utmost to speed up building production was itself a factor in its election.

The building of houses, however, necessitated not only an adequate supply of building materials but also the recruitment of a skilled personnel. Certain training measures were put into operation to provide the high proportion of specialized labour required for a long-term policy.

It was considered expedient to curtail the construction of temporary houses in favour of permanent dwellings which, however, might incorporate prefabricated units. Where possible, German prisoners of war were employed in the clearing and levelling of sites and in the installation of services. The plan was to erect more than the 150,000 temporary dwellings—including some 30,000 prefabricated houses from the United States—previously allocated to the local authorities. Four different types of prefabricated houses ordered from Sweden in May 1945 were erected under the supervision of a Swedish foreman. They were designed for British requirements, and were prototypes of 5,000 two-story permanent timber dwellings to be set up in the country.

Considerable preparatory work was done in formulating comprehensive town-planning schemes which recognize that housing is only part of a larger problem and so require not only large-scale building operations but also an extension of public services. The erection of civic centres, schools, commercial and industrial undertakings is, in the long-run, just as necessary to the maintenance of a vigorous national life. (N. K.E.)

George Isaacs, minister of labour, addressing the Building Industries National council, said in Nov. 1945 that by June 1946 the labour force in the building and civil engineering industry would be something like 1,100,000. This compared with only 570,000 in June 1945.

On Oct. 8 and Nov. 5, 1945, tens of thousands of building workers marched through London's west end to hold protest

meetings against the reversion of their wartime wages, bolstered up by overtime to peacetime standards. The official leadership of the unions was criticized by the men's more immediate leaders as was also the delay in official negotiations. Until then building craftsmen, paid at the rate of 2s. 3½d. an hour for a 54-hour week, were earning up to £6 3s. 9d. a week without overtime. With the reduction of working hours (due to winter conditions) to 44 hours a week, their earnings fell to £5 0s. 10d. They demanded a standard week—summer and winter—of 40 hours at 3s. an hour, giving them a regular £6 a week.

**Bulgaria.** A kingdom in the Balkan peninsula. In 1940 its area was 39,814 sq.mi. with a population of about 6,370,000. Of the territories acquired after then, only the southern Dobruja, ceded on Sept. 7, 1940, from Rumania, an area of c. 2,900 sq.mi., with a population of 350,000 was to remain Bulgarian. Capital: Sofia. Chief cities: Sofia (est. 1942) 401,000, Philippopolis (Plovdiv) 99,883, Varna 69,944, Russé (Rus-chuk) 49,447, Burgas 36,230, Plevna (Pleven) 31,520. Religion: mainly Greek Orthodox; about 1,000,000 Moslems; before 1941 there were about 50,000 Jews. King: Simeon II; premier in 1945: Kimon Georgiev.

**History.**—The Fatherland Front government which had come to power in Sept. 1944 with the full backing of Russia and of the not-too-numerous local communists, continued in power throughout 1945. Its premier, Kimon Georgiev, and its minister of war, Damian Veltchev, were members of the Zveno group, which changed its former fascist leanings to a strong Russophile pan-Slavism. The most influential member was the minister of the interior, Anton Yugov, a communist, who had under his control the armed militia which ruled the country. Although the Fatherland Front (Otechestven) represented officially a coalition in which the by far strongest democratic party in Bulgaria, the Agrarians, were represented, the most important Agrarian leaders protested against the preponderant communist influence and went into opposition. Among them were George M. Dimitrov, who in May 1945 was forced to take refuge in the U.S. legation, and Nikolai Petkov, who resigned from the cabinet.

Specially established people's courts dealt with the enemies of the regime and former collaborators. Several thousands were executed, among them the former regents, Prince Cyril, ex-premier Bogdan D. Philoff and General Nikolai Mikhov. New laws "for the defense of the people's authority" threatened the most drastic punishment for any active opposition to, or excitement against, the Fatherland Front government.

Elections were first slated for Aug. 26, 1945, but they were postponed at the last minute as the result of the protests of the United States against the "undemocratic" procedure. The Russian press protested against this "interference" by foreigners in Bulgaria's affairs. Yet Bulgaria was, like Italy or Austria, a defeated enemy country, and the victorious Allies were responsible for the introduction of a truly democratic government.

The postponed elections were held on Nov. 18, 1945. The voters had only one list presented to them, the official list of the Fatherland Front government candidates. No opposition lists were presented. Under these conditions the one list was elected. The official single list comprised 94 Communists, 94 Agrarians, 46 Zvenoists, 32 Social Democrats and 11 Radicals, in each case only representing that group which was collaborating in the government, not the opposition. Foreign Minister Petko Stainoff proclaimed the election results a confirmation of the Fatherland Front's attachment to Russia—"our liberator"—and to Marshal Tito's Yugoslav regime.

**Education.**—Though elementary education is obligatory and

free for children between the ages of 7 and 14, the census of 1934 showed 20.4% of the males and 42.8% of the females illiterate. In 1939 there were in Bulgaria 252 kindergartens, 4,743 elementary schools, 1,932 junior high schools and 112 senior high schools with 969,599 pupils. Bulgaria had in 1945 one university at Sofia which in 1939 had an enrolment of 4,377 men and 1,653 women.

**Finance.**—The revenue for 1941, the last year for which figures were given, was estimated at 10,160,000,000 leva and the expenditure at 10,096,000,000 leva. On June 30, 1940, the total debt of Bulgaria amounted to 12,483,000,000 leva foreign and 11,767,000,000 leva domestic debt. The monetary unit is the lev, stabilized at 92 leva to one gram of fine gold; (1939) 1 lev=1.211 cents U.S.

**Trade and Communication.**—In 1941 imports amounted to 10,239,000,000 leva, mostly from Germany and Italy (largely machinery and war material, metal goods, textiles, vehicles and mineral oils); exports to 9,215,000,000 leva, of which the largest part went to Germany (chiefly tobacco, fruit, eggs, wheat and hides).

Bulgaria had in 1939, 2,211 mi. of railroad, 608 post offices, 798 telegraph offices and 772 telephone exchanges.

Though the country has in Varna and Burgas important ports at the Black sea and in Ruschuk an important Danube port, the merchant marine consisted only of 14 ships of 17,476 tons.

The country is predominantly agrarian, more than 80% of

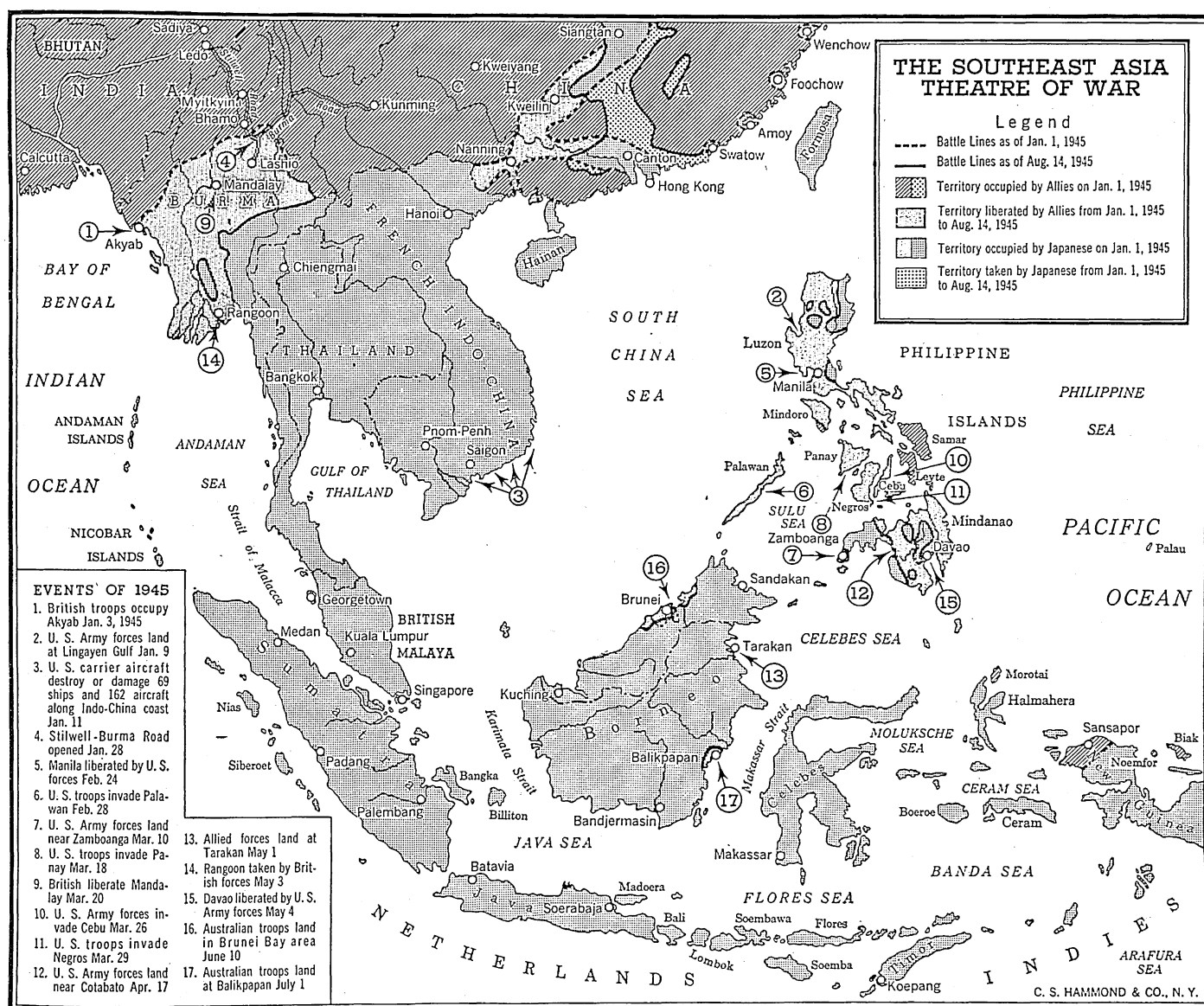
the population being engaged in agriculture in 1943. The chief crops are wheat, maize, barley, rye and oats. Fruit growing, tobacco and the culture of silk worms are highly developed. The country has rich coal deposits, but industrial development has been extremely slow.

(H. Ko.)

**Bureau of Standards, National:** see STANDARDS, NATIONAL BUREAU OF.

**Burma.** A British province lying on the eastern side of the Bay of Bengal, between India and Thailand; occupied by Japan in 1942 and liberated in 1945. Area: 261,610 sq.mi.; pop. (1941) 16,823,798. Chief cities (1942): Rangoon (cap. 501,219); Mandalay (est. 150,000); Moulmein (70,000). Religion: Buddhist (85%); governor: the Rt. Hon. Sir Reginald Dorman-Smith; ministerial advisers, the Hon. Sir Paw Tun and the Hon. Sir Htoon Aung Gyaw. Languages: Burmese and English.

**History.**—With the gradual reconquest of Burma, ending in 1945 with the Japanese surrender in September, Burma came under military administration part of which was a civil affairs service. The civil government under Sir Reginald Dorman-Smith continued in India drawing up plans for rehabilitation and reconstruction, for apart from Great Britain, Burma had suffered more material war damage and loss than any other British empire country.





Decline in rice production, disruption of communications, currency inflation, shortage of clothing and lack of shipping were the main economic difficulties of the year. Immediate recovery measures were clearance and repairs, the opening of hospitals, inoculations, and the distribution and sale of textiles, rice, salt, cooking oil, candles, etc. A practically free press was restored.

The British government declared the objective for Burma to be "complete self-government within the commonwealth and a status equal to that of the dominions and Britain." The resumption of the civil government, in October, introduced a period of civil administration controlled by the governor with direct responsibility to the British parliament. Burmese representatives were to be associated with him in executive and legislative capacities. Later a small legislative council was to be formed.

After a general election, Burmese representatives would draft a constitution and freely negotiate defense, commercial and financial agreements with Great Britain to justify parliamentary endorsement of a commonwealth status for Burma.

**Education.**—In 1940, total number of institutions 27,015, scholars 851,922; primary schools 5,679, scholars 384,060; middle 1,018, scholars 139,190; high 399, scholars 94,353; special 1,172, scholars 19,190; unrecognized institutions 18,745, scholars 212,663; university (Rangoon) 2,365 students; art college (Mandalay) 101 students.

**Finance.**—Revenue: (est. 1941-42) \$51,775,425; expenditure: (est. 1941-42) \$55,251,300; public debt: \$154,812,450; exchange rate: rupee (Rs.1) = 1s. 6d. (30.155 cents U.S.); £1 = 403.5 cents U.S. (1941-2); one crore = 10,000,000 rupees; one lakh = 100,000 rupees.

**Trade and Communication.**—Overseas trade in merchandise (April-March 1940-41): imports \$89,314,875; exports, including re-exports, \$167,386,050. Communication 1940: roads suitable for motor traffic, all weather, 6,811 mi.; seasonal 5,661 mi.; railways open to traffic 2,060 mi.; inland waterways (approx.) 1,300 mi.

**Agriculture.**—Production (1940-41) (in short tons): rice 6,720,000; groundnuts 179,200; sesamum seed 80,640; cotton 14,560; tobacco 53,435; teak 491,486.

**Mineral Production.**—In 1939 (in short tons): petroleum 331,069,920 U.S. gal.; tin concentrates 6,093; tungsten concentrates 4,863; tin tungsten concentrates 6,264; refined lead 85,120; antimonial lead 1,322; zinc concentrates 66,640; copper matte 8,887; nickel speiss 3,244; silver 6,175,000 troy oz.; gold 1,206 troy oz.

(See also JAPAN; WORLD WAR II.)

(H. L.)

**Burma Road:** see ROADS AND HIGHWAYS.

**Burton, Harold Hitz** (1888- ), U.S. jurist, was born in Jamaica Plain, Mass., June 22. He was graduated from Bowdoin college, Brunswick, Me., 1909, and from Harvard university law school (1912) and practiced law in Cleveland, Ohio. On the entry of the U.S. in World War I, he joined the army and served on the western front. After the war, Burton resumed his practice and also served as an instructor in corporation law at Western Reserve university law school. In 1929, he was elected to the Ohio house of representatives; concurrently, he was director of law for the city of Cleveland (1929-32). In 1935, Burton ran as Independent Republican candidate for mayor of Cleveland and was elected by a large majority. He was elected U.S. senator for Ohio (1940). In March 1943, Sen. Burton together with Senators Ball, Hatch and Hill brought out the famous "B2-H2" resolution; which called for U.S. leadership and participation

in forming a United Nations organization. At the same time, Burton advocated elimination of the two-thirds majority rule of the senate required for approval of treaties. Burton's senate record indicated that he approved generally the Roosevelt administration's foreign policy and followed, with a few deviations, the Republican party program on domestic issues. On Sept. 18, 1945, President Truman named Burton as an associate justice of the U.S. supreme court.

**Busch, Ernst** (1885-1945), German army officer, was born July 6. He reached the rank of a field marshal in the *wehrmacht* during World War II, but was ousted from his command in late 1942 when Hitler reshuffled the general staff. Later, he was reinstated in a high command post, and on March 13, 1944, it was reported that Busch and Gen. Walther Model had replaced Field Marshal Generals Guenther von Kluge and Georg von Kuechler as commanders of the central and extreme northern flanks of the German armies in Russia. In April 1945, when the German armies were crumbling, Busch was appointed commander of German forces in northwest Germany, at which time he was aptly described as Germany's "last-ditch chief." On May 2, Busch, reluctant to surrender his forces to the Russians, offered to give up three of his armies in the Mecklenburg region to the British. Field Marshal Sir Bernard Montgomery declined Busch's offer. He insisted that Busch surrender to the British only those of his armies in the British line of march and that those facing the Red army negotiate their capitulation with the Russians. Busch yielded (May 4) and an estimated 1,000,000 troops gave up to Montgomery. The number of *wehrmacht* troops that surrendered to the Russians was not known. The Flensburg radio subsequently disclosed that Busch was one of several German officers selected to assist the dissolution of the *wehrmacht*. Accordingly, by order of Grand Admiral Karl Doenitz, then *reichsfuehrer*, and the British occupation authorities, Busch assumed command of the Schleswig-Holstein area to carry out this task.

Later reports that Busch had been flown out of the reich and imprisoned in a secret camp were apparently confirmed by a British war office disclosure, Sept. 12, that he had died at a prisoner of war hospital in Nottinghamshire, July 17.

**Buses:** see AUTOMOBILE INDUSTRY IN RECONVERSION; ELECTRIC TRANSPORTATION; MOTOR TRANSPORTATION.

**Business Review.** **Business and War.**—In the United States the year 1945 was divided into three distinct business periods. From Jan. 1 until May 8, V-E day, were war production months; from May 8 until Aug. 14, V-J day, were the levelling-off months and from Aug. 14 to the close of the year were the transition months with reconversion for full-time civilian production. Reconversion had been initiated after the relaxation of priorities during the first quarter of 1944 and since many industries had been effecting gradual change-overs to peacetime production, no definite date for the commencement of reconversion had been fixed. Contract terminations from April 1942 through April 1945 had reached \$29,700,000,000; during the second period of 1945 another \$8,900,000,000 of war contracts were terminated; while during the month of August after V-J day an additional cancellation of \$22,800,000,000 was made by the government. Contract settlements, of course, lagged behind terminations, reaching a total of \$19,400,000,000 by V-E day, rising to \$23,700,000,000 by V-J day, and mounting to \$26,900,000,000 by the end of November. (See also WAR PRODUCTION, U.S.)

**Reconversion.**—Reconversion of plant facilities passed

through two phases during the year. First, came the cutting off of war production in the war-converted plants, a process well under way by the close of September. The second phase came with hasty resumption of civilian production on an extensive scale beginning with the acceptance of peace terms by Japan. War production could not be brought to an immediate stop as long as 12,000,000 men remained in the armed services, because of their need for food, clothing and matériel. The bureau of the budget estimated that, during the fiscal year ending June 30, 1946, approximately \$21,000,000,000 would be needed for war termination expenditures.

After the surrender of Japan many federal controls were abolished including all manpower controls; gasoline, fuel oil and many forms of food rationing; allocations of raw materials used in the production of durable goods were either relaxed or abolished entirely; and strategic metals controls were gradually withdrawn. As a result of cancellations and reconversion measures the annual rate of munitions output dropped from \$57,000,000,000 in March to about \$8,000,000,000 in December. After Aug. 14, thousands of war production contractors and sub-contractors began the inventory of materials, parts and industrial equipment that was to be turned back to the government as a prerequisite for the clearing of government property from private plants and the making of partial payments on claims for settlement and the commencement of civilian production. During these second-half months, the manufacturers faced actual cutbacks instead of the previous changes in specifications and projected deliveries.

Under the Contract Settlement act of July 1, 1944, the War Production board, government procurement agencies and Smaller War Plants corporation had established "termination-co-ordination committees" in 21 cities, and some of these had begun functioning as early as March 1945. The government also facilitated reconversions by arranging for so-called "T-loans" on contract terminations whereby different procurement agencies were empowered to extend to prime contractors loans ranging from 75% to 90% on items involved in the cutbacks.

**The Industrial Transition.**—Industry had devoted one year to preparation for a mechanized war, and nearly four years to active participation in war, during which period dire predictions of a "reconversion depression" had been made. The record of the 1945 economy repudiated such expectations. The June survey of the War Production board reported that of the 58 war industries investigated, 33 had anticipated a decrease in total production, while 25 had expected increased production after the termination of hostilities in Europe. The output of all these industries during 1944 had been valued at \$12,400,000,000, compared with prewar value of \$6,600,000,000.

The transition from war to peace had widely divergent effects in different industries. Reconversion costs were high for the passenger automobile industry where May production had been running at the annual rate of \$8,610,000,000, and year-end production had fallen to less than \$1,000,000,000. In the chemical industry, reconversion costs were very low but war production had fluctuated widely: according to the Federal Reserve board index rising to 404 (1935-39=100) in Aug. 1943, falling to 307 in Oct. 1944, again increasing to 321 in March 1945 and easing off to 227 in Sept. 1945. Conflicting economic currents were at work in the household equipment industries. On April 22, 1942, the War Production board suspended civilian production of radio sets. Wartime conversion required no costly time lags or expensive retooling, and the change-over had been made so smoothly that production of radios and other electronics had jumped phenomenally. The reconversion to civilian production in 1945 was accomplished quickly but because of inadequate supplies of proper lumber for cabinet construction, radio set output lagged far behind scheduled programs. Producers of such



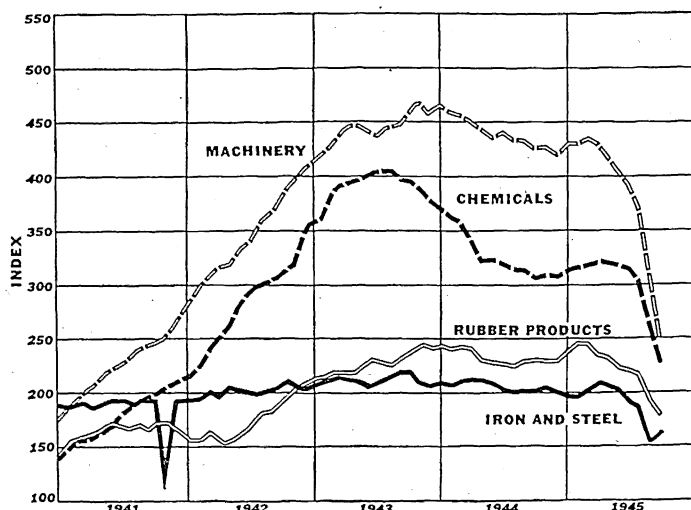
"STEADY, BOY, STEADY!" Justus of the *Minneapolis Star Journal* stressed in 1945 the need for careful control in the conversion from wartime to peacetime production and economy

electrical appliances as automatic refrigerators, vacuum cleaners, washers and ironers, toasters, grills and dry shavers encountered time-consuming changes in both plant and equipment during the third quarter, and the change-over expenses for some of these producers had exceeded expectations because of the relaxation of price controls on necessary materials. Strikes in plants producing essential parts increased the difficulties of reconversion for many electrical products in the latter part of the year.

Shipments of the industrial machinery manufacturers for the first quarter of 1945 were moderately above those for the same quarter of the previous year, but V-E day resulted in cutbacks that caused extremely sharp curtailments in production. In February, the machinery production index stood at 436, by June it had dropped to 393 and in September to 250, according to the Federal Reserve board index. The production of transportation equipment was more than halved in the first nine months of the year, which had opened in January with the index at 706 and closed in September at 308. Likewise, the production of paper and paper products rose from a level of 135 in January to 143 in September; the glass products output increased from 164 to 177 during the same period, while the index of production in the printing and publishing industry moved from 102 in January to 111 in August. These are but samples of the cross-currents that marked the immediate industrial impact of the termination of hostilities and showed the relative complexities of peacetime industry compared with the unified objectives of war production.

Reconversion in 1945 differed from the conversion for war. Both labour and management were compelled to learn war production by the trial and error method but knew how to produce the civilian products to which their plants were being reconverted. The slowdown of industrial civilian production in 1945 was the result of unfortunate strikes, transportation bottlenecks, uncertainties of congressional action, government borrowings, risks of relaxations of administrative wartime controls and the rate of return of veterans.

The trends in wartime and civilian production are shown in



PHYSICAL PRODUCTION in leading U.S. war industries, 1941-45; Federal Reserve index (1935-39=100) from U.S. Department of Commerce: Survey of Current Business

Table I in the data compiled by the Federal Reserve board.

Table I.—Industrial Production for War and Civilian Purposes (1935-1939=100)

Year	Total industrial production	Production for war purposes	Production for civilian purposes
1939 . . . . .	109	1	108
1940 . . . . .	125	6	119
1941 . . . . .	162	32	130
1942 . . . . .	199	107	92
1943 . . . . .	239	159	80
1944 . . . . .	235	155	80
1945 (March) . . . . .	235	155	80
1945 (July) . . . . .	211	125	86

Federal Reserve Bulletin, Sept., 1945, p. 852.

**Government Surplus Property.**—The policy of speedy sale of wartime government surpluses was adopted partly because their early disposal had been expected to prove less injurious to private enterprise immediately after the war, and partly because their value would drop sharply as civilian production was resumed, causing taxpayers to suffer from the lowered recoupments by the treasury. In August the Surplus Property administrator announced for sale \$3,000,000,000 worth of consumer goods; \$10,000,000,000 in war plants; \$4,000,000,000 in machinery and raw materials; \$1,500,000,000 in airport property and about \$10,000,000,000 in "unsalable" property, chiefly munitions. By the end of the third quarter, the total "market overhang" of government property had reached an estimated \$32,000,000,000.

In September, the war department offered 252 government-owned plants for sale at \$1,484,000,000. In December another list of 194 plants was added, bringing to more than 70% the total government-owned plants for disposal by the Reconstruction Finance corporation. By Dec. 1, private industry had purchased about \$1,000,000,000 in war plants, paying the government approximately 70 cents on the dollar. Although the most desirable plants had been sold earliest, the government agencies considered this recoupment reasonable if the difference between wartime costs and peacetime replacement costs were considered. At the end of the year the Reconstruction Finance corporation estimated that an ultimate total of 1,300 such plants was available for disposal. This constituted one-fourth of the wartime productive capacity of the nation, creating a high degree of uncertainty for private industry, and introduced an element of economic instability in the entire economy.

**Industrial Production.**—During the first four months of 1945 the value of goods and services produced at current prices was running at an annual rate of nearly \$205,000,000,000, compared with the gross national product of \$199,000,000,000 for 1944. The difference was largely accounted for by an increase in the price level rather than net additions to the physical volume of trade. Taking into consideration the uncertainties of the year retrospectively, it was not surprising that the industrial production trend

should be downward after V-E day. The index of the physical volume of industrial production reached its peak in February, according to data shown in Table II, and month by month thereafter revealed an unmistakable decline. Durable manufactures dropped more sharply than non-durable. Freight carloadings reflected this drop in industrial activity, but mixed trends were shown in department store sales. The most optimistic element was found in the doubling of the index for residential construction. The monthly changes for these primary industries from Sept. 1944 to Sept. 1945 is shown in Table II. This downward trend in industrial production was traceable to the reprogramming of military orders calling for a drop of 11% for the third quarter below that of the first, 20% in the fourth quarter and 30% for the first quarter of 1946. Combat production needs after V-E day were estimated at one-third those of the first quarter, and with time extensions granted to allow for redeployment in the Pacific during the second and third quarters, subsequent government orders had been originally expected to amount to two-thirds of those prior to May 8. In April, heavy cutbacks were made in aircraft production, but many of these were merely paper cutbacks which eliminated projected increases, rather than an actual curtailment of operations. By the end of August, industrial production had reached the lowest level from Oct. 1940. Taking physical production per factory worker for March and April as 100, the index dropped successively to 98 in June, 96 for July, 87 for August, rose slightly to 91 in September and again subsided to 88 for October. The postwar change-over in skills took time. Although the demand for shipbuilders dropped to almost nothing after August, the demand for textile workers became urgent. Workers, seeking more remuneration, waited for the creation of "suitable jobs," and organized labour leaders charged that, by referring skilled workers to unskilled jobs, the U.S. employment service had aided "an abominable system of wage-cutting and protection of sub-standard wages." Combined with decreasing domestic demands was the termination of lend-lease after V-J day, which largely accounted for the drop in industrial production of exporting industries.

**Iron and Steel.**—From Jan. 1942 through July 1945 more than 28% of the finished steel had been used by makers of ships, aeroplanes, combat tanks, ordnance and projectiles. Shipbuilding, as a giant consumer, disappeared during the second half of the year. The main steel consumers were as follows: steel converters, processors and wire plants, 18,000,000 tons; railroads, 17,000,000 tons; the container industry, 13,000,000 tons; pressing, forming and stamping plants, 10,000,000 tons; the machine tool industry, 9,000,000 tons; the automobile industry, 5,500,000 tons; oil, gas and mining industries, 5,000,000 tons; and the agricultural implements industry, 2,800,000 tons. Total monthly output of steel had been declining from the close of 1943 until the increased output of explosives and small arms munitions reversed this trend for March and April. Early opening of Great Lakes navigation had enabled large shipments of iron ore during the second quarter, but after V-J day a sharp drop in steel output occurred. Mills that had been operating at 91% capacity early in August dropped to 75% capacity by the end of that month. The third quarter rebound in output was caused chiefly by advance buying. Fear of inflationary trends that might raise future costs led the chief consumers, chiefly the automobile industry, sharply to increase orders. Supplementing this industrial fear was the government fear of increasing demobilization unemployment, so that allotments to railroads and the machine tool industry were stepped up, since industrial retooling was considered a prerequisite to increased civilian operations. This one basic industry largely held in check for the entire economy, the postwar decline in output, employment and income, and cushioned business against the full impact of a reconversion depression. (See also IRON AND STEEL.)

**Oil and Gasoline.**—Early in 1945 the world-wide inelastic demand for maximum food production led to a relaxation of allocations of oil and gasoline for farm uses. The railroads, during the war, had increased their use of diesel engines and larger annual supplies of oil were required to meet this growing demand. Until the end of gas rationing, the civilian consumption of gasoline, kerosene and fuel oil for domestic heating requirements was fixed at approximately the 1944 levels, about 65% of the normal uses in 1941. During the first half of the year, the acute need for gasoline had been met by increased and improved use of existing plants and the expansion of both crude distillation and cracked gasoline facilities. Refiners had a growing fear of dangerous excessive postwar capacity and had become reluctant to expand operations as the end of the war loomed closer. Although catalytic cracking of high octane con-

Table II.—Indexes of U.S. Physical Production, Carloadings, Construction and Department Store Sales for 1945

Month	(1935-1939=100)				(1923-1925=100)			
	Total	Industrial production Physical volume		Minerals	Freight car loadings	Department store sales (value)	Construction contracts awarded (value)	
		Durable	Non-durable				Total	Residential
1944								
Sept. . . . .	230	342	168	143	139	187	39	13
Oct. . . . .	232	344	169	143	137	193	42	13
Nov. . . . .	232	341	173	143	141	205	46	13
Dec. . . . .	232	343	173	137	137	196	51	14
1945								
Jan. . . . .	234	345	175	140	143	197	48	14
Feb. . . . .	236	346	176	141	139	211	59	13
March . . . .	235	345	176	142	145	220	72	15
April . . . .	230	336	174	140	141	181	70	18
May . . . . .	225	323	173	138	140	188	58	20
June . . . . .	220	308	173	144	140	202	50	22
July . . . . .	210	293	165	143	139	218	54	23
Aug. . . . .	*187	*243	*157	140	128	200	61	24
Sept. . . . .	*172	*208	*154	*135	128	199	*67	*25
Oct. . . . .	...	...	...	...	...	...	...	...
Nov. . . . .	...	...	...	...	...	...	...	...
Dec. . . . .	...	...	...	...	...	...	...	...

\*Preliminary.

Federal Reserve Bulletin, November 1945, p. 1141.



tinued at high levels after V-E day, a sharp reduction took place with the extensive grounding of military and naval planes after V-J day.

Crude petroleum reserves were being gradually reduced throughout 1945. Consumption outran production in February, May, June, July and August. Refinery operations ran at 93% capacity in January, rose gradually to 98% in June and July, dropped to 96% in August and to 92% by November. Stocks on hand began to drop in May and continued to decrease gradually each month in the succeeding quarter, rising slightly toward the close of the year. The Federal Reserve board index of gasoline production opened at 143 (1935-1939=100) in January, rose to 156 for July and dropped to 136 by September, but fuel oil production maintained a relatively stable level throughout the year. (See also PETROLEUM; PRICE ADMINISTRATION, OFFICE OF.)

**Railroad Transportation.**—Using freight carloadings as the most accurate index of monthly volume of trade, the peak was reached in March 1945. The heaviest snowfall in 26 years blanketed the east in February, and caused glutted transportation facilities in March. In April the high volume of war industrial output and huge farm marketings placed a severe strain on mid-west freight transportation. Until V-J day, freight carloadings ran at about the same monthly level as throughout 1944. After V-J day, August traffic dropped 12% below that for July. Third quarter carloadings ran 8% below those for the same quarter of 1944, and, with continued decline in physical production during the fourth quarter, the railroads were enabled to meet decreasing freight traffic needs.

Passenger traffic, however, had become the most acute transportation problem. The railroads had carried 7,372,000,000 passengers one mile in January, and the number of passenger miles had risen by June to 8,015,000,000 and to 8,201,000,000 for August. After V-J day, the movement of servicemen's units for purposes of demobilization was supplemented by a pronounced rise in civilian travel. Wasteful crosshauling of returning veterans to demobilization centres, only to force their retracement of the same routes back home, placed a severe strain on passenger facilities during the third and fourth quarters of the year. The public demand to have servicemen home by Christmas compounded by relaxation of controls on civilian travel by the Office of Defense Transportation created the most acute congestion of passenger traffic on record during the month of December, when traffic reached an estimated 9,300,000,000 passenger miles. (See also RAILROADS.)

**Building.**—The value of construction in 1944 totalled only \$4,000,000,000 of which more than three-fifths had been publicly financed. At the height of the war construction program, more than \$13,000,000,000 had been spent for building in 1942. In 1945 came the reversal of private building trends with the relaxation of governmental controls over war materials and manpower. The department of commerce estimated that total construction for the year exceeded by \$500,000,000 that of the previous year, despite the completion and cancellation of many federal projects.

During the first quarter, almost 30,000 new dwelling units were started in nonfarm areas, of which 26,000 were privately financed; with the end of the war in Europe, this figure rose to more than 60,000, with 50,000 privately financed; while during the third quarter the number again rose to more than 66,000 with 63,000 privately financed, according to the data released by the department of labour. By October, total privately financed new construction of all types had doubled, reaching the highest value from Jan. 1942, chiefly the result of a four-fold increase in industrial construction. Coupled with unfortunate strikes in the lumber industries, shortages appeared in such building supplies as cement, structural steel, asphalt roofing, hardware and metal products, heating and domestic equipment. Critically short were the supplies of lumber, brick, cast-iron soil pipe, clay sewer pipe, structural tile, gypsum and metallic lath. During the war years, production of these building materials had been curtailed because of disappearance of normal market demand; the lumber and forest industries had been unable to hold manpower and more than half the brick-producing plants had been completely shut down. Between Dec. 1941 and June 1945, the government had taken about 60% of all lumber produced, and for the first half-year had stepped up this requirement to 75%.

Although residential construction contracts almost doubled during the first three quarters of the year, the housing shortage became more strained with increasing demobilization pressures. Building was handicapped by the high cost of lumber which had risen 65% between Sept. 1939 and Sept. 1945; such lumber as was available was uncured for housing purposes; prefabrication had introduced an element of uncertainty; inflation had raised the price of urban building sites; skilled labour shortages persisted; and labour costs were mounting. Nevertheless the number of one-family and two-family dwelling units constructed had doubled between Sept. 1944 and Sept. 1945. The value of farm residential construction rose from \$5,000,000 in February to \$23,000,000 by September. To meet veteran housing shortages, the government stimulated the sale of barracks, cantonments, demountable houses and other salvageable building materials to states and cities, but the building industry feared that such temporary living quarters merely postponed the need for permanent housing. About 6,000,000 veterans' families needed houses at the end of the year.

Construction contracts awarded for the year reached \$2,300,000,000, a rise of 32% over the total of \$1,700,000,000 for 1944. The value of private construction contracts was up 215%, while public building had declined 16% below that for the previous year. (See also BUILDING AND CONSTRUCTION INDUSTRY; HOUSING.)

**Company Earnings.**—For the first three quarters of 1945, corporate earnings exceeded those for the same period of 1944: for radio manufacturers, 34%; refractories, 30%; paper, 18%; automobiles 13%; petroleum, 12%; food products, 8%; drugs, 5%. Earnings for the same period were lower: for chemicals, 1%; electrical equipment, 2%; steel, 8%; machinery, 9%; copper, 14%; office equipment, 15%; carbonic beverages, 18%; auto accessories, 23%; and coal about 27%. Much of the drop in corporate operating income was at the expense of taxes, in the sense that greater net earnings would have caused higher tax payments, so that the net decline in earnings did not keep pace with

the concomitant drop in sales. Reserves, also, were reduced or abolished altogether, and earnings that otherwise would have been set aside to meet wartime contingencies became no longer necessary and proportionately larger earnings were available for corporate distribution. Among the chief economic factors tending to depress annual earnings, were, the curtailment of government orders; postwar continuation of price controls; sales of government surplus supplies; increased wages; curtailment of output by strikes and threatened legislation adverse to postwar business expansion.

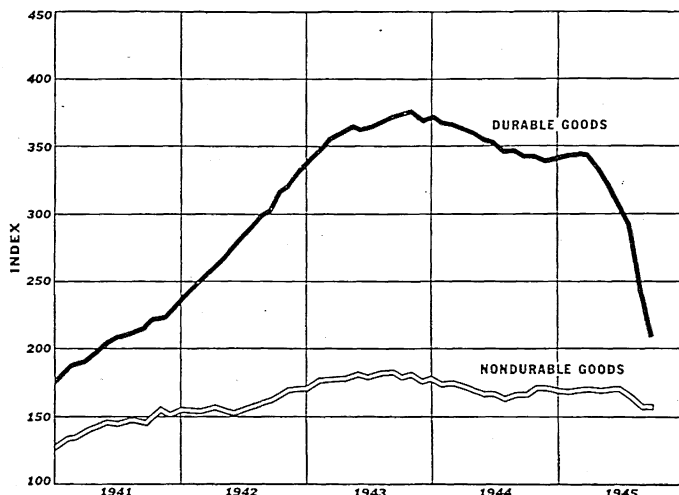
The monthly average dividend rate per share for 629 companies rose from \$1.96 in January to \$1.99 in June, and maintained approximately the same level for the remainder of the year. Thirty-six leading railroad companies paid average monthly dividends in January of \$2.57; for the third quarter, \$2.69; and \$2.65 in November. Bank and insurance shares showed a very slight increase throughout the year. The highest grade industrials increased monthly average dividend payments from \$3.45 in January to \$3.54 in November. By way of contrast, the yields on common stocks for more than 200 listed corporations dropped from 4.7% in January to 3.6% in December. The yield for 25 railroad stocks showed the same trend, declining from 6.3% in January to 4.8% in December. Other utilities dropped from 5.2% in January to 4.0% in November. The highest grade industrial common stock yield fell from 3.8% in January to 3.2% in November.

Table III.—Indexes of U.S. Retail Trade, 1945  
(1935-39=100)

Month	All retail store sales (adjusted index)	Department store sales	Variety chain store sales	Mail order sales (catalogue)	Durable goods sales	Non-durable goods sales
<b>1944</b>						
Sept. . . . .	179	187	161.8	163.3	104.2	203.5
Oct. . . . .	185	193	175.7	135.6	108.3	210.0
Nov. . . . .	192	205	169.6	157.2	108.0	219.4
Dec. . . . .	188	196	157.8	123.3	105.6	214.4
<b>1945</b>						
Jan. . . . .	193	197	171.2	174.1	111.5	219.6
Feb. . . . .	194	211	165.2	174.6	111.5	219.8
March . . . .	194	220	170.5	173.2	112.7	220.2
April . . . . .	175	181	154.1	122.3	106.4	197.8
May . . . . .	177	188	161.6	121.8	102.6	202.1
June . . . . .	183	202	162.0	118.3	108.6	207.0
July . . . . .	191	218	170.5	127.8	114.9	216.3
Aug. . . . .	189	199	164.3	110.9	111.5	214.8
Sept. . . . .	190	189	155.7	119.8	116.9	213.4
Oct. . . . .	...	...	...	...	...	...
Nov. . . . .	...	...	...	...	...	...
Dec. . . . .	...	...	...	...	...	...

U.S. Department of Commerce: Survey of Current Business.

**Retail and Wholesale Trade.**—The trends in monthly retail sales for all retail stores, department stores, variety chain stores and mail order catalogue business together with contrasting movements of durable and non-durable goods are shown in Table III. Retail trade, as a whole, remained relatively insensitive to the drop in employment and income after V-J day. Sales of all retail stores during the first seven months of 1945 were 6% higher than for the corresponding period of 1944, and after the end of the war had risen sufficiently to bring the annual average about 9% above that of the previous year. For the reporting 353 department stores the most significant gains in retail trade were made in women's apparel and accessories, of 17%; coats and suits, 19%; dresses, 22%; blouses, skirts and sportswear, 24%; junior girls' wear, 22%; women's and children's gloves, 18%; women's shoes, 17%; piece goods, 10%. About 63% of these sales were for cash, 4% were made on the instalment basis and 33% were charge account sales. Rural retail sales of general merchandise showed greatest gains in the south, reaching an all-time high in March of 320 (1929-1931=100), dropping to 194 by September. In the far west rural sales rose to 236 in March and dropped to 187 by September, while in the middle west, such sales reached their peak in March at 205 and dropped to 166 by September. During the year, the jewellery trade reached the status of a \$1,000,000,000 industry, primarily as the result of a lack of government price controls.



VOLUME OF MANUFACTURE of U.S. durable and nondurable goods, 1941-45 as estimated in the Federal Reserve Bulletin (1935-39=100)

Wholesale trade showed remarkable stability throughout the year. The department of commerce estimated sales at \$10,097,000,000 for the first quarter, \$10,482,000,000 for the second quarter and \$10,453,000,000 for the third quarter. Non-durable goods sales exceeded durables by a three-to-one ratio. In January, durable sales totalled about \$807,000,000, non-durables about \$2,741,000,000; while by September the former had dropped to \$795,000,000 and the latter had fallen to \$2,556,000,000. Wholesale prices narrowly fluctuated from a low of 104.7 in September to a high of 106.1 in June. Although consumer buying caused retail sales to rise during the last quarter, the mild weakness had developed in some wholesale markets two months prior to the war's end, continued through mid-September, but sales again revived toward the close of the year.

**Securities.**—During the period of prewar preparedness corporate new money issues increased with the growth of business activity, averaging about \$200,000,000 per quarter from the middle of 1940 to the middle of 1942. Thereafter wartime limitations on private capital expenditures combined with expansion of government facilities reduced the need for private financing. In 1945, most of the new money issues were offered by manufacturing companies in the petroleum, tobacco, railway equipment, electric utilities and telephone industries. Sales of new securities to retire outstanding issues, mainly bonds, totalled \$5,500,000,000 during the first nine months of 1945; about 25% were refunding issues offered by the railroads. Public utilities issued \$1,300,000,000, and industrial corporations for the same period retired \$746,000,000 indebtedness. So rapidly was private indebtedness paid off in 1945 that total public indebtedness exceeded total private indebtedness at the end of the war.

The new money was used chiefly to buy new plants; to purchase and reconvert war plants owned by the government; and to install improved machinery and safety devices. Exceptionally heavy corporate issues were made in the three-week period at the close of the year. The Victory loan closed on Dec. 8, 1945. Thereafter the "blackout" on marketings of private issues was lifted; the excess profits tax repeal became assured, and the fear of rising costs and threatening inflation combined to accentuate the abnormally heavy year-end financing. (See also STOCKS AND BONDS.)

**Industrial and Commercial Failures.**—The total business failures reported by Dun and Bradstreet dropped to 56 for the month of August, the first month on record when they fell as low as the fifties. Dun's Insolvency index established a new low of 3.5 business failures annually for each 10,000 business enterprises. Although the number of failures in 1945 were only three-fourths those of the preceding year, the total liabilities involved actually exceeded those of 1944. From January through August, only 39 failures were reported in the wholesale trade, compared with 68 for 1944. Retail trade failures for the same period reached 235, compared with 385 for 1944. Mining and manufacturing bankruptcies reached 188 compared with 244 for 1944. During April, total liabilities of all failures for the first time after the statistical series began ran less than \$1,000,000 per month. (See also BANKING; DEBT, NATIONAL; LAW.)

**Legislation.**—The 79th congress was distinctly more sympathetic with business than its predecessors had been from 1932. In his January Budget message, the president had called for aid to farmers; expansion of social security; reorganization of educational aids; increased appropriations for public works; maintenance of time-and-a-half pay for federal employees; creation of a national employment service; permanent mediation machinery; enlargement of the powers of the Export-Import bank; extension of the period for renegotiation of contracts; approval of the Bretton Woods agreements; repeal of loan restrictions to defaulting debtor countries; and reduction of gold reserve requirements for Federal Reserve notes. Congress responded by sanctioning participation in the Monetary Fund and Bank for Reconstruction and Development to encourage worldwide monetary stability and export trade. The reciprocal trade agreements were extended so that tariff rate reductions to the extent of 75% of the Smoot-Hawley tariff rates could be effected. Restrictions on foreign loans were removed; price controls were extended; and the charter for the United Nations organization was ratified.

ASSEMBLY LINE in a toy factory at Pittsburgh, Pa., operating at full capacity to fill Christmas orders. Reconversion from the manufacture of fin assemblies for the navy rocket program was effected in 1945 in less than 48 hours



After reconvening on Sept. 6, congress repealed the excess profits tax; the declared-value excess profits tax; lowered combined normal and corporate surtaxes from 40% to 38% for 1946; raised individual income tax exemptions, removing about 12,000,000 taxpayers from tax liability; reduced commodity taxes; emasculated the full employment budget bill; and approved the extension of war powers of the president.

Business gained more, however, through the relaxation of administrative wartime controls, than through legislative enactment in 1945, although suffering from administrative cutbacks, contract renegotiations and cancellations and termination of lend-lease. (See also TAXATION.)

**Foreign Trade.**—Lend-lease shipments dropped sharply after V-E day, since that program was legally designated as a mutual aid defense measure, and the postwar needs of Europe were thereafter administered by the United Nations Relief and Rehabilitation administration. Lend-lease was not formally abolished until V-J day. Supplementing postwar relief and rehabilitation efforts, loans to Great Britain amounting to \$4,400,000,000 were authorized in December, with the provision that after five years, repayments would begin and be completed within 50 years.

Lend-lease shipments continued the decline which had begun well before V-J day, and by August were 46% below the March to May average. Non-lend-lease exports gradually reached \$332,000,000 by August, well above the depressed levels during the war months, but had not risen sufficiently to offset the declines in lend-lease shipments. On the other hand, relief exports increased rapidly after V-E day, but they continued as a relatively minor part in total export trade. On the basis of the 1923-24 average, the export index started out at 204 in January, rose to 231 for March and April, and reached the peak of the year in May at 261. After V-E day, this index fell to 198 in June and, by V-J day, had collapsed to 173 for August and to 121 for September.

The most striking feature of general imports had been the remarkable steadiness in the value of monthly imports. Between the low and the high of the first three quarters, the variation of import values was less than 12%. The index stood at 122 (1923-25=100) in January, and by May had risen to 130. Table IV indicates the comparative trends of merchandise exports and imports for the years 1944 and 1945, together with the monthly trends in lend-lease exports. (See also AVIATION, CIVIL; AVIATION, MILITARY; INCOME AND PRODUCT, U.S.; INTERNATIONAL TRADE; RUBBER; SHIPBUILDING; WAGES AND HOURS.)

Table IV.—Comparative Trends of U.S. Exports and Imports for 1944 and 1945

Month	Value of U.S. exports (in millions)		Total lend-lease (domestic and foreign goods)		General imports (in millions)	
	Total domestic and foreign merchandise (including lend-lease)		1944	1945	1944	1945
Jan. . . .	\$1,090	\$ 901	\$ 889	\$649	\$299	\$333
Feb. . . .	1,084	881	877	658	312	323
March . . .	1,156	1,030	910	731	358	364
April . . .	1,189	1,002	950	701	359	366
May . . .	1,422	1,132	1,160	787	385	372
June . . .	1,277	866	1,017	528	329	355
July . . .	1,198	882	937	528	293	335
Aug. . . .	1,200	737	946	413	302	359
Sept. . . .	1,193	515	956	158	281	334
Oct. . . .	1,142	...	890	...	327	...
Nov. . . .	1,184	...	901	...	321	...
Dec. . . .	936	...	686	...	336	...

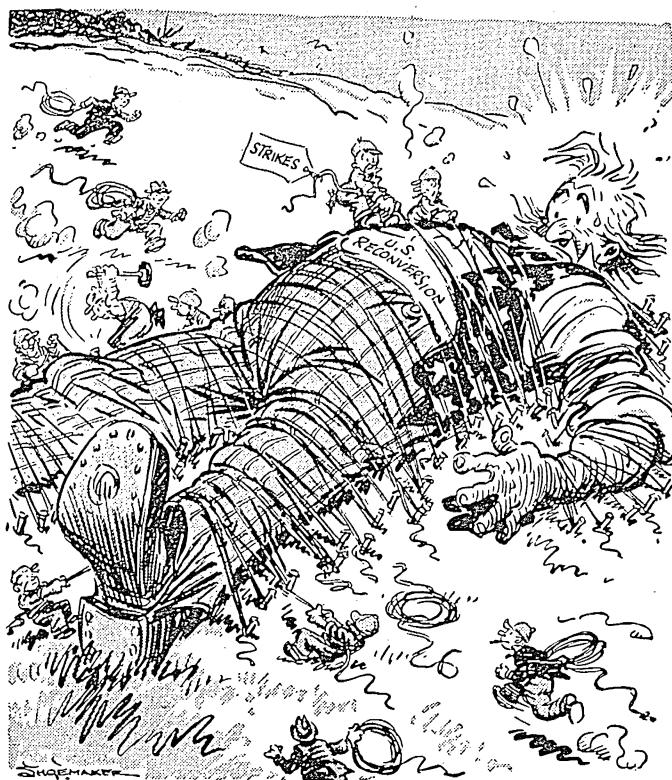
Source: U.S. Department of Commerce: Survey of Current Business.

**Great Britain.**—The wholesale price index fluctuated within the narrow range of 167 (1930=100) in January to 171 in July, while retail prices showed a slightly greater variation, rising from 168 in January to 176 in July and dropping off more sharply to 169 by September. The cost-of-living index likewise rose from 202 in January to 207 in July (1914=100), showing somewhat greater instability than in the United States. On the other hand, security prices opened in January at 128.5 (1921=100) and moved within the narrow range of one point for the remaining months of the year, while those in the United States exhibited one of the most startling increases in stock market history after the end of the war in Europe.

Grocery sales were depressed by further cuts in rations imposed during the early summer. The clothing sales index by September had reached 133% of 1942 prices compared with 106% for the average of the preceding 12-month period. Additional ration coupons were issued upon demobilization which largely accounted for this unusual increase in clothing demands. Increased sales of dress material, boots and shoes and wearing apparel brought to the lowest levels on record the existing stocks on hand.

The postwar election of the labour government stimulated demands for the nationalization of the Bank of England, railways, telecommunications, airlines, local utilities and coal mines. Just at the time when maximum business energies were needed to re-establish speedy return of industrial production, these political changes exerted a depressing effect on all trade. The slowdown of domestic production was offset by the temporary palliative of a \$4,400,000,000 loan by the United States, which had the effect of a postwar extension of lend-lease. (See also GREAT BRITAIN AND NORTHERN IRELAND, UNITED KINGDOM OF.)

**Canada.**—Canada emerged from the war in a strong economic position. The war had speeded industrialization. Physical volume of business declined during 1944 and continued throughout the first eight months of 1945, chiefly because of retarded industrial reconversion. The manufacturing index showed a steady month by month decline throughout the year. The labour force engaged in war production had declined by nearly one-third by V-E day to about 600,000, by V-J day to 425,000 and had fallen abruptly to about 200,000 by the end of September. During the period from June 1939 through June 1945, living costs had risen 18% compared with 29% in the United States and 30% in the United Kingdom. Wholesale prices had risen about 40% in both Canada and the United States compared with 70% in Great Britain. The index of physical production opened in January at 228 (1935-39=100), rose to 232



"UNCLE GULLIVER," a cartoon by Shoemaker of the *Chicago Daily News* which appeared in Oct. 1945

in March and gradually dropped to 212 in August. The fluctuating construction index rose from 96 in January to 205 in April but fell to 150 by August. (See also CANADA, DOMINION OF; COPPER; STRATEGIC MINERAL SUPPLIES.) (E. H. HE.)

**Butter.** Creamery butter production in the United States declined further to the lowest point after 1925. Government controls directed the milk into other products such as cheese, canned and dried milk. Total butter production was estimated by the United States department of agriculture at 1,764,000,000 lb. in 1945 compared with 1,841,000,000 lb. in 1944 and a prewar average of 2,170,000,000 lb. in 1935-39. Of the total output about 1,427,000,000 lb. was used by civilians at the rate of 11 lb. per capita compared with 17 lb. per capita in prewar years. Stocks of butter in storage in 1945 were much lower at the beginning of the year than in 1944 but increased to a high level by September when the reduced restrictions increased domestic production.

Milk production reached a new high record in 1945, 3% above the previous high record of 1943. The excellent pastures in 1945 combined with an abundant supply of concentrated feeds and the large number of cows on farms produced a record output of milk. With the end of World War II and government incentives in June 1946, the high record yields were expected to decline sharply. More cream would go into butter, however, since the wartime demand for dried milk was expected to decline. The demand for butter continued high during the fourth quarter of 1945 because consumers resumed their usual consumption of about 17 lb. per capita compared with the fewer than 12 lb. available during the war. At the same time however creamery butter production declined largely because of the termination of war orders. Rationing of butter was reduced sharply in July and again in October when about 100,000,000 lb. of the government-held stocks were released for civilian consumption. The termination of all rationing about Dec. 1 gave further impetus to consumption. The prices of milk and butter fat were controlled by ceilings and continued steady through 1944 and 1945. The total cash income of milk producers was

the highest on record. The government subsidy of 5 cents per pound was discontinued on Nov. 1, 1945, and the retail price ceiling on butter raised an equivalent amount. (See also CHEESE; DAIRYING; MARGARINE; MILK.) (J. C. Ms.)

**Byelorussia.** Byelorussia, or the White Russian Soviet Socialist Republic, is one of the 16 member states of the soviet union. According to the census of 1939 it had a population of 5,567,976 on an area of 48,868 sq.mi. In 1939 the provinces of Poland, where White Russians lived, an area of more than 34,700 sq.mi. with a population of about 4,000,000, were added. During World War II, White Russia was devastated.

At the conference at Yalta, Pres. Roosevelt agreed to the Russian demand that Byelorussia would be recognized as having the status of an "independent" nation and that its delegates would be admitted to the United Nations conference at San Francisco. The conference voted accordingly. Byelorussia was represented at the conference by a delegation under Kuzma V. Kiselev, the people's commissar for foreign affairs. (H. Ko.)

**Byrnes, James F.** (1879- ), U.S. jurist and government official, was born May 2 in Charleston, S.C., of Irish parentage. At the age of 14 he left school to become office boy of a law firm. By studying stenography, he advanced to the position of court reporter. In 1910, he was elected to the house of representatives on the Democratic ticket and was re-elected six times, serving from 1911 to 1925. In 1930 he was elected to the U.S. senate and was re-elected in 1936. In June 1941 he was appointed associate justice of the U.S. supreme court. After serving 16 months on the supreme court bench, he was named by President Roosevelt to head the newly created Office of Economic Stabilization on Oct. 3, 1942. On May 28, 1943, he was moved into another newly created office, topping all other government agencies, the Office of War Mobilization. In 1944 Byrnes ordered many drastic job controls to siphon off available manpower into war production. He attended the Yalta conference, Feb. 4-11, 1945. Two months later (April 2), he resigned as war mobilization director, asserting that victory in Europe was near and that his main task was completed. On June 30 President Truman made Byrnes secretary of state. Byrnes then accompanied the president to the Berlin conference (July-August) where the groundwork was laid for the meeting in London of the council of foreign ministers. This London parley ended in failure; Byrnes asserted, Oct. 5, that the deadlock resulted from Russian refusal to compromise on procedural matters. While Big Three unity was strained as a result of this stalemate, it was cemented at the succeeding parley of British, U.S. and Russian foreign ministers at Moscow in December. At this meeting, the conferees reached agreements on the drafting of European peace treaties, far eastern problems and on atomic energy control. Byrnes asserted, Dec. 27, that an important result of this conference was the establishment of closer and more cordial relations between the Big Three powers.

**Cabinet Members.** The following members of President Truman's cabinet held office on Jan. 1, 1946:

Post	Name	State
Secretary of State.....	James F. Byrnes.....	South Carolina
Secretary of the Treasury...	Frederick M. Vinson.....	Kentucky
Secretary of War.....	Robert P. Patterson.....	New York
Attorney-General .....	Thomas C. Clark.....	Texas
Postmaster General .....	Robert E. Hannegan.....	Missouri
Secretary of the Navy.....	James V. Forrestal.....	New York
Secretary of the Interior....	Harold L. Ickes.....	Illinois
Secretary of Agriculture....	Clinton P. Anderson.....	New Mexico



Post	Name	State
Secretary of Commerce.....	Henry A. Wallace.....	Iowa
Secretary of Labor.....	Lewis B. Schwellenbach....	Washington

**Great Britain.**—After the general election in July 1945 the British Labour cabinet was composed as follows:

Post	Name
Prime Minister.....	Clement Attlee
Lord President of the Council.....	Herbert Morrison
Secretary of State for Foreign Affairs.....	Ernest Bevin
Lord Privy Seal.....	Arthur Greenwood
Chancellor of the Exchequer.....	Hugh Dalton
President of the Board of Trade.....	Sir Stafford Cripps, K.C.
First Lord of the Admiralty.....	A. V. Alexander
Lord Chancellor.....	Lord Jowitt
Secretary of State for the Home Department.....	J. Chuter Ede
Secretary of State for Dominion Affairs.....	Viscount Addison
Secretary of State for India and for Burma.....	Baron Pethick-Lawrence
Secretary of State for the Colonies.....	G. H. Hall
Secretary of State for War.....	J. J. Lawson
Secretary of State for Air.....	Viscount Stansgate
Secretary of State for Scotland.....	J. Westwood
Minister of Labour and National Service.....	G. A. Isaacs
Minister of Fuel and Power.....	Emanuel Shinwell
Minister of Education.....	Ellen Wilkinson
Minister of Health.....	Aneurin Bevan
Minister of Agriculture and Fisheries.....	Tom Williams

The following were appointed ministers of cabinet rank:

Post	Name
Minister of Supply and Aircraft Production....	John Wilmot
Minister of War Transport.....	Alfred Barnes
Minister of Food.....	Sir Ben Smith
Minister of State.....	P. J. Noel-Baker
Minister of Pensions.....	Wilfred Paling
Minister of Works.....	George Tomlinson
Minister of Town and Country Planning.....	Lewis Silkin
Minister of National Insurance.....	James Griffiths
Minister of Civil Aviation.....	Lord Winstanley
Minister of Information.....	E. J. Williams
Postmaster-General.....	The Earl of Listowel
Chancellor of the Duchy of Lancaster.....	J. B. Hynd

For other ministers and members of the government, see GOVERNMENT DEPARTMENTS AND BUREAUS.

"CARRYING OUT THE ROOSEVELT POLICIES." Darling of the *New York Herald Tribune* refers specifically to the almost complete cabinet shakeup under President Truman in 1945



**Cabot, Hugh** (1872-1945), U.S. surgeon and educator, was born Aug. 11 in Beverly Farms, Mass. After taking his M.D. at Harvard university, 1898, he practised medicine in Boston and was associated with the Massachusetts General hospital. In 1910 he became assistant professor of surgery at Harvard Medical school. During World War I, he served with the British royal army medical corps, was mentioned in four dispatches and decorated by the king. A specialist in genitourinary surgery, Dr. Cabot was dean of the University of Michigan Medical school, Ann Arbor, Mich., 1921-30, overseer of Harvard university, 1929-35, and professor of surgery at the University of Minnesota Graduate school and surgeon at the Mayo clinic, 1930-39. He encountered criticism from the medical profession for his advocacy of group practice in medicine. He asserted that the fee system of private medical practice was "antiquated," maintaining that adequate medical care for the greatest number of people could best be achieved by group health co-operative organizations. In 1940, he charged that "200,000 people were dying needlessly in the U.S. each year" because of "inadequate, inferior and terribly expensive care." In early 1941, he testified as a government witness in an antitrust action taken by the U.S. against the American Medical association; the latter was charged with restraining and hindering operations of a government-sponsored group health co-operative providing medical care for dues-paying members. Dr. Cabot was the author of *Surgical Nursing*, four editions (1924, 1930, 1937, 1940), *The Doctor's Bill* (1936) and *The Patient's Dilemma* (1940). He died while sailing in Frenchman bay, near Ellsworth, Me., Aug. 14.

**Cacao:** see COCOA.

**Cadmium.** Production of cadmium in the United States increased from 3,182 short tons in 1940 to 4,233 tons in 1943 and 4,390 tons in 1944. Exports, which had been scaled down from 194 tons in 1940 to 90 tons in 1943, rose to 234 tons in 1944, offset only by 33 tons of imports and 53 tons of secondary recovery. In spite of heavy demands, stocks had been built up to 1,703 tons at the end of 1943, declining to 1,513 tons in 1944.

Outputs of other leading producers in 1944, so far as available, were as follows, in short tons, with 1943 figures in parentheses: Australia 280 (177), Canada 263 (393), Mexico 724 (884); the Mexican output is in the form of flue dust, which was exported to the United States and was recovered as a part of the U.S. total.

(G. A. Ro.)

**Caggiano, Antonio** (1889- ), cardinal archbishop of Rosario, Argentina, was born at Coronda, province of Santa Fe, Argentina, on Jan. 30. He was educated at the Colegio de la Immaculada, Santa Fe seminary and the Latin-American Pian college at Rome, and was ordained in 1912. He was named bishop of Rosario in 1935, taught philosophy and science at the Santa Fe seminary, and served as chaplain of the charity hospital, counsellor of university students and chaplain of the Colegio del Huerto.

In 1929 he returned to Rome to study the organization of Catholic Action. Two years later he was selected by the hierarchy as General Ecclesiastical Counsellor of Argentine Catholic Action and was largely responsible for the growth of this movement in Argentina, Paraguay and Uruguay. He held many important posts in the Argentina church.

On Dec. 23, 1945, it was announced that he had been appointed to the Sacred College of Cardinals. He was created and proclaimed a cardinal at consistory on Feb. 18, 1946.

**Calder, Alexander Stirling** (1870-1945), U.S. sculptor, was born Jan. 11 in Philadelphia, Pa. After studying at art schools in the United States and abroad, Calder exhibited his works, won many art prizes and awards throughout the country and by 1913 was made a member of the National Academy. Several years later, he was elected to the National Institute of Arts and Letters. His works are included in permanent collections of the Pennsylvania Academy of Fine Arts, the Smithsonian institution, the Metropolitan museum and the Museum of Modern Art in New York. Among his principal works are the Washington figure for the arch in Washington square, New York city; the Shakespearean memorial, Philadelphia; the monumental groups of Nations of East and West and the Fountain of Energy, San Francisco; and a statue of Leif Ericsson presented by the U.S. in 1932 to Iceland in commemoration of the 1,000th anniversary of the Althing. His last completed piece of sculpture, a monumental head of Winston Churchill, was exhibited in New York in 1944. Calder taught at the National Academy of Design and the Art Students league of New York city and was named to the city's municipal art commission in 1937. He died in New York city, Jan. 6.

**Calendar of Events, 1945:** see pages 1-16.

**California.** The most southerly Pacific coast state of the United States, frequently called the "Golden state." It acquired statehood Sept. 9, 1850. Area: 158,693 sq.mi., of which 1,890 sq.mi. is water. Pop. (1945 est.) 8,842,700; in the 1940 census it was 6,907,387. Capital, Sacramento (1940 census: 105,958); other leading cities are Los Angeles (1,504,277); San Francisco (634,536); Oakland (302,163); San Diego (203,341); Long Beach (164,271); Berkeley (85,547); Glendale (82,582); Pasadena (81,864). Heavy increases in population in all these cities took place during World War II.

**History.**—California lost one of its most colourful political figures by the death on Aug. 6, 1945, of Hiram Johnson, who had represented the state in the United States senate from 1917 after being twice governor. An individualist and staunch isolationist who had opposed entry of the U.S. into the League of Nations in 1919, he died only a few weeks after casting his vote against its joining the United Nations organization planned at the San Francisco conference.

Much attention was focused upon San Francisco in May and June during which time delegates of the United Nations met there to work out a plan for a permanent world organization. In December representatives of the city made vigorous efforts in London meetings of the United Nations preparatory commission to locate the permanent seat of the world organization in San Francisco.

On June 19 the state legislature ended the longest session in its history, with many measures transmitted to Republican Governor Earl Warren for signature or rejection. Since war dangers had been largely removed, a war council created to handle emergencies which might arise from attack or invasion was abolished and its responsibilities assigned to a disaster council, and a war catastrophe fund of \$25,000,000 was unfrozen for other uses. Two other councils—Production, and Reconstruction and Re-employment—were retained for the 1945-47 biennium. Unemployment insurance provisions were liberalized. An interim committee was set up to give further study to a plan backed by Governor Warren for prepaid medical care through a system of compulsory health insurance; the proposal aroused much political controversy. Creation of a state recreational commission as proposed in one measure was defeated but \$15,000,000 was voted for improvement and main-

tenance of state park and beach facilities. Salaries of state employees were increased due to higher living costs, and additional sums for improvement of the state educational system were planned. With finances in good shape, tax reductions established in 1943 were continued and the exemption base for the personal income tax was broadened.

The cost of living increased in California during 1945 in common with the rest of the U.S. The housing situation became more acute as the war shifted to the Pacific and was heightened after its termination because west coast ports became congested with returning servicemen and their families. Likewise many persons who had been attracted to California to work in its war industries decided to remain permanently in the state even though war work had decreased in volume. Following the end of the war some industries in the state were affected by labour unrest, with the greatest publicity being given to strikes in the motion picture industry. In connection with the actual end of the war V-J day celebrations in San Francisco were marked by disorder which amounted to rioting accentuated by the presence of large numbers of servicemen. The return of former Japanese residents to their homes after restrictions were lifted in Dec. 1944 was also marked by some incidents of violence, and the opposition to their return was such that many Japanese preferred to settle elsewhere.

**Education.**—The budget for the 1945-47 biennium estimated school expenditures at \$216,283,711 (for the previous biennium, they were estimated to have been \$195,627,819). Average daily attendance for the 1943-45 biennium in elementary schools was estimated to have been 689,876 pupils; in secondary schools, 348,371. Enrolments in higher educational institutions for the fall and winter terms were reported as exceptionally heavy, due in part to the registration of returning servicemen under the G.I. bill of rights.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—In 1944 California supported 20 institutions, among them: 8 mental hospitals, average number of inmates 24,591; 3 correctional schools, average number of inmates 1,179; 4 penal institutions, average number of inmates 5,255; 2 veterans homes, average number of inmates 976; 1 home for the adult blind, average number of inmates 109. The previous temporary increase to a \$50 maximum per month for the needy aged was made permanent by the legislature but an attempt to eliminate responsibility for support by relatives where possible was voted down.

The budget for the 1945-47 biennium included \$119,675,144 for social welfare and public health (1943-45, \$97,412,613).

**Banking and Finance.**—State banks in 1943 numbered 282, with deposits totalling \$1,792,259,000 and resources amounting to \$2,209,011,000.

Appropriations for the 1945-47 biennium were set at \$893,933,000 (1943-45, \$770,394,000, not including war catastrophe reserve). Reserves totalled \$142,151,000 including postwar unemployment and construction funds. The surplus in the general fund on July 30, 1945, amounted to \$126,276,000, and it was announced that sufficient funds had been set aside to pay off all currently outstanding general obligation bonds. On July 1 final payment was made on bonds issued in 1873 which included indebtedness going back to 1850 and with one item being the cost of the golden quartz stone contributed by California to the Washington monument.

Tax collections for 1944-45 reached the all-time high of \$558,300,659 for one fiscal year (1943-44, \$546,242,341). The unemployment insurance tax returned \$164,162,201 (1943-44, \$174,991,676); retail sales tax, \$150,314,238 (1943-44, \$135,000,000), and this at a rate one-sixth lower than for the previous year; bank and corporation franchise tax, \$58,017,090

(1943-44, \$67,670,970); personal income tax, \$47,133,080 (1943-44, \$48,323,088); gasoline tax, \$43,967,426 (1943-44, \$42,472,955).

The total property tax levy for all local government jurisdictions for 1944-45 was estimated at \$337,885,547, while for the 1943-44 fiscal year it had been estimated at \$313,475,145. The assessed value of property subject to local taxation for the 1945-46 fiscal year was estimated at \$8,541,000,000.

**Communication.**—In 1940 California had 16,856 mi. of railway, with 2,768 mi. of this electrified. Public highway mileage amounted to about 900,000 mi. The 1945-47 budget assigned \$46,179,967 to expenses concerned with highways and streets (1943-45, \$44,852,544). A postwar highway construction program involving \$115,000,000 was announced in August, with its progress dependent upon availability of materials and labour and distribution of federal funds of which the state had been allotted \$22,303,236 early in 1945. Motor vehicles registered in 1943 numbered 2,504,987 automobiles, 211,375 trucks, and 18,930 motorcycles. In Sept. 1943 the state was estimated to have 2,120,700 telephones.

**Agriculture.**—Crop production in 1944 was valued at about \$1,201,440,000, claimed to be higher than for any other state in the U.S. Fruit and nut crop acreage in 1944 amounted to 1,588,998 acres (10,700 more than 1943) with production estimated at about 6,824,000 short tons worth approximately \$620,000,000 to growers. Plantings for 1944 were 56% over 1943, with the greatest acreage increase being in grapes. Farm milk production (1943) amounted to 2,407,000,000 gal.; butter production to 37,523,000 lb.; ice cream production to 30,836,000 gal.

**Manufacturing.**—Labour statistics for 1945 indicated the steady decline from peak employment in 1943 had continued. When World War II ended in August the number of labourers employed in durable goods industries (exclusive of clerical and administrative help) was 414,000, only 58,000 more than in Dec. 1941. In July 1945, the number was 431,000; in Aug. 1944, 605,300. Aircraft workers in Aug. 1945 numbered 111,200 (Aug. 1943, 243,000), and shipyard workers 128,500 (Sept. 1943, 282,500). Nondurable goods industries employed (Aug. 1945) 225,600 labourers (Aug. 1944, 237,700). In April 1945, California was registered as leading all states in regard to the number of federal employees working within its boundaries (313,400); New York, with 297,800, was second.

**Mineral Production.**—Final returns on mineral production for 1944 showed that total value of output reached \$469,774,525 (1943, \$426,445,280) for 62 different mineral substances, exclusive of gems. This was the greatest on record. In general, fuels, industrial materials and salines had increased in output while metals and structural materials declined.

Value of Principal Minerals Produced in California, 1944 and 1943

Product	Value (1944)	Value (1943)
Petroleum . . . . .	\$330,659,802	\$298,400,000
Natural gas . . . . .	31,797,418	28,046,729
Gold . . . . .	4,108,055*	5,191,480
Copper . . . . .	3,453,957	2,278,120
Structural materials . . . . .	50,777,220	55,055,016
Miscellaneous stone . . . . .	25,138,003	21,716,223
Cement . . . . .	21,249,520	27,517,926
Brick and tile . . . . .	3,930,662	4,368,675
Salines . . . . .	20,983,104	15,660,400

\*Gold production for 1944 was lower in value than in any year after its discovery in the state in 1849.

**BIBLIOGRAPHY.**—C. E. Chapman, *A History of California: the Spanish Period*, (1921); R. G. Cleland, *A History of California: the American Period* (1922); R. D. Hunt and N. Sánchez, *A Short History of California* (1929); J. W. Caughey, *California* (1940).

**FILMS.**—*The Golden Gate; Overland to California* (Encyclopædia Britannica Films Inc.). (D. R.D.)

**California, University of.** This university is a state-supported, co-educational

institution with headquarters at Berkeley where the university was founded March 23, 1868, and with seven other campuses, at Los Angeles, San Francisco, Davis, Santa Barbara, Riverside, Mt. Hamilton and La Jolla. During 1945, University of California research related to the war, in which 165 contracts totalling \$57,000,000 were awarded by various branches of the United States government, reached its apex with the presentation of (1) the army-navy "E" award for excellence of production to the University of California Los Alamos Scientific laboratory, where the atomic bomb was designed and made, and (2) a scroll for research on the Berkeley campus, fundamental to the production of the atomic bomb, which contributed materially to the successful conclusion of World War II. The presentations at both places were made by Major General Leslie R. Groves, United States army officer in charge of the atomic bomb project. During the United Nations Conference on International Organization, in San Francisco, heads of the delegations from most of the leading powers represented attended a convocation in the Greek theatre on the Berkeley campus, at which they spoke and were awarded the honorary degree of doctor of laws. Those receiving this honour were: Edward R. Stettinius, Jr., United States; Anthony Eden, Great Britain; Georges Bidault, France; Ezequiel Padilla, Mexico; T. V. Soong, China and Jan Christiaan Smuts, South Africa.

New activities included the establishment of a college of engineering, with emphasis on aeronautical engineering, on the Los Angeles campus; a university-wide institute of industrial relations, designed to aid in the solution of problems of labour and management; and a similar institute of geophysics. The year 1945 saw the end of the engineering, science and management war training work conducted on a college level in industrial centres of the state by the university, with a total of 151,202 enrolments. The Davis campus (agricultural) was reopened for students, after two years' occupation by the United States army signal corps. A medical school on the Los Angeles campus was authorized by the regents of the university. Emphasis turned from war service to postwar plans and needs, with approximately 2,500 service men and women, discharged from the armed forces, registered among the total of 18,500 full-time resident students on all campuses. (For statistics of enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (R. G. S.)

**Calles, Plutarco Elías** (1877-1945), Mexican statesman and military leader, was born Sept. 25 at Guaymas, Sonora. For his earlier career see *Encyclopædia Britannica*. Little is known of his early life, except that he was certainly poor. In 1911, General Calles joined the revolutionary movement that overthrew Porfirio Díaz. He served with Gen. Alvaro Obregón in the campaign against Pancho Villa, and in 1924 was elected president. He was pledged to continue Obregón's social reforms—land for the peasants, education for the masses and legitimate profits for honest business—but clashed with the Catholic Church which objected to the religious and educational planks of his platform. Calles supported Emilio Portes Gil in the 1928 presidential elections, and Gen. Lázaro Cárdenas in 1934. Later Cárdenas quarrelled with Calles and exiled the latter in April 1936. Calles then set up residence in the United States. He returned to Mexico, May 5, 1941, after the retirement of Cárdenas and subsequently was returned to his post in the Mexican army. Later, Calles and Cárdenas had presumably patched up their ancient quarrel as they had appeared together as guests at a dinner given by Mexican army leaders in Sept. 1942 for Pres. Avila Camacho. Calles died in Mexico City, Oct. 19.



**Camara, João de Barros:** see BARROS CAMARA, JOÃO DE.  
**Cambodia:** see FRENCH COLONIAL EMPIRE.

**Cambridge University.** The academic year 1944-45 opened with 2,700 men and 489 women undergraduates. In addition, graduates, research students and staff numbered 1,220 men and 177 women. Evacuated colleges contributed a further 1,378 students and 127 staff. Of these colleges the following departed at the end of the academic year: Bartlett school of architecture; London school of economics, Queen Mary college; and St. Bartholomew's hospital medical college was preparing to leave. There had been during World War II also a few students from King's college, London; University college, Hull, and University college, London. By 1945, these had gone.

Two new professorial chairs were founded, in comparative law and experimental medicine, and a music tripos was established. A benefaction was received from the Shell Oil companies for a chair and school of chemical engineering. The following chairs were filled during the year: classical archaeology, German, pure mathematics, laws of England, electrical engineering, metallurgy and physics. The following retired at the end of the academic year: the masters of Sidney Sussex (G. A. Weekes) and Jesus (Dr. W. L. H. Duckworth); the principals of Ridley hall (J. P. S. R. Gibson) and the women's training college (Miss H. Dent); and W. W. Buckland, regius professor of civil law.

**BIBLIOGRAPHY.**—*Cambridge University Reporter*, vol. 75; *Cambridge Review*, vol. 66. (C. Fo.)

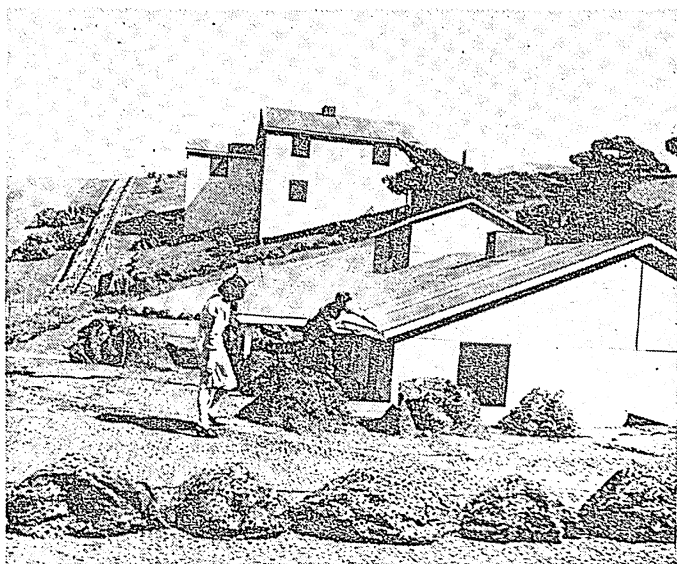
**Cameron, Sir David Young** (1865-1945), British etcher and painter, was born June 28 in Glasgow, Scotland, and studied art at the Glasgow academy. Sir David's landscape etchings and drypoints were classed by critics as following in the tradition of Sir Francis Seymour Haden (Whistler's brother-in-law), who exercised wide influence over later English etchers. He was elected associate of the Royal academy in 1911 and was knighted in 1924. His works are included in the collections of leading museums in Great Britain and the dominions. He was a trustee of the National Gallery of Scotland and was appointed his majesty's painter and limner in Scotland in 1933. He was also the author of *The Clyde Set* (1890), *North Holland* (1892), *North Italy* (1896), *The London Set* (1900), *Paris Etchings* (1904) and *Etchings in Belgium* (1907). His etchings illustrate Sir Herbert Maxwell's *Story of the Tweed* (1905), *The Compleat Angler* (1902) and R. B. Cunningham Graham's *District of Menteith* (1930). He died in Perth, Scotland, Sept. 16.

**Cameroons:** see BRITISH WEST AFRICA; FRENCH COLONIAL EMPIRE; MANDATES.

**Camouflage.** The closing year of World War II brought out practically no new tricks in the technique of "making things seem something else," but it did show the

AT FIRST GLANCE this picture looks like merely a peaceful snow scene. But close inspection shows rifles sticking out of a dyke where members of a Scottish regiment patrolled the Zetten front in Holland. Camouflaged in white suits, early in 1945, they were barely visible against the snow





A 26-ACRE CAMOUFLAGE VILLAGE on the roof of the Boeing plant no. 2, manufacturing B-29s and Flying Fortresses at Seattle, Wash., was revealed on July 23, 1945. It was built by U.S. engineers against the threat of Japanese air raids. Its buildings, autos, etc., showed correct proportions from above, but averaged 4 ft. in height. Lawns were of chicken wire; roads and houses of canvas

improved facility with which trained camoufleurs practised their art. An estimated 35,000 students had taken camouflage training at the Air Force Tactical centre at Orlando, Fla., over a period of two years. Trained in the arts of offensive and defensive deception, these men practised in every battle theatre the camouflage tactics learned in class rooms. They represented only a fraction of the trained force available.

Observation of enemy means and employment of camouflage, particularly as regards air observation, brought out sharp contrasts with Allied activities in the same field. German and Japanese dummy aircraft, in fact nearly every deceptive effect they employed, was, to them, primarily a defensive weapon. However, the Allies looked upon deception primarily as an offensive weapon. The enemy set up his dummies solely so that they would be bombed; Allied dummy installations were designed to confuse the opponent's intelligence service. The Allies sought to make him guess wrong as to Allied strength, Allied dispositions, and the possible sequence of Allied objectives. U.S. camouflage engineers felt that they had done a superlative job if their work was so good that it pinned down great masses of enemy troops and equipment against a mobilization of target cloth, strings, wood and wire. The real, thoroughly masked strike could be made at another point where the enemy's line would surely be found considerably weakened.

The enemy used two types of camouflage in the closing months of the war to good effect. Where the Japs were securely entrenched on coral islands, they very skilfully painted plane silhouettes on the white coral. At 4,000 ft. it was practically impossible to distinguish these from the real thing. When night raiding planes were hammering at Berlin they were at first greatly confused by a series of nine dummy installations built around the city. German dummy planes were masterpieces of plywood art and foolproof to even low-altitude observation. But they were too elaborate, too difficult to manufacture, and too cumbersome for ordinary transportation means. By contrast, American dummies were built to allow of easy and rapid handling. They were prefabricated from wire, target cloth and wood. Made in sections, hinges were installed to provide compact folding, a decided transportation asset. It was estimated that, by U.S. methods, an entire squadron of dummy fighters (24) could be folded up and loaded onto two  $2\frac{1}{2}$ -ton trucks. Thirty trained men could build such a squadron

of fighters in two weeks, along with all the other trickery necessary to the building of a mock air base—supply trucks, gasoline dumps, personnel shelters, anti-aircraft guns and emplacements, etc.

The dismantling of camouflage equipment was shown in a war department press release of Oct. 5, which announced the destruction of 1,000,000 gal. of bituminous emulsion camouflage liquid, formerly used in disguising roads and airfields, in the building of artificial cities masking war plants, and in giving concrete block houses the appearance of residences. As a camouflage agent it was practical but it possessed no civilian utility.

BIBLIOGRAPHY.—*Air Force Magazine*; *Cavalry Journal*; War Department Press Releases; *Flying Magazine*. (R. S. T.)

## Camp Fire Girls.

With the end of World War II in 1945, the Camp Fire Girls, grown to a membership of more than 350,000 girls in the United States, mobilized for peacetime service to home, community and the world. The Camp Fire Girls have a long record of victory contributions, embracing salvage, bond sales, child care, hospital aid, victory gardens, farming, helping the Red Cross, the Office of Price Administration and defense councils. Accurate membership figures were not available in 1945 for Great Britain. The headquarters were bombed out three times and all records destroyed, although the group continued to function during the war and contributed largely to war service.

As one example of their efforts, these young people sold \$2,437,500 worth of bonds during the Sixth War Loan drive, which paid for a total of 1,250 army ambulances. Secretary of the Treasury Henry Morgenthau, just before he left office in 1945, sent a national citation to the Camp Fire Girls commending their distinguished service rendered in behalf of the war finance program.

At the San Francisco Conference of the United Nations, Camp Fire Girls of that city presented a "treasure chest of books" to the French delegation for the children of France. On Sept. 18, 1945, thousands of Camp Fire Girls observed a national "share the food day" by eating meals typical of the very meagre diet of war-devastated countries. Cash savings in the cost of food were sent to the Edith M. Kempthorne fund for furthering Camp Fire's international friendship program.

During the Victory Loan drive of November and December 1945, it was Camp Fire's special responsibility to sell bonds, the money from which was to be used for occupational therapy to help in rehabilitation of the wounded.

Every year Camp Fire Girls choose a coast-to-coast project to highlight a vital theme of the entire program. "Hi, Neighbor!", an adventure in friendship, was the special 1945 project. The girls explored their own neighbourhood to discover what was old or new, good or bad, foreign or native, and how it should develop in the postwar world. A "neighbourhood fair" provided a fitting climax to this survey, which focused attention on the racial background of each community and the contributions of foreign lands and cultures. During the summer of 1945 this interest in world friendship was continued through a United Nations theme for the camping season.

The project for 1946 was announced and was titled "At Home in the World." This program was planned to star the important role of the home in building a family of nations. Fun with the family was to be featured in parties, hobbies, trips, picnics, home-safety checkups and fix-it campaigns. Collecting a picture gallery of children and home life in other countries was to be one activity of the project.

In 1945 President Harry S. Truman accepted the position of honorary president of the Camp Fire Girls. Headquarters are at 88 Lexington avenue, New York 16, N.Y. National presi-

dent in 1945 was Dr. Bernice Baxter. Mrs. Franklin D. Roosevelt was honorary chairman of the advisory council. Martha F. Allen was secretary and national executive and Earle W. Brailey was treasurer.  
(C. F. Lo.)

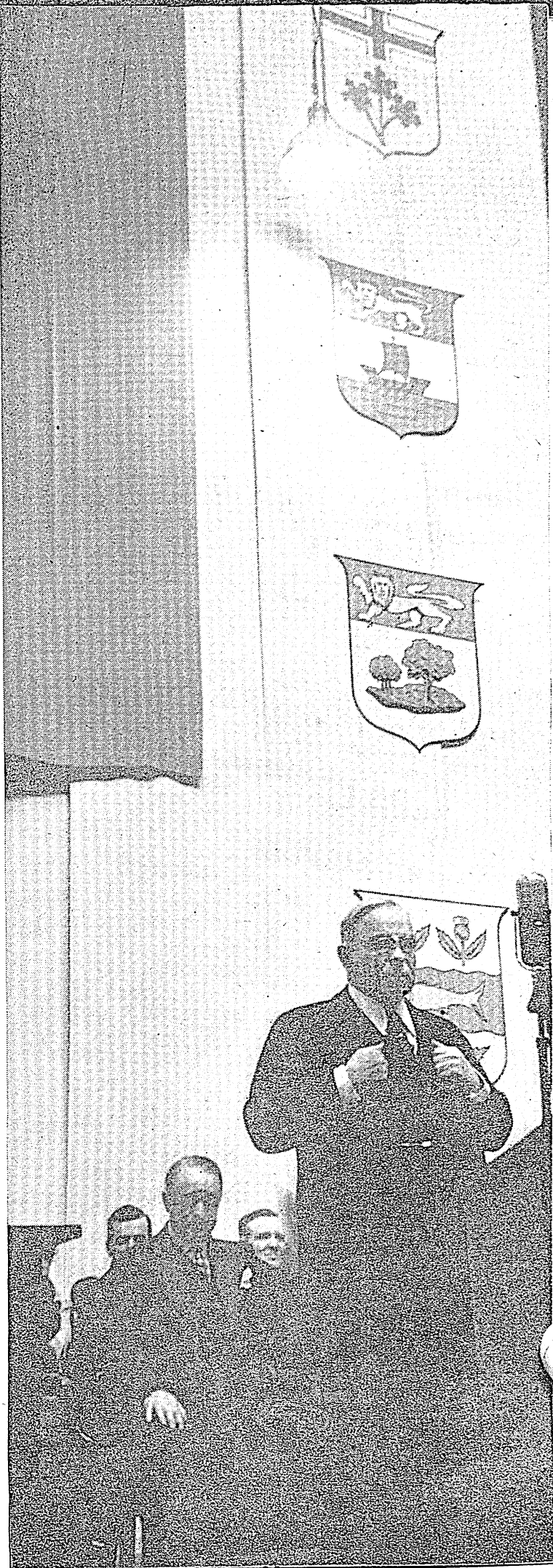
**Canada, Dominion of.** A dominion of the British Commonwealth of Nations (Statute of Westminster, 1931, 22. Geo. V. c. 4) covering all portions of North America north of the United States, except Newfoundland, Labrador and Alaska. Canada is a federal union of nine provinces united under the terms of the British North America act (a statute of the imperial parliament, 1867). The original provinces were Nova Scotia, New Brunswick, Quebec and Ontario; to these were added, Manitoba 1870; British Columbia 1871; Prince Edward Island 1873; Alberta and Saskatchewan 1905. Outside the provincial boundaries are the Yukon and the Northwest Territories, which are under the jurisdiction of the national government. The area is 3,694,863 sq.mi.; pop. 11,506,655 (census of 1941). The capital is Ottawa (pop. [1941] 154,951). Montreal is the largest city (pop. [1941] 903,007). Provincial capitals and their population (1941 census) in order of the provinces listed above are: Halifax (70,488); Fredericton (10,062); Quebec (150,757); Toronto (667,457); Winnipeg (221,960); Victoria (44,068); Charlottetown (14,821); Edmonton (93,817); Regina (58,245). Other leading cities, population based on the 1941 census are: Vancouver (275,353); Hamilton (166,337); St. John, N.B. (51,741); Kingston (30,126); Fort William (30,585); Saskatoon (43,027). The governor general during the year 1945 was the Earl of Athlone; the prime minister, William Lyon Mackenzie King.

Population increases and shifts of considerable significance were observed during 1945. On the basis of ration books issued it was computed that the population was 12,250,000 as of Oct. 1, 1945. A part of this increase was accounted for by immigration—in the first six months of the year, 13,920 persons entered the country. Of this number, the British Isles provided 9,760, the majority being, presumably, war brides and their children. Within Canada, a considerable shift in population took place occasioned by the attractions of war industry. The areas which gained in population were, Nova Scotia 8,000; Ontario 58,000; British Columbia 90,000. There appeared to have been a marked movement to urban centres. For example, the population of Quebec city was estimated, as of Nov. 1, to be 183,441. Of this total 169,113, or 92.2% were French-speaking, 13,574, or 7.4% were English-speaking; the remainder 754, or .4%, were Jewish, Chinese and Greeks. The figures given from the census of 1941 in the preceding paragraph are subject, therefore, to considerable revision.

**History.**—Parliamentary activity characterized the year 1945. General elections for the national parliament took place in June, as well as general elections for the local parliaments of Ontario, Manitoba, Nova Scotia and British Columbia. These latter occurred in October. Since these were the first elections to take place after the end of World War II, an unusual degree of interest surrounded them. In addition, there were a number of bye-elections, both national and provincial, which provided further means of testing public opinion.

On March 31, the Canadian parliament was prorogued, with the election day being set for June 11. An unprecedented number of candidates (964), representing all parties, were nominated for the 245 seats of the house of commons. In the old house, party standing was as follows, Liberals 161; Progressive Conservatives 39; Co-operative Commonwealth Federation 10; So-

PRIME MINISTER W. L. Mackenzie King, Canadian Liberal party leader stumping at Montreal prior to his re-election in 1945







AMPHIBIOUS LORRIES, guarded by Canadian troops, were part of the equipment massed near the Rhine river prior to the great assault of March 1945

cial Credit 10; other parties 14; vacancies 11 (*Canadian Parliamentary Guide*, 1944). On the basis of the voting on June 11, the new standing was, Liberals 118; Pro. Con. 66; C.C.F. 28; Social Credit 13; *Bloc Populaire canadien* 2; Labour Progressive 1. The voting of the armed forces did not alter materially this standing. The Liberal party, under the leadership of Mackenzie King, continued in office, although with a manifestly reduced majority. The Pro. Con. party, as before, formed the official opposition. A number of cabinet ministers, the most notable being Mackenzie King himself, were defeated. A new seat was found subsequently for King in the Ontario riding of Glengarry. The leaders of the other major parties, John Bracken, Progressive Conservative and M. J. Coldwell, Co-operative Commonwealth Federation, were both returned. For the first time Bracken took his seat in the house of commons, after his elevation to the Progressive Conservatives leadership in Dec. 1942. The general elections, therefore, brought into active public life promising new figures, including a number of ex-servicemen.

Provincial general elections were held in Ontario, Manitoba, British Columbia and Nova Scotia. In the Ontario elections, the administration of George Drew was overwhelmingly sustained, as the following figures indicate: Pro. Con. 66; Liberals 11; C.C.F. 8; Labour-Progressive 2; Liberal-labour 3. Before dissolution, party standings were, Pro. Con. 38; C.C.F. 34; Liberals 15; Independent Liberal 1; Labour 2. In Manitoba, polling took place on Oct. 15. The government of Stuart Garson (Coalition) was sustained with a slightly reduced majority. The result of the vote was as follows: Coalition 43; C.C.F. 9; Independent C.C.F. 1; Labour-Progressive 1; Independent 1. The Coalition government was composed of Progressives, Progressive Conservatives, Social Credit and a number of Independents. The Nova Scotian election took place on Oct. 24. It resulted in the Liberal government of Angus Macdonald carrying 28 of the 30 seats in the assembly. The C.C.F. party secured two seats; the Pro. Con., none. Before dissolution, party standing was as follows: Liberals 23; Pro. Con. 4; C.C.F. 3.

On the next day (Oct. 25), voting took place in British Columbia. The Coalition government of John Hart improved its position by carrying 37 of the 48 constituencies. The C.C.F. secured ten seats; Labour, one. Previous to the elections, party standing was as follows, Coalition 30; C.C.F. 15; Labour 1; Independent Liberal 1. The Coalition government in British Columbia was composed of the former Liberal and Pro. Con. parties.

Bye-elections, both national and provincial, took place in 1945. On Feb. 5, a bye-election for the national parliament was held in Grey North. This resulted in the defeat of General A. G. L. McNaughton, the minister of national defense, at the hands of Garfield Case, Pro. Con. Case was returned again in the general elections on June 11. On Nov. 22, a provincial bye-election took place in Beauce county, Quebec. Georges Poulin, the candidate for *l'Union Nationale* won an overwhelming victory over his Liberal and Social Credit opponents. On the same day, a provincial bye-election was held in Wadena, Saskatchewan, resulting in the return of the government, C.C.F. candidate. In British Columbia, the Coalition candidate was returned for Okanagan on Dec. 19. In Prince Edward Island, local bye-elections brought about the return of both a Liberal and a Progressive Conservative candidate, in Fifth Prince and in First Prince respectively. In neither Saskatchewan, British Columbia nor Prince Edward Island did the bye-elections affect the standings in the house of assembly.

The first session of the 20th parliament met on Sept. 6. The speech from the throne outlined the program of legislation, the submission of the charter of the United Nations; the rapid relaxation of wartime controls; demobilization; sponsorship of measures to promote world trade; clarification of Canadian citizenship. The speech referred to the nomination of field marshal, the Hon. Sir Harold Alexander, as governor general, to take office early in 1946.

On Oct. 22, the minister of finance introduced the budget. This document contained an impressive statement of Canada's contributions during the six years of war. The war expenditure was more than \$15,000,000,000, of which more than 45% was met out of current revenue, after supplying all other ordinary

government expenses. The remainder of this huge sum was supplied by the genuine savings of the Canadian people, invested in dominion government securities. The budget contained, as well, some very welcome reductions in taxation. The most welcome was probably the announcement that personal income taxes would be reduced 16% as of Oct. 1. Other reductions favoured business enterprise. The excess profits tax of 100% was cut to 60%; the excess profits tax on advertising being abolished. The war exchange tax on imports from countries outside the commonwealth was abolished. The excise tax on furs and on fur-trimmed garments was reduced. The sales tax was removed from machinery and from appliances of production. All these reductions, the minister declared, were but the first steps in a general program of reductions. A complete revision of the taxation structure, especially of the personal income tax, had to wait the outcome of the Dominion-Provincial conference (*see* discussion of Dominion-Provincial conference, below). Considerable attention was directed to the Customs Tariff act, which was included in the budget. Following discussion in the house, all amendments to the act, some 34 in number, were withdrawn, since they gave the impression that they involved increases in the tariff. In view of the early impending international conferences on trade, the minister agreed to withhold these.

Because of their social and economic implications, certain legislative measures were of great moment. In the spring, the government published its report on employment. This paper, described as a *White Paper on Employment and Income*, outlined a program of providing occupations, roughly in excess of 1,000,000 more than the number available in 1939. The basis of the program was to encourage private industry to expand. The government undertook to provide employment through public works, only when private enterprise was unable to do so. The government also declared itself prepared so to budget during years of surplus that it could meet lean years without substantially increasing the burden of taxation. When parliament met, the minister of reconstruction reaffirmed this policy. Private enterprise was to have a free hand in providing employment through conversion from wartime to peacetime economy. The second element in the program of social legislation was housing. In April, the government declared its intention to stimulate construction in order to meet the needs of the returned servicemen, and to supply adequately the increasing civilian population. In accordance with this declaration, the government set as its objective the construction of 50,000

housing units for the first construction year following the close of World War II. It also proposed generous grants for slum clearance, and for financing housing projects in areas where employment might suffer from the cancellation of wartime contracts. Thus, its policies respecting employment and housing were linked. By midsummer, the value of new building contracts totalled \$58,875,000, as compared with the \$37,315,000 of June 1944. In spite of these efforts, the housing situation remained acute. On Aug. 20, the Wartime Price and Trade board extended its emergency shelter regulation to cover all Canada. Up to that time it had applied to only seven specially designated "congested" areas. Upon the meeting of parliament, a Central Mortgage and Housing corporation, capitalized at \$25,000,000, was created. This body administered the National Housing act, and assisted mortgage companies in home financing. The object was to increase the liquidity of mortgages, and to encourage lending at low rates of interest. The third social security measure was the Child Allowance act, the provisions of which went into effect on July 1. The first payments under the act, amounting to \$17,560,394, were made in July. While the act was designed to benefit directly its specific recipients, the children, indirectly it would aid in increasing the purchasing power of families. Hence, in its operation, the act was economic as well as social.

Other important legislation was introduced in the course of the session. The most important was probably the National Emergency Powers' bill (Bill 15). The introduction of this measure was necessitated by the conclusion of the war, and the automatic lapsing of many of the national government's powers. Considerable criticism was levelled at the bill. In general, it was considered as being too sweeping, and, in particular, fault was found with clause "G," section III. This clause gave the government authority to exclude, deport and even to deprive persons of their nationality. A measure was introduced to increase the payment of members of parliament. By this, the indemnity was raised \$2,000 above the previous \$4,000. For private members, this sum was to be considered free from income tax, but not for cabinet ministers, senators nor for the leader of the opposition. Although not strictly in the realm of legislation, discussion upon the adoption of a distinctly Canadian flag stirred much interest. In the speech from the throne, the government proposed the formation of a parliamentary committee to examine this subject. In November the committee was named, consisting of 50 members, drawn in equal proportions from the house of commons and from the senate. Before the close of the session in December, more than 600 designs had been submitted. Accordingly, the committee was unable to bring in any definite report.

Royal commission reports were presented during 1945. In May, the royal commission on the taxation of annuities and of family corporations made its recommendations. Respecting annuities, a number of suggestions were made, the chief of which was that the capital of the annuity be regarded as exempt from taxation, but the portion of the annuity representing interest should be taxable as income. The Commission on Veterans' Qualifications reported in late October. The report recommended the completest co-ordination between the national and provincial governments in the rehabilitation of ex-servicemen. The commission also made very strong recommendations for extended technical training, and for the establishment of additional technical schools and institutes. The royal commission on co-operatives reported in December. It recommended that co-operatives engaged in merchandising and marketing be subject to ordinary taxation; credit unions to continue to enjoy exemption. A third royal commission, on the coal industry, completed its investigations, but not its report in the course

CANADIANS IN ITALY made increasing use of mules in getting supplies over the snow-covered mountain roads. Leading this pack train is a Canadian quartermaster sergeant and an Italian guide



of the year. It might be assumed that the commission would outline a comprehensive fuel policy, which would assure adequate supplies in periods of emergency, and which would assure Canadian miners satisfactory protection against foreign competition. A royal commission investigated the Halifax V-E day disturbances.

The Dominion-Provincial conference met in the latter part of 1945. This body was summoned for the purpose of determining the postwar relationships, financial and of kindred character, between the dominion and the provincial governments. The matter of national health insurance was also a subject for discussion, the dominion government having prepared a draft bill thereon. Thus, the ending of the war, together with the failure of the conference of 1940, gave the conversations a note of great urgency. The conference opened at Ottawa on Aug. 6, 1945. The chief proposals put forward by the spokesmen of the national government were new agreements regarding taxation and subsidies. The provinces were to vacate the field of personal income tax in return for the assumption by the dominion of many social measures which had been met, in whole or in part, by the provinces: old age pensions, maintenance of needy persons, unemployment insurance, etc. The national offer also included grants to the provinces and to the municipalities for public works projects under the full employment scheme. The dominion likewise offered to increase the subsidies paid to the provinces by a minimum of \$12 a head, based on the 1941 census. None of these proposals trenched on the constitutional rights of the provinces, nor called into question the relationships of national and local governments. The proposals were acceptable in general, and discussion proceeded on them. A co-ordination committee, consisting of the prime minister and the premiers of the provinces was set up, charged with general supervision. This committee met again in November, when the proposals put forward by the national government were discussed after a period of examination. The discussion apparently was frank and helpful. Some of the provinces requested definite assurance as to the tax field which would be left them, if the national government assumed full powers of direct taxation. Exceptions were taken, as well, to the national government's measure extending emergency controls. Thus, while finality was not achieved in these preliminary discussions, a wide measure of acceptance was gained for many of the proposals. The conference was to reconvene at the beginning of 1946.

Between certain of the provinces, important agreements were reached. The two most notable were between the provinces of Ontario and Quebec. Early in the year, they agreed to a division of succession duties on the estates of persons who died in one province, but who held property in the other. This measure, which became operative as of Feb. 1, put an end to the practice of levying double succession duties. On Nov. 22, the two governments agreed to the development of a hydroelectric power site at Des Joachim on the upper Ottawa river. The Des Joachim plant was expected to be the start of the \$200,000,000 postwar program of the Ontario Hydroelectric Power commission. While these agreements had nothing to do with the Dominion-Provincial conference, they were indicative of the practical co-operation between the several governments.

The status of Japanese residents in Canada was the subject of much discussion. Of these, the total number was 23,149 (1941 census) about one-half of whom were Canadian-born. Living chiefly in British Columbia, they were subject to various disabilities even before the outbreak of war. With the declaration of war on Japan, they were disabled further; for example, they were not allowed to join the Canadian armed forces. In Feb. 1942, the government evacuated the Japanese from the

"defense zone," a strip about 100 mi. wide along the Pacific coast. A security commission was empowered to move the Japanese, who were treated as a racial bloc, no distinction being made as to citizenship. The Japanese were dispersed, about 16,000 being within British Columbia, but outside the defense zone, the remainder in Alberta, Manitoba and Ontario. In 1944, the prime minister made a declaration, which may be regarded as a statement of official policy towards the Japanese. The gist of this was that it was desirable that the Japanese should be scattered across Canada, likewise that the loyal be distinguished from the disloyal, the latter being returned to Japan. In the spring of 1945, detachments of the royal Canadian mounted police interviewed the Japanese to ascertain those who wished to return to Japan. By September, it was stated that about 9,000 so desired, although the accuracy of this figure could not be vouched. In December, however, some 2,000 of these reconsidered their position, and asked to be allowed to remain in Canada. Repatriation was expected to commence, probably in Jan. 1946, in co-operation with the United States, which was also returning a number of persons of Japanese origin. The dispersal of Japanese throughout Canada, as of Dec. 11, was as follows: British Columbia 15,000; Alberta 3,500; Manitoba 2,800; Quebec (the Montreal area) 850.

**External Relations.**—External trade problems and problems of external relations occupied Canada throughout 1945. In the early summer, the prime minister, along with parliamentary representatives of the other political parties, attended the San Francisco conference of the United Nations. The Canadian delegation was responsible for the adoption of several important measures, including the complete revision of the chapter on the social and economic council. The prime minister, and the minister of justice, signed the World Security charter with powers under the great seal of Canada. This was the first occasion that this instrument was used in external relations. In the autumn, Prime Minister King visited London and Washington. In the former capital, he conferred on vital matters with Clement R. Attlee, the prime minister of Great Britain; in the latter, he attended conferences on the atomic bomb. The U.S. loan to Great Britain attracted wide attention in Canada, the more so, since it was followed by statements from the prime minister of Great Britain that the system of commonwealth preferences might be abandoned, if there were reciprocal action for the general reduction of tariffs. This was in line with statements of the minister of finance when he withdrew the tariff proposals in his budget. It might be assumed that the Washington-London agreement would be followed by an Ottawa-London agreement on comparable lines. At the end of 1945, Great Britain was indebted to Canada to the extent of \$561,000,000. It was, therefore, in the interest of Canada to have the purchasing power of Great Britain restored. The situation was complicated by the practice of Great Britain in withholding or cancelling import licences, thus affecting adversely Canadian export interests. In prewar years, Canadian manufacturers of farm machinery, office equipment, household appliances and other lines of goods had built up a very profitable market in Great Britain. The action of the British government threatened them with total loss in Great Britain, and probably in other sterling areas, as well. A similar cause of irritation was the decision of the British ministry of war transport prohibiting British vessels from purchasing supplies in Canada. After ten days, this order was rescinded. In order to stimulate export trade elsewhere, Canada extended large credits to the following states, Czechoslovakia, the Netherlands, the Netherlands Indies, Norway, Russia and Belgium.

The status of the Canol project caused some discussion between Ottawa and Washington. When Japanese attack on the



Pacific coast seemed imminent, the United States government developed the petroleum fields in the Fort Norman area, Northwest Territories, as a parallel undertaking to the Alaska highway. The project cost in the neighbourhood of \$134,000,000. The right of acquisition was reserved by Canada, when the original agreement was made. Toward the end of 1945, however, the Canadian government decided to waive its right. It was understood that private petroleum companies, notably Imperial Oil, were investigating with a view to purchase. The petroleum reserves were estimated to be about 30,000,000 bbl. To make the proposition profitable commercially a larger pipe line would be necessary, and a different refining centre (Whitehorse, Y.T.) chosen.

Looking to closer co-operation in world affairs, parliament ratified the charter of the United Nations and the Bretton Woods financial agreement. In October, the Food and Agriculture organization of the United Nations met at Quebec, under the chairmanship of L. B. Pearson, the Canadian ambassador to the United States. The conference was attended by 40 representatives of the United Nations and associated powers. A contribution to the humanitarian work of the United Nations was the gift by the Canadian people of 12,555,000 lb. of clothing. Clothing collections were made throughout the autumn for free distribution to the suffering peoples of war-devastated Europe and Asia.

**Canada in World War II.**—The conclusion of hostilities in Europe and Asia made the year 1945 a convenient point at which to summarize the achievements of the Canadian people and of their armed forces. Until V-E day, Canadians were engaged actively in western Europe. Early in February, the Canadian forces began their offensive south of Nijmegen in southern Netherlands; by the end of the month, they held more than 40 mi. along the Rhine, and had captured 14,500 prisoners. Canadians were engaged also in Italy, along the Adriatic coast and in the Po valley. On April 23, however, it was announced that all Canadian army formations were fighting as part of the 1st Canadian army in north-western Europe. Forming the left flank of the western allies, the 1st Canadian army was closing in on Emden and Wilhelmshaven when the German armies surrendered on May 8. In the final ten months of the war, Canadians captured 190,000 prisoners at a cost to themselves of 43,000 casualties. On July 4, Canadian troops entered Berlin to take over their assigned occupational zone. The Canadian army of occupation numbered 25,000, who policed approximately 80 sq.mi. in the north-western part of the country.

Upon the conclusion of the European phase of the war, plans were made for large-scale operations in the Pacific. For a year or more, Canadian officers and observers had been attached to the United States and Australian forces gaining information in tropical and jungle warfare. In May, the prime minister announced the details of Canada's Pacific force, an infantry division, supported by armoured and service troops. At an earlier date (February), the minister for naval defense had disclosed something of Canada's naval contribution, some 250 vessels of various types. These forces saw no active service, since the surrender of Japan occurred before their transfer from Europe was completed. Nor did Canadians take any part in the occupation of Japan, although the instrument of surrender was signed on behalf of Canada by Col. Moore Cosgraves on the historic occasion on board U.S.S. "Missouri" in Tokyo bay, Sept. 2. Thus, Canada, which had entered the war in Sept. 1939, was represented at its dramatic conclusion. The cost to Canada of its participation was 41,371 dead; total casualties 104,925.

The repatriation and rehabilitation of the Canadian armed forces proceeded throughout 1945. As speedily as shipping could be obtained, Canadian personnel was withdrawn from the war zones, leaving behind only occupational and essential troops, the latter being principally officers and noncommissioned officers. The women's services, Canadian women's army corps, women's royal Canadian naval service, and women's division, royal Canadian air force, were demobilized. It did not appear that they would be included in the "interim force," nor in the permanent force, when it was formed. The term "interim force" was applied to the armed forces until Canada's military obligation under international authority might be known. The rehabilitation of the ex-servicemen and women was placed under the direction of the ministry of veterans' affairs. One phase of rehabilitation, university training, attracted 15,934 veterans.

The material contributions of Canada to the victory of the United Nations might be judged from the following figures. Contracts placed by the ministry of munitions and supply were \$10,500,000,000, the total commitment for the department, including financial provision for plant expansion, which was \$12,751,000,000. The resultant output included, 16,200 aircraft, 28,000 heavy naval and field guns, 1,500,000 rifles and machine guns, 100,000,000 rounds of filled heavy ammunition, 60,000,000 units of empty shell and cartridge cases, 4,440,000,000 rounds of small arm ammunition, more than 2,000,000 tons of explosives and chemicals, 800,000 automotive and armoured fighting vehicles, 8,000 ships and signal and communication equipment valued at more than \$500,000,000. The sale of war equipment was entrusted to the War Assets corporation. This body disposed of not only war equipment in the ordinary sense, but plants, machinery, etc., acquired by the government. A considerable amount of war material was disposed of to various European states, to the amount of \$11,000,000. The Netherlands government was the largest

purchaser, acquiring equipment for four divisions. By November, a total of \$613,000,000 of war assets was disposed. These weighty contributions were climaxed by the production of uranium for the manufacture of the atomic bomb. Canadian scientists, along with the scientists of other countries, collaborated on the production of the bomb. In the autumn of 1945, the Canadian government organized a number of survey parties to search for fresh supplies of uranium in the neighbourhood of Great Bear lake where the original deposits were found.

**Economic Survey.**—The year 1945 witnessed the commencement of the momentous and perplexing transition from war to peace. The certainties of rigid wartime demand gave place to the uncertainties of peace, which were intensified by problems of repatriation and rehabilitation of ex-service personnel, and by obscurity in the conditions of world trade. All these were thrown into clear relief when compared with the high level of economic activity in the previous year, 1944. In that year the index of the physical volume of business stood at 236.8 (the period, 1935-39=100). By the end of Jan. 1945, a decline was observable, when domestic export merchandise fell to \$230,498,000 from \$242,011,000 of Jan. 1944. Thereafter, the decline was steady, reaching its lowest point in September, when the index was 194.5, the lowest from Feb. 1942. During the first ten months of 1945, the average was 216.7.

**Agriculture.**—Agriculture reflected this general tendency. Cold weather and rains interrupted field operations and seeding. By midsummer it was accepted that the crop for the year would be below the long-term average, especially in the Prairie provinces. The official estimate for the wheat crop in 1945 was 308,600,000 bu. Other cereals were reduced proportionately: oats 378,300,000 bu., a reduction of 10,000,000 bu.; barley reduced by 4,900,000 bu. Nonetheless, the movement of grains to points outside Canada was heavy. By the end of the first week of July, 300,000,000 bu. of wheat and of wheat flour had left the Canadian ports. The urgent need of European countries for food explained this strong movement. As well, nearly every European state sought Canadian grain and vegetable seeds, alfalfa, timothy and red clover being in greatest demand. The carry-over of wheat was placed at 356,000,000 bu., the lowest from 1939, the year in which World War II broke out. The wheat board raised the export price from \$1.46 to \$1.55 a bu., and wheat was sold to the United Nations at this new rate. In crops other than cereals the output was approximately average, although the yield of orchard fruit was markedly light. The apple harvest was placed at about 7,500,000 bu. The potato crop was 35,184,000 cwt. (49,409,000, cwt., 1944). Livestock production was 7,500,000 head. Slaughtering totalled as follows: cattle 1,747,362; calves 768,427; hogs 5,477,325; sheep 1,133,980 during 1945. The need for foodstuffs in Europe drew heavily on Canadian supplies. This necessitated the resumption of the rationing of meat, and the observation of meatless days, Tuesdays and Fridays, in all public eating places. By these means the domestic consumption of meat would be reduced from 141 to 130 lb. per person. The gross value of field crops was estimated, as of December, to be \$1,098,859,000, a decrease of \$222,449,000 from the estimate of 1944. The estimated cash income of farmers was reckoned to be down \$62,000,000 in the first half of the year as compared with the same period in 1944.

**Mineral Production.**—Mineral production declined in a similar fashion. In all minerals the drop was 30% in the mineral production index from 1944. Metals used in war production showed an especially sharp decrease. The estimated steel production for 1945 was 2,836,000 tons; that of 1944, 3,024,000 tons. Gold receipts at the mint, and gold export fell by 13% and 15%, respectively.

**Communications.**—Railway transportation reached what might probably be regarded as its peak in 1945. The Canadian National railways reported a surplus of \$25,000,000, an increase of \$2,000,000 over 1944. Freight carried during the year was estimated at 79,900,000 tons; passengers 32,000,000; wages and pay roll \$221,520,000. Between V-E day and the end of the year, the railway carried more than 150,000 servicemen and women from vessels docking at the Canadian ports to their homes. In addition, it moved about 10,000 British troops from Vancouver to Halifax on their way from the orient. More than 600 special trains were required for service personnel, as well as extra sections for regular trains. Precisely comparable figures for the Canadian Pacific were not available; nonetheless, the accomplishments of this railway might be judged from the following: gross earnings \$318,084,000; revenue freight 55,220,951 tons; passengers 18,180,765. This summary was based on the period, Nov. 1944-Nov. 1945. During the war, more than 20,000 employees of the Canadian Pacific enlisted. The reconversion achievement of the railway was equally impressive. For example, only 60 days were required to change over the Ogden shops, Calgary, from all-out war production to the replacement and construction of locomotives. Canadian railways also assisted in the repatriation of United States servicemen, troops being brought over the Canadian lines to Montreal, whence they were routed to various points in eastern U.S. In the course of the year 1945, both railways added considerably to rolling stock, especially freight rolling stock. The Canadian National experimented with radio equipment looking towards the yard operation of trains by this medium. Both railways operated considerable fleets. While many of their vessels were still in war service, the Canadian National resumed its freight service to the West Indies, two of its 11 ships having limited passenger accommodation. The fleets of the two railways suffered heavily as a result of the war. Three of the five Canadian National liners were lost. The heaviest loss suffered by the Canadian Pacific was the "Empress of Britain," the well-known luxury liner. As well as rail, water-borne traffic in the Great Lakes basin was unusually heavy, owing to the unprecedented length of the season.

**Employment.**—Employment throughout 1945 presented a confused picture. In early midsummer, National Selective Service announced that in Ontario there were 46,550 vacancies with only 5,482 applicants. As late as August, it was estimated that the supply of workers was still about 100,000 short of jobs available. By late November, the situation was very nearly reversed, the department of labour reporting nearly 80,000 persons seeking work across Canada. The precise figure of unemployment is difficult to fix, but it appeared to have risen sharply during the autumn. Among veterans, the increase was marked by Nov. 28, when 1,300 were receiving out-of-work benefit; as of Sept. 1, this number was

725. While the situation was widespread, certain localities and certain lines of work were affected especially. The areas most severely affected were the extremes of east and west. In the east, Cape Breton Island, and in the west, Vancouver and the coast region were described as being "hit fairly hard." Those occupations most closely associated with war-time production suffered most. Efforts to maintain employment at war-time level were envisaged by the government. In April, a White Paper on employment was submitted to Parliament outlining a program which aimed to supply 960,000 more jobs than were available in 1939.

In August, the minister of labour announced the relaxation of controls over the movement of workers in order to facilitate the transition from wartime to peacetime employment. During the autumn, controls were progressively withdrawn. In September, the minister of reconstruction stated that there were in sight 1,000,000 more jobs than were open in 1939. In spite of this confused situation in the field of employment, strikes and industrial disputes were at a low level in the year 1945. In the first nine months of the year there were 143 strikes, involving 63,884 workers with a loss of 355,544 man-days. In the same period in 1944, comparable figures were respectively, 166; 67,533; 456,394. In the Cape Breton coal fields, a serious dispute was averted by the men's voting to accept a new two-year contract. The contract called for increases in pay and a two-week vacation with pay. The most extended strike of the year occurred in the Ford plant at Windsor, Ont., the issue being union-shop and check-off. After a 99 day stoppage of work, both parties agreed to accept an arbitrator, Justice I. C. Rand, of the supreme court of Canada (Dec. 20). Throughout the entire war period, Canada was remarkably free from serious labour disputes.

**Finance.**—Two Victory loans were floated during 1945, the Eighth and Ninth. Subscriptions to the latter loan, which closed in November, amounted to little less than \$2,000,000,000, the original objective being \$1,500,000,000. The number of applications for bonds in the Ninth loan was 2,546,569, as compared with 2,324,861 of the Eighth loan. A very substantial number of bonds was purchased by men and women returned from overseas. The success of the two loans in 1945 strikingly attested the well-being of the country at the end of six years of war. These loans, as well as the Victory loans of earlier years took a most important part in wartime finance, enabling the government to meet about 45% of its war expenditure from current revenues, thus implementing to a notable degree its announced policy at the outbreak of hostilities to put the cost of the war on "a pay-as-you-go" basis.

The cost of living index advanced slightly during the year. On the basis that the period, 1935-39=100, the index stood at 119.9 on Nov. 1. The increase was due entirely to a rise in the food index, especially in the price of butter and eggs. Other indices either remained stationary, or declined. (See also BUSINESS REVIEW.)

**BIBLIOGRAPHY.**—*The Canada Year Book, 1945; Canada at War; Bank of Montreal Business Summary; Agricultural and Industrial Progress in Canada;* Various publications of the Dominion Bureau of Statistics. (J. I. C.)

**Canadian Literature.** **Fiction.**—More than 100 books were published in Canada during 1945, making it the highest annual production up to that time. Most significant novel was Hugh MacLennan's *Two Solitudes*, a dramatic portrait and stiletto-pointed analysis of French Canada. *All This Difference* by Dorothy Dumbrell also examined the French-Canadian scene. The 1945 Ryerson fiction award was divided by Philip Child's *Day of Wrath*, a study of dictatorship in Germany, and Will R. Bird's *Here Stays Good Yorkshire*, an historical novel of Yorkshiremen who settled in Nova Scotia in 1772. Violet King's *Better Harvest* also chose an historical theme, the 1837 Rebellion in Ontario. *Darkly the River Flows* by Lt. Comdr. John Macdonald, R.C.N.V.R., winner of Longmans, Green \$1,000 book prize, was a character study in a modern Ontario setting. Two Canadians naturalized in the United States published important novels: Thomas B. Costain's *The Black Rose* had England and China in the 13th century for its background, while Robert Fontaine's *The Happy Time* recalled his boyhood in Ottawa. Three collections of short stories were published: *So Near Is Grandeur* by Leslie Gordon Barnard, *Tambour* by Thomas H. Raddall, *The Village of Viger* by Duncan Campbell Scott. Other novels were: *Turf Smoke* by John Coulter, *The Shadow of Tradition* by C. H. MacGillivray, *Blow Wind—Come Wrack* by John Wentworth (pseudonym of Philip Child), *Winter Reason* by Evelyn Eaton, *Her Own People* by Grace Tompkinson, and *Fireweed* by Frances Sarah Moore.

**Poetry.**—Most significant single poem was Dr. E. J. Pratt's *They Are Returning*, a salute to Canada's fighting forces. Major Earle Birney, governor-general award winner in 1943 (*David And Other Poems*) described in *Now Is Time* what the war meant to a Canadian soldier. Anne Marriott, another poetry governor-general award winner (*Salt Marsh*: 1941) also pub-

lished a collection of poems, *Sandstone. Tallahassee* by Andrew Merkel was a long narrative poem about the maritime provinces during sailing-ship days. *Overture* by F. R. Scott was a collection of poems of social content, marked by satire and irony. Other collections of poems included: *True Harvest* by Arthur S. Bourinot, *From Dawn to Dusk* by Helen Fairbairn, *A Tent For April* by Patrick Anderson, *Here and Now* by Irving Layton, *Moths After Midnight* by Vere Jameson, *Songs of the Western Islands* by Hermia Harris Fraser, *And in Time of Harvest* by Monica Roberts Chalmers, *Sea-Woman* by Eileen Cameron Henry, *Wood-Fire and Candle-Light* by Mary S. Edgar, *When I Turn Home* by Dorothy Howard.

**Nonfiction.**—Reader-interest centred on the nonfiction war books written by Canadians in 1945. *Gauntlet to Overlord* by Ross Munro told the story of the Canadian army in action. *Escape From Arnhem* by paratrooper Leo Heaps was a first-hand account of the battle of Arnhem during the latter days of World War II. Edgar McInnis added *The War: Fifth Year* to his annual survey volumes on the progress of World War II. *Saints, Devils and Ordinary Seamen* by Lt. W. H. Pugsley, R.C.N.V.R., was the human-interest story of Canada's navy in action. In *Wings of the Morning* Jean Brown Segall told her brother's experiences and sacrifice with the R.A.F. A fugitive for 18 months from the Japanese in the Philippines, Louise Reid Spencer described the experience in *Guerrilla Wife*. Other war books were *Germany's War Crimes And Punishment* by M. H. Myerson, *Hi-Sky!* by Alec McAlister, and *Sailors* by Grant Macdonald.

Publication of an unusual number of regional books marked Canadian literature of 1945. *We Keep a Light* by Evelyn Richardson described the tribulations of lighthouse living on an island off the tip of Nova Scotia. *The Castle Buck* by Phil H. Moore reported hunting and fishing in Nova Scotia. *A Saga of the St. Lawrence* by D. D. Calvin reported timber and shipping through three generations along the St. Lawrence river. *Grand River* by Mabel Dunham told the story of the coming of the Mohawk Indians to that Ontario region. *Three Mile Bend* by Kerry Wood was a collection of humorous sketches about wild life in an Alberta valley. Two books of pictures also told the story of Canada: *This Is Canada* by Donald W. Buchanan, and *Outdoors With a Camera in Canada* by Dan McCowan.

Other topics were history, current affairs, science, arts, religion, biography and autobiography. Lawrence J. Burpee retold *The Discovery of Canada* in the words of the discoverers themselves. Dr. Lorne Pierce made a passionate plea for Canadian unity in *A Canadian People. The Spirit of Canadian Democracy* by Margaret Fairley was an anthology of Canadian democratic writing for the past 200 years. *The Voice of Dafoe* was a selection of editorials by John W. Dafoe, great Canadian journalist who died in 1944. In *Left-Turn*, Canada Major James W. Coldwell spoke for socialism, and in *While There Is Yet Time* Stephen Leacock spoke posthumously against socialism. Art books were *Painting in Canada* by Paul Duval, *The Arts and Crafts of Canada* by Douglas G. W. McRae and *The Group of Seven* by Thoreau MacDonald.

Biographies were *Frederick Philip Grove* by Desmond Pacey, *C. W. Jefferys* by William Colgate, *Emily Murphy—Crusader* by Byrne Hope Sanders; while *Brave Harvest* by Kennethe M. Haig was the life story of E. Cora Hind, famous Canadian woman agricultural journalist. In *The Stream Runs Fast* Nellie McClung, noted Canadian novelist and inspirational writer, continued her autobiography.

**Juvenile.**—Several juvenile books appeared. Prolific William MacMillan published three novels for older boys—*Arctic Adventure*, *Dark Treasure* and *Mystery Ship*. *Windigo* by Kathrene Pinkerton was a girl's novel about northern Ontario. *Wild*

*West Bill Rides Home* by M. F. Millen described ranch life in Alberta. Louise Richardson Rorke continued the story of a Colie dog in *Lefty's Adventure*. Ray Darby and John Phillips, writer and artist, combined to produce three books during the year—*Peter Smith And the Bugs*, *Peter Smith And the Sky People* and *Oomah*. Dorothy Morrison wrote *Tales The Eskimos Tell* and Marjorie E. Cropp wrote *The Tremendous Adventures Of The Peace Fairy*. Mary MacIntyre wrote 43 short stories about words under the title *Skippy and Others*.

(See also PRIZES OF 1945.)

(C. Cy.)

**Canadian-U.S. War Committees.** With the exception of the Permanent Joint Board of Defense, all Canadian-U.S. war committees were expected to be dissolved by the end of the calendar year 1945. On Aug. 17, 1940, 11 months after Canada declared war on Germany, President Roosevelt and Prime Minister King signed the Ogdensburg agreement, which brought into being the Permanent Joint Board on Defense. As a result of the Hyde Park declaration of April 1941, which recognized the need for further measures to co-ordinate the productive facilities of both countries if the utmost aid was to be given to the United Kingdom and the other democracies, the Material Co-ordinating committee, the Joint Economic committees, and the Joint War Production committee were established. The Joint Standing Committee on Agriculture and the Joint War Aid committee were not set up until March and Aug. 1943, respectively.

**Permanent Joint Board on Defense.**—As the name implies, the board which was established in Aug. 1940, was expected to continue on a permanent basis, and during the last quarter of 1945 it met every two months instead of every three months as it did during the war. The over-all plans for the defense of North America were drawn up by this board and implemented by the two governments. Recommendations of the defense board resulted in the building of the Alaska Military Road, the construction of a chain of air fields between Edmonton and Alaska, and construction and other operations in Labrador, Newfoundland and Alaska by United States and Canadian civilian and military forces. The United States and Canada continued in 1945 to co-operate on joint defense measures against any future attack, particularly across the arctic regions. The United States assigned six observers to accompany "Exercise Musk-ox," the Canadian army and air force expedition which was to make a 3,100-mi. expedition through the arctic early in 1946 to gather information on possible military operations in that region. The expedition was to be supplied by air. The air forces expected to obtain vital information on polar operations and the ground forces were to gather data on equipment needed in the arctic area. U.S. officials were also supporting the Arctic institute at McGill university in Canada, which was studying problems of existence in the arctic. There were six United States members representing air, ground and navy forces, with one member from the department of state and a civilian chairman. There were five Canadian members representing air force, army and navy, with one member from the department of external affairs. The board acts in a recommending capacity only.

It was understood that the United States and Canada had co-operated closely in liquidating their joint wartime ventures, particularly the air route between the U.S. and Alaska and the installations connected with it. The highway sections linking Alaska and the U.S. were to be taken over by Canada on April 1, 1946, and the telephone lines on June 1. By the end of 1945, Canada had paid for every permanent air facility installed by the U.S., and the United States had not requested

any bases on Canadian soil. In view of the mutual confidence between the two countries, it was believed that a comprehensive defense program could be worked out in any emergency.

**Material Co-ordinating Committee.**—This committee had ceased operation and was expected to be dissolved by Dec. 31, 1945. It was set up in May 1941 to plan the over-all raw material supply and requirements position of the two countries and to iron out distribution problems arising from short supply.

**Joint Economic Committees.**—Establishment of these committees was announced June 17, 1941. They were to harmonize economic controls, priority regulations, shipping problems, questions of tariff, duties and exchange, and generally to mesh production in both countries for the most effective prosecution of the war. They were dissolved in March 1944, when it was apparent that other agencies had taken over most of their functions.

**Joint War Production Committee.**—This committee had actually gone out of existence although no official dissolution date had been announced up to Dec. 1945. This committee was first set up as the Joint Defense Production committee by President Roosevelt and Prime Minister King in Nov. 1941 pursuant to an earlier recommendation of the Joint Economic committees. The objective of the committee was to integrate and speed up munitions production in both countries. It was successful in reducing duplication, increasing the exchange of technical information, closing short-term gaps and in rationalizing production to take advantage of the best facilities available in both countries. There were ten technical subcommittees which did the basic ground work for the committee. These expert bodies covered aircraft, artillery, artillery ammunition, conservation, chemicals and explosives, small arms and small arms ammunition, naval shipbuilding, merchant shipbuilding, signal corps equipment and tank automotive.

**Joint Standing Committee on Agriculture.**—This committee was inactive after Oct. 1943 when full membership on the Combined Food board was extended to Canada. Most of the functions of the committee were absorbed at that time by the Food board. The committee was originally set up in March 1943 to keep in constant review agricultural and food production and distribution in the light of war and civilian needs at home and in liberated areas.

**Joint War Aid Committee.**—Since the purpose of this committee was to study problems arising out of the operations of the United States lend-lease and the Canadian Mutual Aid programs, its operations may be said to have ended with the termination of these programs early in Sept. 1945. Its formation was announced by President Roosevelt and Prime Minister King during the Quebec conference in Aug. 1943. (See also BRITISH-U.S. WAR BOARDS.)

(W. E. TH.)

**Canals and Inland Waterways.** The principal canals and inland navigable waterways of the United States include the Great Lakes, the Mississippi river system, the Illinois waterway, the New York State Barge canal system, the Cape Cod canal, the Chesapeake and Delaware canal, the Atlantic Intracoastal waterway extending from New Jersey to the Florida keys, the Gulf Intracoastal waterway extending from Florida to the vicinity of the Mexican border, the San Joaquin-Sacramento river system in California, and the Columbia river system in the northwest.

The Great Lakes, which consist of lakes Superior, Michigan, Huron, Erie and Ontario, have natural deep water except in the connecting channels which have been artificially deepened where necessary to accommodate deep-draught vessels. They have an outlet to the Atlantic ocean via the St. Lawrence waterway and



via the Oswego and Erie branches of the New York State Barge canal system and Hudson river.

The Mississippi river waterway system embraces the river proper, the Red, Arkansas, Missouri, Illinois, Ohio, Tennessee, Monongahela, Allegheny and Kanawha rivers and other streams. The Mississippi river has a channel for ocean-going vessels upstream to Baton Rouge, La., and thence a channel for modern barge navigation to Minneapolis, Minn., and in its principal tributaries. In the 650 mi. of river above Alton, Ill., to Minneapolis, a system of low-head dams with locks provides a 9-ft. channel depth adequate for modern barge navigation, and below Alton the channel is maintained by open river works. The Ohio river and certain of its improved tributaries are also canalized to provide a 9-ft. channel for barge navigation serving this highly industrialized region. The system of six locks and dams on the Ouachita and Black rivers provides depths of 6½ ft. at low water from the Red river to Camden, Ark., a distance of 351 mi. The Red river proper and the Arkansas river have been improved for light-draught navigation throughout a total length of more than 1,000 mi. The Illinois river and waterway to Lake Michigan has a barge channel which connects the Great Lakes with the Mississippi river system. The Mississippi river inland waterway system, together with the Intracoastal system, which it connects at Plaquemine and New Orleans, La., brings barge navigation within reach of important industrial and farming centres.

The Cape Cod canal which extends from the head of Buzzards bay, Mass., to Cape Cod bay and the Chesapeake and Delaware canal between the Delaware river and Chesapeake bay are sea-level waterways, affording a protected and shorter route for coastwise ocean-going vessel traffic.

The Atlantic and the Gulf Intracoastal waterways provide a protected channel for barge and other light-draught navigation

following coastal sounds, bays, rivers and artificial channels. This canal system, extending for more than 2,300 mi. along the Atlantic and Gulf coasts, affords a channel 12 ft. or more in depth throughout the Atlantic coast section from Trenton, N.J., to Jacksonville, Fla., and in the Gulf coast section from Carrabelle, Fla., to Corpus Christi, Tex.

The San Joaquin-Sacramento river system, with an outlet to the sea through San Francisco bay, has a deep-draught channel to Stockton, Calif., on the San Joaquin river and a moderate-draught channel to Sacramento, Calif., on the Sacramento river. The Columbia river affords a channel for ocean shipping to Portland, Ore., and Vancouver, Wash., and depths suitable for commercial vessel traffic to the head of the pool formed by the Bonneville dam, and thence depths for barge navigation upstream to and including the Snake river.

These systems of inland waterways were maintained and operated to provide for commerce and traffic of importance to the war, including the movement of newly built war vessels from inland yards to the sea.

During the fiscal year ended June 30, 1945, the two flood-gates at the Colorado river, Texas, crossing of the Gulf Intracoastal waterway, were completed. Dredging was undertaken in the section of the waterway between Galveston and Corpus Christi, Tex., to provide the authorized depth of 12 ft., involving the removal of some 7,000,000 cu.yd. of material. Preliminary work was accomplished toward providing the authorized extension of the waterway below Corpus Christi to the vicinity of the Mexican border.

Work was resumed on the construction of additional open river regulating works to improve the navigation channel in the middle Mississippi river between the mouth of the Ohio river and the mouth of the Missouri river, and also in the Missouri river below Sioux City, Ia.

During the year work was initiated on the extension to the

A VIEW of the 37-mile Madera canal, which was completed in June 1945, as part of the Central Valley project of the U.S. bureau of reclamation in California



Southwest pier and reconstruction of Brady pier in the St. Mary's Falls canal, Michigan. The Great Lakes harbours and connecting channels were maintained as required for the needs of commerce.

The water-borne commerce of the United States, Puerto Rico, Alaska and the Hawaiian Islands for the calendar year of 1944 aggregated 605,928,000 tons. A total of 135,172,179 tons was carried on the Mississippi river and its tributaries, and 116,985,667 tons moved through the St. Marys Falls canal connecting Lake Superior and Lake Huron.

The River and Harbor act of March 2, 1945, authorized the improvement of various inland waterways throughout the United States. These new projects included a 12-ft. channel in the Intra-coastal waterway from Jacksonville, to Miami, Fla.; the improvement of the Apalachicola, Chattahoochee and Flint rivers, Georgia and Florida; and the development of the Alabama and Coosa rivers and tributaries, Alabama and Georgia, for navigation, flood control, power development and other purposes. The Neches and Angelina rivers, Texas, the Guadalupe river, Texas, and the Trinity river and tributaries, Texas, were authorized to be improved in the interest of navigation, flood control and allied purposes. Also, the above-mentioned act provided for the improvement of the Mississippi river between the Ohio and Missouri rivers; the Illinois waterway, Illinois, and Indiana Harbor canal and harbour, Indiana; and the Missouri river between Sioux City, Ia., and the mouth. For the northwest region, the congress authorized the construction of dams and open channel improvement for the purpose of providing slack water navigation on the Snake river, Oregon, Washington and Idaho; and the construction of the McNary (Umatilla) dam for purposes of navigation, power development and irrigation in the Columbia river, Oregon and Washington. (R. A. Wr.)

**Europe.**—Continuation of hostilities in Europe in 1945 militated against any important developments in canal construction in the eastern hemisphere. Such activities as were possible during the latter half of the year after the defeat of Germany were directed entirely to repairing the serious havoc wrought in the preceding months and years of the war, and by the autumn much progress had already been achieved. To mention one instance out of many, the Dortmund-Ems canal, which was much bombed by Allied airmen on account of its importance to inland transport in Germany, was receiving concentrated attention, and was expected to be once more in full commission by the end of the year. The Rhône and Kiel canals by September were already open to traffic.

As regards other waterways on the continent, it can only be said in general terms that no effort was being spared to restore them to their former efficiency for traffic. Among items of general interest may be mentioned the attainment in 1945 by the Kronstadt-Leningrad ship canal of its diamond jubilee.

**Great Britain.**—There were no important constructional developments during 1945 on British canals. The main movement was a change-over from horse haulage to motor-driven craft, a trend which would be pursued with great vigour as soon as boat builders and engine manufacturers received adequate supplies of labour. Much attention was devoted to consideration of a postwar policy for British canals, and on April 19 the canal joint committee, comprising representatives of the Canal association and the National Association of Inland Waterway Carriers, issued a statement outlining proposals whereby it was hoped that the inland waterway industry would be able to contribute more effectively to the general scheme of inland transport in Great Britain. The statement recommended that waterways regularly used for the carriage of traffic be restored and maintained so as to provide an adequate navigable channel for the largest craft loaded to maximum draft in current use on the respective waterways. It was stated that further bank protection was needed to enable power-driven craft to operate efficiently; also that some narrow or low bridges still caused obstruction and that a number of locks required improvements. Perhaps most important as regards the prosperity of the industry, the statement advocated a correlated rates structure, or standard system of charging for different forms of transport which would be both economic and of general application. (See also AQUEDUCTS.)

FILMS.—*Canals of England* (Encyclopædia Britannica Films Inc.). (B. Cu.)

**Cancer.** **Experimental Production of Cancer.**—The occurrence in human beings of extremely complicated malignant tumours, composed of a complex of tissues foreign to the organ in which the cancer occurs, has long been observed. The explanation offered has been that these growths are derived from remnants of rudimentary tissue of one type or another left during the early period of embryonic life. On occasion

these growths are extremely complex and may contain portions of organs which under ordinary conditions never form cancer. Verification of the idea that these are remnants had been repeatedly attempted by injection of hashed-up embryos into the ordinary laboratory animals of the same race and strain, but except in rare instances no tumours have been formed. Several portions of tissue may grow, quite frequently cartilage or epidermis, but after a short period this tissue is again absorbed and no tumour follows. Peyton Rous in a series of ingenious experiments answered this question. He implanted under the skin of mice fragments of mouse embryos which were treated with small quantities of carcinogenic chemicals. Malignant tumours were obtained after a moderate lapse of time which were of the type which regularly come from the epithelial cells of the skin and various internal organs of adult human beings. A large number of tumours of many different varieties was thus obtained, which showed that embryonic tissue was perfectly capable of forming carcinomas and sarcomas in adult animals if given the proper stimulation.

**Cancer Research.**—In studying methods of application for some of the highly carcinogenic hydrocarbons, *e.g.*, methylcholanthrene, W. Cramer and his co-workers discovered that when carcinogen was dissolved in anhydrous lanolin instead of the usual solvents, such as benzol or acetone, cancer of the skin did not appear as would be expected. In other words, the lanolin in a sense had a protective action. The skin was not greatly damaged by the lanolin-carcinogen applications; there was no falling of the hair, destruction of the sebaceous glands, or hyperplasia of the superficial epidermal layer. However, some biological change did occur. After a prolonged series of these applications, although no morphological or chemical changes could be detected in the skin, this particular skin area, nevertheless, responded very promptly to painting, with a benzol or acetone solution of methylcholanthrene, by producing a carcinoma.

The production of a cancer may also be noted after a painted area has been burned or otherwise injured so that a chronic inflammatory process is set up. It is interesting to note that this is exactly what occurs in human beings. Extensive skin burns which are seen in children, scalded by hot water or caustic lye, never become cancerous during childhood. In adult life cancer does not appear in such an area unless there has been an injury to this burned skin which remains for some time, generally months or years, unhealed. In other words, the burn is not directly responsible for the appearance of a cancer, it merely reduces the nutrition of the tissues so that they will not heal after an injury. Any inflammatory and reparative processes which go on in such an unhealed area probably account for a spontaneous mutation of the cell or cells with the production of a cancer. Thus experimental study confirms what has long been known from practical experience.

**Therapy.**—When the extraordinary therapeutic value of penicillin in treating many infectious diseases was demonstrated, it was inevitable that the substance would be investigated to see if it had any destructive power on the cells of malignant tumours. Some rather inconclusive reports hinted at the possibility that it might be of some value, but a very careful study by Gey and his collaborators showed there was no evidence that penicillin had any destructive power on either normal or cancer cells growing in tissue cultures. Others have shown that it possessed no value in the treatment of tumours in the living animal, and a few physicians have tried it on advanced cancer cases, also without benefit.

**Radiation Treatment.**—The war greatly interfered with certain lines of investigation which were in active prosecution some years ago. The use of various atomic breakdown products

and artificially produced radioactive material was impeded by the employment of cyclotrons, otherwise free to make artificial radioactive agents, for the needs of the research staff of the atomic bomb group. A few reports were still being made on the use of radioactive phosphorus in the treatment of leukaemias and similar conditions, but on the whole the results were not very encouraging because the substance was not controllable. If a radioactive substance is injected into a patient's veins and he reacts unfavourably, nothing can be done, whereas if a patient is treated with X-ray, the dose given should never be large, and the X-ray should be very slowly administered in order to ensure careful control over the destructive effects of radiation. That is, radiation with either radium or X-ray is much more flexible, and the fact that rays from radium correspond to about 2,500,000 volts gives the physician control of an ample range of wave length. No differences were observed experimentally between radium rays and X-rays when the measurements of both agents were made in comparable units. One unit of X-ray produced at 50,000 volts is no more and no less effective in killing a cell than one produced by 1,000,000 or 2,000,000 volts. The only difference lies in the physical distribution of the intensity of radiation.

A warning note concerning these matters was published by J. H. Lawrence, whose wide experience gave great weight to his opinion. He called attention to the fact that some unwarranted enthusiasm had been noted, especially in those with the least experience, and stressed that too little attention had been given to the possibility of harmful late effects. He referred to aplastic anaemias and osteogenic sarcomas which developed many years after the swallowing of radioactive material. Obviously in treating a disease like leukaemia with radioactive phosphorus these late possibilities are less important, because the patient with this disease is not likely to live more than five or six years and therefore runs no risk of the development of a bone sarcoma. Almost all published cases required a longer period than that to show tumour development. On the other hand, the impossibility of controlling the effects after injection into the blood stream may lead to extremely embarrassing situations in which it is evident that the patient's life has been shortened by this treatment. Despite such warning notes the daily press continued to announce that advances in atomic knowledge had been so great it seemed probable that cancer and similar diseases would soon be under control.

**Castration Therapy.**—Dr. Frank E. Adair and his colleagues analyzed the results of castration treatment of cancer of the breast in 342 persons, seven of whom were men. The results were not particularly encouraging. A certain amount of improvement was noted in a little more than 10% of the patients. On the whole, the men exhibited better results following castration than the women. It was not possible to prophesy results in any individual patient. Of course, after failure to cure prostatic cancer by this treatment no better results could be expected on the breast; in fact, they were not nearly so good. The effect of X-ray on carcinoma of the breast varies so extraordinarily from individual to individual that it is almost impossible to say that the good results authors obtained in any case resulted from castration. With X-ray alone it is sometimes possible to prolong the life of a patient with fairly extensive bone metastases for four or five years; although others, with apparently perfectly similar morphology of the tumour and the same quality of surgery, will die in a few months despite the heaviest kind of radiation. It would seem the only position that can be taken is, if a patient wishes to undergo the discomforts of castration, either by surgical methods or by radiation, to grant this desire. On the other hand, it is altogether unjustifiable to recommend castration to a patient as in any way pro-

longing life or mitigating pain. (See also BIOCHEMISTRY.)

**BIBLIOGRAPHY.**—Peyton Rous and William E. Smith, "Neoplastic Potentials of Mouse Embryo Tissues: Findings with Skin of C Strain Embryos Transplanted to Adult Animals," *J. Exper. Med.*, 81:597-620 (June 1945); William E. Smith and Peyton Rous, "Neoplastic Potentials of Mouse Embryo Tissues: Contributory Experiments; Results with Skin of C<sub>3</sub>H and Webster-Swiss Embryos," *ibid.*, 81:621-646 (June 1945); W. L. Simpson, C. Carruthers and W. Cramer, "Loss of Carcinogenic Activity when Methylcholanthrene is Dissolved in Anhydrous Lanolin," *Cancer Research* 5:1-4 (Jan. 1945); W. L. Simpson and W. Cramer, "Sensitization of Skin by Carcinogenically Inactive Methylcholanthrene to Subsequent Carcinogenesis," *ibid.*, 5:5-10 (Jan. 1945); G. O. Gey, M. K. Gey, F. Inui and H. Vedder, "Effects of Crude and Purified Penicillin on Continuous Cultures of Normal and Malignant Cells," *Bull. Johns Hopkins Hosp.*, 77:116-131 (Aug. 1945); J. H. Lawrence, "Therapeutic Use of Artificial Radioactivity," *J.A.M.A.*, 129:91 (Sept. 1, 1945); Frank E. Adair, Norman Treves, Joseph H. Farrow and Isabel M. Scharnagel, "Clinical Effects of Surgical and X-Ray: Castration in Mammary Cancer," *ibid.*, 128:161-167 (May 1945). (F. C. W.)

**Candy.** Approximately 2,700,000,000 lb. of candy, with a wholesale value of about \$640,000,000 was produced in the United States during 1945. This compared with 2,804,000,000 lb., valued at \$658,000,000, manufactured and sold in 1944.

For the second year in the history of the candy industry (1944 was the first), bar type candies, 90% of them five-cent items, represented a greater portion of the national candy supply than the combined volume of all other types of candy. Bar goods constituted more than 52% of both the tonnage and dollar value of all candy made and sold in 1945. Continuing the trend, a notable increase was also shown in fancy packages and in over-the-counter sales of manufacturing retailers' establishments. A sharp decrease was recorded in penny goods. This type of candy accounted for less than 5% of the total volume whereas in the depression years of the '30s one-cent items represented one-fifth of the candy volume.

About 20% of the total 1945 candy tonnage was shipped to the armed forces in the United States and abroad. During the first half of the year, most of the bar goods manufacturers devoted from a third to one-half of their production for army and navy use, but sharp curtailments of government buying were recorded after V-E and V-J days. A 50% set-aside order was in effect on five-cent bar goods during the first quarter of 1945, while in the last half of the year, the quartermaster was entirely "off-the-market" insofar as new candy purchases were concerned. Post exchanges and navy supply depots continued to buy candy throughout the year. Candy, in the form of bars, solid chocolate, fudge, caramels, jelly drops, hard candy and sugar-coated peanuts, was among the varieties used in 1945 in the following rations: ten-in-one, K, C, D, air crew lunch, life boat and parachute.

The industry's 1945 tonnage was produced by approximately 1,300 candy manufacturers in Chicago, Philadelphia, New York, Boston, Minneapolis, San Francisco and other sections of the country, employing 50,000 persons, mostly women. Illinois, the largest candy manufacturing state, accounted for more than one-fourth of all confectionery produced in 1944. Pennsylvania was second, with New York and Massachusetts as runners-up. In addition to the near-record domestic production, the 1945 candy supply included about 50,000,000 lb. of imported candy, most of which came from Cuba. In prewar years, however, big candy imports came from Germany, Russia, the Netherlands, France and other continental countries. The per capita consumption of candy in 1945 was 19 lb., compared with 20.5 lb. in 1944. The per capita consumption of candy in Great Britain in the same year was 22 lb. According to a department of commerce survey, however, U.S. consumers would have bought 700,000,000 lb. more candy in 1945 had supplies been available. The average value of candy in 1945 was 24 cents per lb., compared with 23.5 cents per lb. in 1944.



To produce the 1945 volume, the candy industry used nearly \$287,000,000 worth of ingredients, divided approximately as follows: cane sugar 823,000,000 lb.; beet sugar 284,000,000 lb.; corn syrup 722,000,000 lb.; milk 425,000,000 lb.; chocolate coating 244,000,000 lb.; peanuts 223,000,000 lb.; nuts 50,000,000 lb.; corn sugar 36,000,000 lb. and fruits (mostly cherries, figs and raisins) 10,000,000 lb.

For the fourth year in its history, the candy industry in 1945 met sharp curtailments in ingredients, particularly sugar and chocolate. The sugar ration for the first quarter was 70% of base period use; 65% for the second quarter and 50% for the last six months. The chocolate ration was about the same, although cocoa bean grinding quotas were set at 70% for the first nine months and 85% for the final quarter.

The confectionery industry continued in 1945, with the aid of the U.S. department of agriculture, a research development program begun in 1943, the purpose of which was to find greater use for soybeans, cottonseed and other home-grown agricultural production in the manufacture of candy. The industry also continued a co-operative \$500,000 a year consumer advertising program. (H. D. G.)

**Cane Sugar:** see SUGAR.

**Canning Industry.** United States and territorial canned food production in 1945, including canned vegetables, fruit, fish and milk totalled about 490,000,000 cases as compared with 480,000,000 in 1944. At the beginning of 1946, statistics on the previous year's pack of meat products were not available. However, in addition to production for the civilian market, considerable quantities of meat products and special rations were canned for the armed forces.

Preliminary statistics for the major commodities in 1945 are compared with 1944 in the table in terms of standard cases.

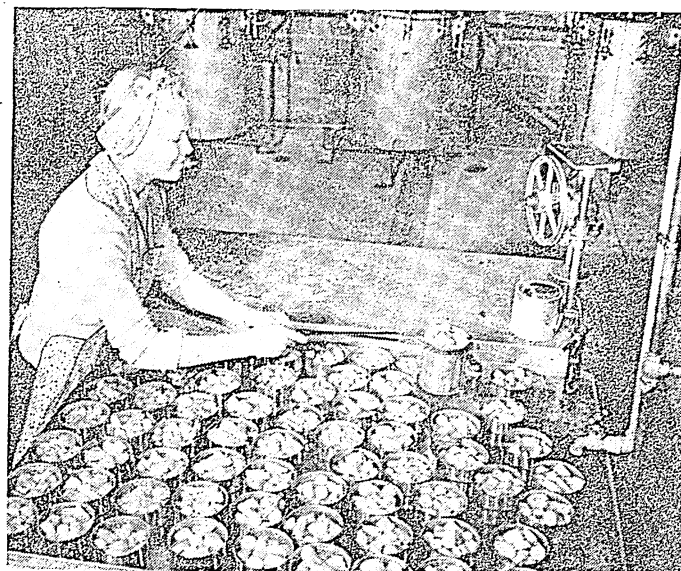
Preliminary Statistics for Major Commodities, 1945 and 1944

	1945 Cases	1944 Cases		1945 Cases	1944 Cases
Fruits . . .	51,000,000	56,000,000	Specialties,	68,000,000	70,000,000
Fruit Juices .	65,000,000	63,000,000	fruit and		
Vegetables	200,000,000	190,000,000	vegetable .		
Milk . . .	90,800,000	82,200,000	Fish . . . . .	17,600,000	18,375,000

In view of increased government requirements, the canning industry was requested to pack in 1945 quantities of fruits and vegetables well in excess of the 1944 packs. This increased production goal was designed to satisfy as nearly as possible all the civilian and government requirements for canned foods. Shortly after the cessation of hostilities, government purchases of canned foods were sharply reduced, resulting in substantially larger quantities being available for the civilian market than had earlier been anticipated.

The maximum price and subsidy programs continued in effect throughout the year. These 1945 programs followed the same general outline as in 1944. The rationing program on canned fruits, juices and vegetables was ended the middle of August, immediately upon the ending of hostilities, while rationing of canned meat and fish was discontinued later in the year.

The tin supply and its collateral effect on the availability of metal containers for foods remained critical at the end of 1945. Shortly after the surrender of Japan both the British and Netherlands governments sent missions to the far east to make a study of conditions in liberated tin-producing sections. According to the Reconstruction Finance corporation, about 4,500 tons were located in Malaya and about the same quantity in Siam. It was also known that there were certain stocks of concentrates in those countries. However, it was emphasized by the War Production board that the end of the war did not in-



COMMUNITY CANNING centre at Frisco City, Ala., where a schoolgirl heats carrots before sealing the cans. The carrots were bought by the department of agriculture under its price-support plan and given to the school lunch program

crease the amount of tin available to the U.S. but, rather, it increased the number of claimants for the already meagre world supplies.

In Nov. 1945, conservation order M-81 was amended to permit unlimited tin for 153 kinds of canned foods. The amendment set up no packing quotas, as did the previous amendments, but it continued certain restrictions on the can sizes and the can materials that canners may use. The packing of pet foods was still restricted under the order. At the end of 1945, further liberalization of tin quotas for canned foods was expected through new amendment to conservation order M-81.

(E. J. C.)

**Canol Oil Project:** see NORTHWEST TERRITORIES.

**Canton Island:** see PACIFIC ISLANDS, U.S.

**Cape Verde Islands:** see PORTUGUESE COLONIAL EMPIRE.

**Carbon Black.** Unprecedented demand for the compound- ing of synthetic rubber caused sharp increases in the production of carbon black in the U.S., most of which was concentrated in 1944. Deliveries to rubber companies in 1944 took 390,230 short tons, an increase of 56% over 1943, and 95% of the domestic sales. The salient data of the industry during the war years are shown in the table.

Production continued to increase in 1945, but demand was so consistently ahead of production that in February the War Production Board reduced the average permissible carbon black content of rubber about 10% below the average of 950 lb. per ton that had been used in 1944. In March arrangements were made to increase production. In May, following the German surrender, army cutbacks in rubber requirements, coupled with the increased output, brought supply and demand into approximate balance for the first time in two years, and in June the emergency restrictions of February were cancelled. The surrender of Japan made still further reduction in military demands, and made greater supplies available for civilian use.

Postwar prospects for the industry depended on the rate at which natural rubber could be brought back into production and use, and on the degree to which it was deemed advisable to keep synthetic rubber plants in operation as a safeguard against possible future shortage of natural rubber. While synthetic rubber uses 950 lb. of carbon black per ton, natural rubber requires only 460 lb.

Data of Carbon Black Industry in the U.S., 1940-44  
(Short tons)

	1940	1941	1942	1943	1944
Production . . . . .	284,396	297,033	287,003	296,711	400,930
Year-end stocks . . . . .	84,794	59,429	121,378	102,108	34,622
Total sales . . . . .	264,887	322,372	224,966	314,650	468,715
Export sales . . . . .	88,809	74,083	57,818	52,456	78,476
Domestic sales . . . . .	176,078	248,290	167,148	262,194	390,239
Rubber . . . . .	155,090	219,751	147,974	236,737	369,015
Ink . . . . .	12,079	19,099	9,616	11,765	12,239
Paint . . . . .	3,403	2,920	1,808	1,972	2,658
Other uses . . . . .	5,506	11,520	7,750	11,720	6,327
Natural gas used* . . . . .	368,802	365,377	335,533	315,562	355,570
Average yield† . . . . .	1.54	1.63	1.71	1.88	2.20
Average value‡ . . . . .	2.90	3.26	3.41	3.41	3.67

\*Millions of cubic feet. †Pounds per thousand cubic feet. ‡Cents per pound.

At the end of 1945 plant capacity was expected to be 725,000 short tons annually, of which 100,000 tons was government owned. Some of the added war capacity was in plants where high costs of operation would prevent production under normal conditions. Even after these deductions, there was ample capacity for any probable postwar needs, indicating a period of sharp competition.

It is to be noted that while the war period was one of increasing costs, as measured by a rise of 27% in the average value per pound, the cost increase was more than offset by a 43% increase in the yield. At the same time new techniques were developed in the use of carbon black in rubber, which improved the product and reduced the cost. (G. A. Ro.)

**Carnegie Trusts:** see SOCIETIES AND ASSOCIATIONS.

**Caroline Islands.** A widely scattered archipelago in the North Pacific, administered by Japan under a League of Nations mandate, included in Micronesia and lying between 5° and 10° N. and 135° and 165° E. The total land area is about 380 sq.mi., and of this 307 sq.mi. is covered by the four main islands, Ponape, Kusaie, Truk and Yap. Pop. (Japanese est. of 1939) 54,944, distributed between the four administrative districts as follows: Palau 18,957, Ponape 12,922, Truk 18,838, Yap 4,227. The seat of administration for all the Japanese South Sea islands is on the island of Corrol, in the Palau group. Aeroplane service between Tokyo and Palau was established during the 1930s.

**History.**—A Japanese naval force occupied the islands in 1914 and Japan obtained the group as a mandate from the League of Nations after World War I. Information about the islands from Japanese sources became increasingly scanty and visits from foreign vessels were not welcomed. A few foreigners, including the writer and correspondent, Willard Price, visited the islands in the '30s. In violation of the terms of the mandate, Truk was developed as a major naval base.

Truk, although heavily bombed by U.S. planes in Feb. 1944 and on other occasions, was by-passed in the main U.S. offensive against Japan, which proceeded from the Marshalls (*q.v.*) to the Marianas (*q.v.*) and the Philippines and thence to Iwo Jima and Okinawa. In the Carolines, as in other outlying islands, Japanese garrisons held out until the surrender in Aug. 1945, living on the scanty fare of the islands, supplemented by occasional supplies sent by submarine.

The Carolines are composed largely of volcanic rock and the highest peak on Ponape reaches an elevation of about 3,000 ft. There are no navigable rivers. Angaur, in the Palau group, is called the treasure island of the group because of its large deposits of phosphate. It was connected by a steamship line with Menado, in Celebes, and Davao, in Mindanao, of the Philippines.

The Yap group, where some of the more primitive natives live, is a centre of cable communication, as submarine cables from various directions meet there. The Ponape group, some 400 mi. E. of Truk, is interesting to archaeologists and anthropologists because of the ruins of a mighty city, built of huge

blocks of rock. Its origin is veiled in mystery, as there is no indication that the islands could have ever supported a large population.

A branch of the industrial experiment station of the islands was opened on Ponape in 1925 to make trial plantings of rice and medicinal herbs. Copra, however, remains the leading export product of the Carolines, together with the phosphate on the island of Angaur. The output of this phosphate in 1937 was 134,098 metric tons, valued at 3,533,606 yen.

The main islands are of considerable elevation and are surrounded by low coral islets. The climate is generally equable and moist, but the islands are subject to occasional tropical hurricanes. The vegetation is tropical and luxuriant. Open ports in the Carolines before World War II were Palau, Angaur and Truk. Almost all the overseas trade of the group was with Japan.

**Education, Religion, Health.**—Some schools are provided for the natives, but attendance is not compulsory. There is a dormitory system for children from remote regions. The regular Japanese system of compulsory elementary education for six years was extended to cover Japanese children in the Carolines. There are ten church schools in the Carolines, six in Truk, two in Palau and two in Ponape.

There was some Christian missionary activity in the islands under the Spanish, German and Japanese regimes. Under Spain it was exclusively Catholic. There was German and American mission activity, both Protestant and Catholic. The Japanese sent Christian, Buddhist and Shinto missionaries.

The Carolines are not as unhealthy as some tropical regions, but are subject to some diseases. Influenza often breaks out with the shifting of the trade wind, which brings a change in climate. Amoebic dysentery, framboesia and dengue are endemic diseases. A cause of the spread of disease is the shortage of water, rainwater tanks often being used and proving an agency for spreading sickness. The Japanese authorities enforced precautions, including vaccination, against contagious diseases. The native population is generally attached to primitive customs and is not very responsive to modern medicine and hygiene.

(W. H. CH.)

**Caro Rodriguez, Jose Maria:** see RODRIGUEZ, JOSE MARIA CARO.

**Carpato-Ukraine.** This former easternmost province of Czechoslovakia which had been from 1939 to 1945 under Hungarian occupation—before 1918 it had been for very many centuries part of Hungary—was ceded on June 29, 1945, to the soviet union. Carpatho-Ukraine or Ruthenia is a territory of 4,871 sq.mi. with a population of 725,357 according to the census of 1930. Of this population 450,925 were of Ukrainian or Ruthenian nationality. According to religion, 359,167 were Greek Catholics, 112,034 Greek Orthodox, 102,542 Jewish.

The agreement between soviet Russia and Czechoslovakia regarding Carpatho-Ukraine provided for the inclusion of that territory into the Ukrainian Soviet Socialist Republic. Persons of Ukrainian and Russian nationality living in Czechoslovak territory received the right to opt for soviet citizenship until Jan. 1, 1946. The same right of option was given to Czechoslovak nationals residing in the Carpatho-Ukraine. Persons so opting were to move into the state whose nationality they acquired. They could take with them all their mobile goods free of any customs duty and were to be compensated for immobile goods.

(H. Ko.)

**Cassel, Gustav** (1866-1945), Swedish economist, was born Oct. 20 at Stockholm. After gradu-

ating from Uppsala university, he received his Ph.D. degree from Stockholm university in 1895. Professor of political economy at the latter school from 1904 to 1933, he later became professor emeritus and acted as tax and finance expert for the department of finance of the Swedish government. Considered an outstanding authority on monetary and international economic affairs, Cassel regarded planned economies with suspicion, maintaining that once the economic domain came under authoritative control, other liberties might vanish. In 1928 he was invited by the U.S. banking committee of the house of representatives to advise on the stabilization of the dollar. Some years later, he advocated a permanently managed currency and controlled currency inflation. Cassel was the author of numerous works on financial affairs and his latest books include *On Quantitative Thinking in Economics* (1935) and *The Downfall of the Gold Standard* (1936), as well as *Autobiography*, 2 vols. (1940-41). He was named to the Royal Swedish Academy of Science in 1914, received the academy's gold medal in 1922 and was president in 1926. He died Jan. 14, according to a Stockholm report. See *Encyclopædia Britannica*.

**Cassirer, Ernst** (1874-1945), German philosopher, was born at Breslau July 28. For his earlier career, see *Encyclopædia Britannica*. Dr. Cassirer, who was ousted from a professorship at the University of Hamburg in 1933 because of the Hitler racial laws, left Germany and lectured for two years at All Saints college, Oxford. In 1936 he became professor of philosophy at the University of Gothenburg, Sweden.

Dr. Cassirer was visiting professor at Yale university, New Haven, Conn., 1941-44, and was later appointed visiting professor of philosophy at Columbia university, New York city. He died in New York city, April 13.

**Catastrophes:** see DISASTERS.

**Catholic Church:** see ROMAN CATHOLIC CHURCH.

**Catholic Community Service, National:** see SOCIETIES AND ASSOCIATIONS.

**Catholic Library Association:** see SOCIETIES AND ASSOCIATIONS.

**Catholic Organizations for Youth.** The official national co-ordinating agency for Catholic organizations for youth in the United States is the youth department of the National Catholic Welfare conference with headquarters at 1312 Massachusetts Ave., Washington 5, D.C.

In 1940, the bishops of the Catholic Church in the U.S. established this department to guide and co-ordinate Catholic youth groups and organizations on a national basis.

On a regional basis, as of 1945, 106 of the 117 diocesan divisions in the U.S. had established diocesan servicing and co-ordinating agencies under the direction of a diocesan youth director.

Almost all of the 20,906 local parishes of the Catholic Church in the U.S. conducted one or more programs or organizations for youth during 1945.

The structure which unifies and co-ordinates all approved Catholic youth groups is the National Catholic Youth council. Approved by the national hierarchy and supervised by the youth department, National Catholic Welfare council, the National Catholic Youth council is composed of a diocesan section and a college and university section.

The diocesan section of the N.C.Y.C. is comprised of diocesan youth councils which in turn are made up of parish youth councils or organizations.

The college and university section of the N.C.Y.C. is formed of two national student federations: the National Federation of Catholic College Students which related in 1945 the student bodies of about 102 Catholic colleges in the U.S.; the Newman Club federation which was composed at that time of 116 Catholic student clubs in non-Catholic colleges and universities.

Within the framework of this federating machinery, a number of national Catholic youth-serving programs assist the development of diocesan and parochial units in which youth are organized. Besides the diocesan agencies assisting local youth groups in their organizational and program needs, the following national groups offered programs to local units in 1945 and were adopted in many areas throughout the country: the Queen's Work, 3742 W. Pine Blvd., St. Louis, Mo.; The Catholic Student Mission Crusade, Shattuc Ave., Cincinnati, O.; the Junior Catholic Daughters, 39 Manchester Ter., Mount Kisco, N.Y.; the Columbian Squires, 45 Wall St., New Haven, Conn.; The Catholic Central Verein, 3835 Westminster Pl., St. Louis, Mo.; The Catholic Committee on Boy Scouts, 2 Park Ave., New York city, N.Y.; The Junior Holy Name society, 141 E. 65th St., New York city, N.Y.

A directory of diocesan and national Catholic youth-serving organizations was published by the youth department of the National Catholic Welfare conference wherein are listed the headquarters, personnel, objectives and programs of these agencies under convenient headings according to the six main categories of Catholic youth work. (C. E. Bm.)

## Catholic Rural Life Conference, National.

A national organization of bishops, priests and lay persons, founded in 1923 by Bishop Edwin Vincent O'Hara and a group of priests, and dedicated to the economic, social and spiritual interests of the U.S. farmer. The newly adopted constitution pledged the conference to promote the social and economic well-being of the rural population by applying the principles of Catholic ethics to rural and agricultural problems and to strengthen and expound the Catholic faith in rural districts.

The 23rd convention and 3rd wartime meeting was held at Des Moines, Ia., Oct. 22-24, 1945, under the presidency of Bishop J. H. Schlarman of Peoria, Ill. Rural life directors representing 75 dioceses were present. The public session was attended by 1,000 persons. Discussion centred around promotion of practical schools of agriculture and establishment of veterans upon the land.

The convention went on record in favour of: (1) formation of land associations to help worthy rural youth; (2) extension of the co-operative movement; (3) better housing, electrification and beautification of farm homes; (4) legislation favouring family type farms; (5) decentralization of industry; (6) decent minimum wage for agricultural workers; (7) protection of the right of these workers to organize for obtaining just wages, proper housing and decent working conditions. The convention also approved principles and methods set forth in the statement, "Man's Relation to the Land," issued by Catholic, Protestant and Jewish religious leaders during the course of the year.

During 1945 the conference sponsored 82 rural life schools and institutes, with a total attendance of 22,000. Study groups in Catholic seminaries numbered 35, with 350 students participating.

The Most Rev. William A. Griffin, bishop of Trenton, N.J., was elected president (1946), and the Rt. Rev. L. G. Ligutti was reappointed executive secretary. *Land and Home*, a quarterly, is the official publication. Permanent headquarters in 1945 were at 3801 Grand Ave., Des Moines 12, Ia.

(J. LAF.)



## Catholic Welfare Conference, National.

The conference was organized by the bishops of the United States in Sept. 1919, to unify, co-ordinate and organize the Catholic people of the United States in works of education, social welfare, immigrant aid and other social and religious activities.

The conference is conducted by an administrative board consisting of ten archbishops and bishops. The administrative bishops report annually upon the work of the conference to the Holy See.

The annual meeting of the conference was held at Washington, D.C., Nov. 13-16, 1945, attended by 111 members of the hierarchy. Members elected or re-elected to the administrative board were: chairman, Most Rev. Samuel A. Stritch, archbishop of Chicago, Ill.; vice-chairman, Most Rev. John Gregory Murray, archbishop of St. Paul, Minn.; secretary, Most Rev. Francis J. Spellman, archbishop of New York, N.Y.; treasurer, Most Rev. John M. Gannon, bishop of Erie, Pa.; chairman of the department of Catholic action study, Most Rev. John J. Mitty, archbishop of San Francisco, Calif.; chairman of the youth department, Most Rev. Richard J. Cushing, archbishop of Boston, Mass.; chairman of the legal department, Most Rev. Joseph F. Rummel, archbishop of New Orleans, La.; chairman of the education department, Most Rev. John H. Ryan, archbishop of Omaha, Neb.; chairman of the department of lay organizations, Most Rev. John F. Noll, bishop of Fort Wayne, Ind.; chairman of the social action department, Most Rev. Karl J. Alter, bishop of Toledo, O. Mgr. Howard J. Carroll was reappointed general secretary.

In the field of international relations the bishops of the administrative board on April 14 issued a statement on world peace, in anticipation of the United Nations conference about to open at San Francisco. The statement rejected isolationism, expressed concern for the rights of small nations, recommended adoption of an international bill of rights and pointed out that true democracy is founded on the dignity of man and is therefore incompatible with the Marxian philosophy. At the annual meeting a further statement was issued urging constructive work for peace and warning against the dangers of power politics.

Mgr. John A. Ryan, pioneer in American Catholic social thought and long associated with the conference as director of its social action department,

died on Sept. 16, at the age of 76. During the 26 years of the conference's existence Mgr. Ryan had been responsible for numerous socially progressive statements issued by it. One of his last acts was to urge the establishment of a permanent fair employment practices commission on the national level. Rev. Raymond A. McGowan was named director of the social action department, to succeed Mgr. Ryan.

In April the conference made known that it favoured the Mead-Aiken bill (S. 717) as providing federal aid impartially to all schools rather than the Thomas bill (S. 181) which assists only public schools.

Victims of World War II continued to be helped by the conference during 1945 through its War Relief services. A special service was set up for the liberated Philippine Islands and Rev. William F. Masterson, S.J., was named representative. In July the New York office of the relief services met with tragedy when an army plane crashed into the Empire State building. It killed ten and injured five N.C.W.C. employees. A vast war relief food campaign was launched by the services toward the close of 1945.

For the second year the *Acta Apostolicae Sedis*, official publication of papal documentation, was published in the U.S. by the conference for circulation in 38 countries which otherwise could not receive it because of wartime conditions.

The news service of the press department was distributed to subscribing papers in 32 countries. This service marked its silver jubilee in April. Manuel Colayco, Filipino editor, killed in Manila, was the second N.C.W.C. correspondent to die in action.

Having completed 25 years of service with the conference, five members of the N.C.W.C. staff received a special greeting and blessing from Pope Pius XII. National headquarters in 1945 were at 1312 Massachusetts Ave., N.W., Washington 5, D.C. The N.C.W.C. has as its official publication the monthly *Catholic Action*. (J. LAF.)

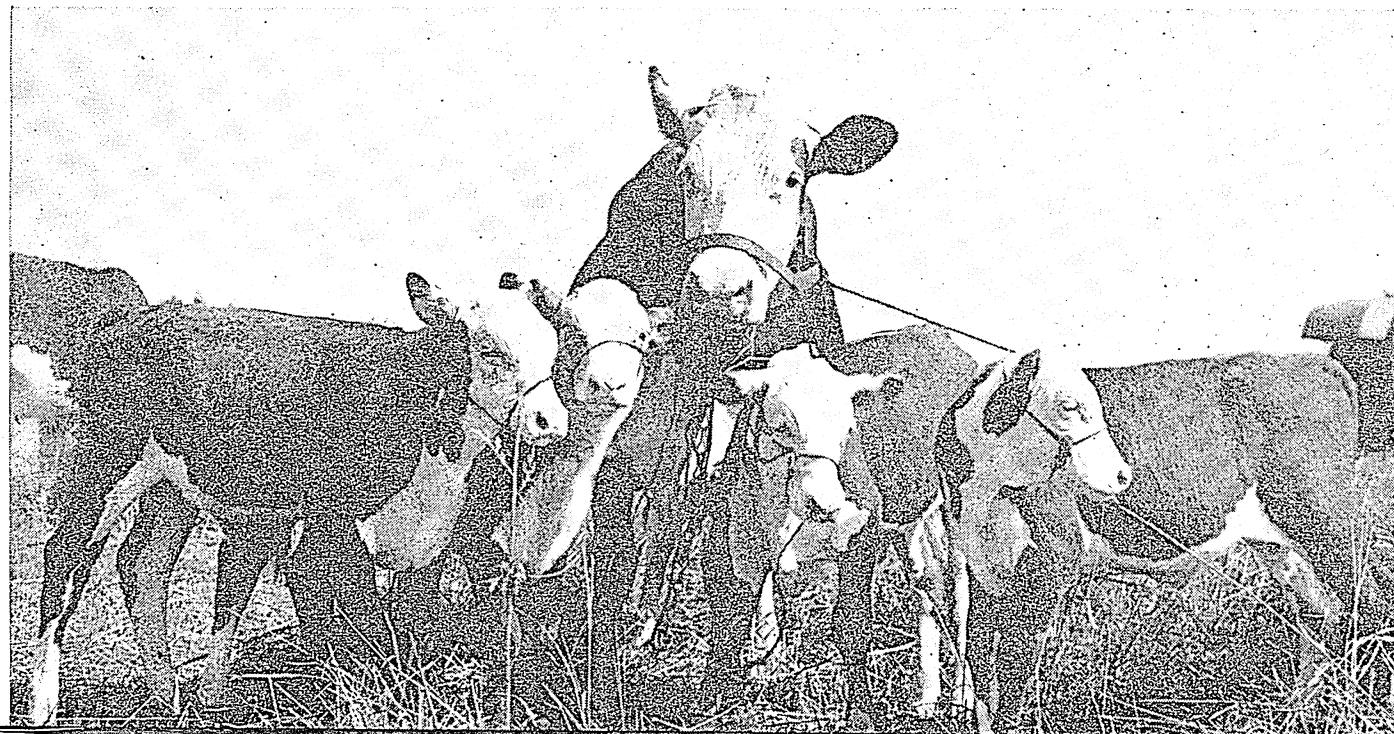
**Catholic Youth Organization:** see CATHOLIC ORGANIZATIONS FOR YOUTH.

**Cattle.** The number of cattle, including cows kept for milk, in the United States passed a high peak in 1944 and continued to decline in 1945. The total number reported by the United States department of agriculture on Jan. 1, 1945, was 81,760,000 head compared with a total of 82,400,000 head on Jan. 1, 1944. The average for the previous ten-year period 1934-43 was 70,200,000 head. Slaughter trends in 1945 indicated that the total number on Jan. 1, 1946, would only be slightly less than at the beginning of the year.

The number of milk cows reached a high record of 27,800,000 head on Jan. 1, 1945, but declined about 2% by June and was expected to show a further decline at the end of the year due to the smaller number of heifer calves saved during 1944-45.

The slaughter of cattle and calves and the output of beef and veal continued at a high level in 1945 near to the record slaughter of 1944. Beef prices were held down in 1945 by retail price ceilings. Producer subsidies of 50 cents per 100 lb. on sales of the better grades of live cattle of over 800-lb.

QUADRUPLET Hereford calves with their dam on the farm of C. D. Lucas in Dyer, Ky., where they were born on April 18, 1945. Weighing about 50 lb. each at birth, they were reported as the only living quadruplet calves



weight were continued through the year and authorized through June 1946. Subsidy payments to slaughterers of from \$1.25 to \$3.00 per 100 lb. live-weight were also a factor in making more meat available to consumers.

The number of cattle fed for high quality beef was about as large as during the previous season. The number on feed on Jan. 1, 1945, was almost as large as in 1942 and 1943. A total of 4,173,000 head was reported on feed Jan. 1, 1945, compared with a prewar average of 3,000,000 head. The large and late corn crop was a factor in encouraging feeding since this is the best way to use soft corn resulting from early frosts.

The total value of cattle declined slightly in 1944 and 1945. On Jan. 1, 1945, the total value of cattle was \$5,505,000,000 compared with \$5,661,000,000 a year earlier. This was double the average of 1934-43 which was \$2,770,000,000.

Meat consumption continued through the year at a high level though not as high as in 1943 and 1944. From a high record of 177 lb. per capita, meat production declined to 160 lb. per capita and was expected to continue near that level. The requirements for meat for the armed forces and for export began to decline in late months of 1945 as reserve stocks were released. Much of the latter was taken by relief agencies however which served to stabilize the market. The major factor affecting returns to cattle producers in late 1945 and 1946 was the manner in which government subsidies and price control were handled. (See also LIVESTOCK.)

FILMS.—*Cattleman; Farm Animals* (Encyclopædia Britannica Films Inc.). (J. C. Ms.)

**C.E.D.:** see COMMITTEE FOR ECONOMIC DEVELOPMENT.

**Celebes Islands:** see NETHERLANDS COLONIAL EMPIRE; NETHERLANDS INDIES.

**Cellulose Products:** see PAPER AND PULP INDUSTRY; PLASTICS INDUSTRY; RAYON AND OTHER SYNTHETIC FIBRES.

**Cement.** The salient features of the cement industry in the United States during World War II are indicated in the table.

Cement Industry in the U.S., 1940-44

(Millions of barrels)

	1940	1941	1942	1943	1944
Production . . . . .	132.7	166.9	185.3	135.3	92.2
Portland cement . . . . .	130.2	164.0	182.8	133.4	90.9
Other varieties . . . . .	2.5	2.9	2.6	1.8	1.2
Shipments . . . . .	132.9	170.4	187.8	129.5	95.6
Portland cement . . . . .	130.3	167.4	185.3	127.6	94.3
Other varieties . . . . .	2.5	2.9	2.5	1.8	1.3
Stocks . . . . .					
Portland cement . . . . .	23.4	20.0	17.4	23.2	19.8
Clinker . . . . .	4.9	4.6	3.5	6.0	5.3
Other varieties . . . . .	0.2	0.3	0.3	0.2	0.2
Exports . . . . .	1.7	2.6	1.1	1.7	4.0
Consumption . . . . .	131.7	167.9	186.7	127.8	91.6

After the peak of war construction had been passed late in 1942 there was a sharp drop in cement production, extending to early in 1945, when the approaching end of the war brought a renewal of building activity, causing an increase in cement output from 5,371,000 bbl. in February to 11,104,000 bbl. in October. Production during the ten months was 10% above the same period of 1944, and shipments were 9% above. This was only the first lap in a postwar building program that was expected to reach unprecedented proportions under the combined demand for home, commercial, industrial, municipal and government construction.

Cement sales in Canada followed the same general trend as in the U.S. Output declined from 7,302,289 bbl. in 1943 to 7,190,851 bbl. in 1944. The production trend turned upward in Feb. 1945, and sales for the first nine months of the year were 6,384,732 bbl., 15% over the same period of 1944. (See also GYPSUM.) (G. A. Ro.)

**Censorship.** The U.S. Office of Censorship was the first federal agency to cease operations after the end of hostilities. Within 24 hours after the surrender of Japan the president approved a recommendation of Director Byron Price that all censoring activities stop on Aug. 15, 1945. Having fulfilled its two wartime responsibilities—the censorship of international communications and the supervision of the voluntary self-censorship of the U.S. press and radio—the office completed its liquidation and went out of existence on Nov. 15.

The defeat of Germany in May 1945 had enabled the Office of Censorship to invoke a long-considered plan of lifting many censorship restrictions that were unnecessary to the one-front war against Japan. Shortly after V-E day the office issued a curtailed code of wartime practices for the U.S. press and radio, listing items of information which were dangerous to national security and which U.S. editors and broadcasters were requested not to disseminate. Censorship regulations affecting letters, cables, radiograms and telephone calls leaving or entering the U.S. also were relaxed to permit a freer flow of business and personal communications, particularly across the Atlantic ocean and adjacent waters, which the navy designated as a noncombat zone.

Correspondence flowing through the cable, postal and telephone censorship stations on U.S. borders increased as more liberated areas abroad were opened to communication. But the realignment of Office of Censorship operations permitted substantial economies. Early in the year the cable and postal stations in Seattle, Wash., were closed, because the work there could be done at other points. In April, 1945, the military authorities in Hawaii took over the operation of the two Honolulu stations at the suggestion of Director Price. Various readjustments in communications censorship between the defeats of Germany and Japan resulted in a personnel reduction of one-third. A similar cut was made in the staff of a dozen experienced newspaper and radio men who administered the voluntary censorship program. The agency's budget for the fiscal year starting July 1, 1945, was \$13,000,000 in contrast to the \$29,700,000 for the preceding year. Actually, because of the end of the war, only \$4,800,000 of the appropriation was utilized.

The successful program of voluntary censorship of the domestic press and radio, unique in history, was climaxed in August by disclosure of the development of the atomic bomb. Editors and broadcasters had helped preserve the secrecy around this project by refraining from divulging any information on atomic experiments. Dropping of the first bomb on Japan was a complete surprise to the enemy and therefore attested to the efficiency of voluntary censorship. Major General L. R. Groves, in charge of the bomb's development, paid tribute to the press and radio for their patriotic co-operation.

This, however, was only one of many subjects of military information which censorship—both of the press and radio and of international communications—kept from the enemy. In addition, intercepted information of use in prosecuting the war was turned over to the proper government agencies. (See also NEWSPAPERS AND MAGAZINES; RADIO.) (B. PR.)

**Census Data, 1945.** By way of supplement to the results of the periodic censuses, the bureau of the census collects a wide variety of data on a monthly, quarterly, or annual basis, publishes frequent estimates of population, labour force, employment and unemployment, and makes special censuses of limited areas and surveys in various fields from time to time, as occasion demands. A considerable part of the current data is based on sample inquiries and is, therefore, subject to a moderate sampling variation. With respect to these sample-based statistics it may be said that in

general the totals and the larger subtotals in any given table are subject to a fairly small error from this source, but that the smaller and more detailed subtotals are subject to a possibility of error which increases with the decrease in the size of the figures in question.

**Growth of Total Population.**—Estimates of the population of the United States as a whole have been made month by month since the census of 1940, on a basis of current records of births and deaths (corrected for under-registration) and net immigration, the latter including the excess of arrivals over departures of citizens as well as aliens. The estimates for Jan. 1 and July 1 of each year from this series are presented in Table I. These estimates represent the *de jure* population, including persons in military service overseas. The table also shows the increase in each six-month period and indicates what part of this increase is the result of the excess of births over deaths and what part represents immigration from foreign countries. (The estimates are presented to the last digit as computed instead of being rounded, not because they are assumed to be accurate to the last digit but for convenience in summation.)

Table I.—Estimated Population of Continental United States Including Armed Forces Overseas, for Specified Dates: July 1, 1940, to July 1, 1945

Date	Estimated population, including armed forces overseas	Increase since preceding date		Source of increase	
		Number	Per cent	Excess of births over deaths	Net civilian immigration
July 1, 1945 . . .	139,621,431	698,797	0.50	592,089	106,708
Jan. 1, 1945 . . .	138,922,634	839,185	0.61	746,980	92,205
July 1, 1944 . . .	138,083,449	715,070	0.52	641,728	73,342
Jan. 1, 1944 . . .	137,368,379	871,330	0.64	818,457	52,873
July 1, 1943 . . .	136,497,049	851,080	0.63	792,196	58,884
Jan. 1, 1943 . . .	135,645,969	981,045	0.73	929,913	51,132
July 1, 1942 . . .	134,664,924	711,699	0.53	674,244	37,455
Jan. 1, 1942 . . .	133,953,225	750,352	0.56	718,562	31,790
July 1, 1941 . . .	133,202,873	564,940	0.43	555,568	9,372
Jan. 1, 1941 . . .	132,637,933	667,709	0.51	618,457	49,252
July 1, 1940 . . .	131,970,224	...	...	...	...

The population of continental United States on July 1, 1945, according to these estimates, was 139,621,431, which represents an increase of 1,537,982 over the population estimated for July 1, 1944. The sources of this increase may be analyzed as follows: There were, during the year ending June 30, 1945, 2,970,284 births, from which may be subtracted 1,631,215 deaths, leaving a natural increase of 1,339,069, which represents the major part of the population increase. The remainder was made up of net civilian immigration amounting to 198,913. The rate of increase for the year ending in June 1945 was 1.1%, which is slightly less than the rate of increase attained in some of the years just preceding, but much higher than the average annual rate of 0.7% for the decade 1930 to 1940. The maximum increase in any six-month period, it may be noted, was that in the second half of the year 1942, which amounted to 981,045, or 0.73%.

The recent acceleration in the rate of population growth results mainly from a very considerable increase in the annual number of births. During the calendar year 1943, in which the birth rate reached its maximum, there were 3,158,593 births, as compared with 2,558,000 in 1940 and an annual average of about 2,400,000 for the decade between 1930 and 1940. In the calendar year 1944 the number of births had fallen to 2,969,186, though it was still higher by more than 500,000 than the prewar average. The rapid increase in the birth rate after 1940 followed an almost continuous decline from 1921 to 1936 and a very slight increase between that date and 1940. It may be attributed, first, to the business prosperity induced by defense activities, and then to the anticipation of conscription and of the actual entry of the United States into the war. The marriage rate increased from 10.5 per 1,000 of the population in 1939 to 13.1 in 1942; and while the number of marriages in 1943 and 1944 was substantially lower than in the peak year, it was still

above the number reported for 1940. The increase in the number of marriages was followed by an increase in the number of first births and there was also an increase in the number of children born to couples married earlier. The number of deaths in 1944, however, was only a little larger, even with war casualties included, than the number in 1943 and only about 150,000 above the average for the preceding ten years.

The trend in the number of births seemed to have passed a definite peak in 1944, with a reduction of about 6% from the record of 1943, but a comparison of the figures available month by month for 1945 indicates very little further reduction. In fact, the preliminary total for the ten months from January to November in 1945 is less than 2% smaller than the total for the same months in 1944. It seemed likely, then, that the rate of population growth might continue during the next two or three years at about the rate prevailing in 1944 and 1945, unless there should be another considerable increase in the birth rate as a result of the release of several millions of men from military service overseas. (Preliminary returns for marriages were showing a marked increase month by month after July 1945.)

While those population estimates which include the military forces abroad are perhaps the most fundamental of all the estimates which it has been found possible to make, there are many purposes for which it is desired to have an estimate representing only the population actually in continental United States. Such estimates are presented in Table II.

Table II.—Estimated Population of Continental United States Excluding Armed Forces Overseas and Estimated Civilian Population, for Specified Dates: July 1, 1940 to July 1, 1945

Date	Estimated population excluding armed forces overseas		Estimated civilian population	
	Increase (+) or decrease (—) since preceding date		Increase (+) or decrease (—) since preceding date	
	Population	Number Per cent	Population	Number Per cent
July 1, 1945	131,975,774	+311,802 +0.24	127,409,297	+372,008 +0.29
Jan. 1, 1945	131,663,972	-888,033 -0.67	127,037,289	+501,115 +0.40
July 1, 1944	132,552,005	-1,028,278 -0.77	126,536,174	-491,862 -0.39
Jan. 1, 1944	133,580,283	-386,036 -0.29	127,028,036	-382,321 -0.30
July 1, 1943	133,966,319	-75,345 -0.06	127,410,357	-1,317,486 -1.02
Jan. 1, 1943	134,041,664	+271,164 +0.20	128,727,843	-2,147,067 -1.64
July 1, 1942	133,770,500	+82,057 +0.06	130,874,910	-1,068,155 -0.81
Jan. 1, 1942	133,688,443	+628,398 +0.47	131,943,065	+385,335 +0.29
July 1, 1941	133,060,045	+499,202 +0.38	131,557,730	-339,229 -0.26
Jan. 1, 1941	132,560,843	+606,699 +0.46	131,896,959	+237,673 +0.18
July 1, 1940	131,954,144	...	...	...

The estimate on this basis for July 1, 1945, is 131,975,774, which represents a decrease of 576,231, as compared with the corresponding estimate for July 1, 1944, and a still greater decrease as compared with the figure for a year earlier. These decreases represent the amount by which the departure of men during the year for overseas service exceeded the natural increase in the population plus net immigration. Estimates of population on yet another basis, namely, the civilian population, excluding not only the military forces overseas but also military personnel resident in camps and on other military reservations in the United States, are also presented in Table II, with a total in July 1945 of about 127,000,000 or about 4,000,000 less than the total population in 1940.

To make clear the significance of the item which has been referred to above as natural increase or the excess of births over deaths, there is presented in Table III a summary of the data on births and deaths (adjusted for under-registration) for the fiscal years 1941 to 1945. In this grouping of the data, as in the presentation by calendar year, the year 1943 stands out as having the maximum number of births; and the appreciable increases in the number of deaths in 1944 and 1945 (resulting largely from war casualties) stand out in comparison with the relative uniformity of these figures in the earlier years.

**Internal Migration 1941-45.**—The latest figures available at the close of 1945 on the movement of population from one



Table III.—Births and Deaths in Relation to Population Increase:  
Fiscal Years 1941 to 1945

Year ending	Population increase		Births	Deaths	Excess of births over deaths	Net civilian immigration
	Number	%				
June 30, 1945 . . .	1,537,982	1.1	2,970,284	1,631,215	1,339,069	198,913
June 30, 1944 . . .	1,586,400	1.2	3,016,562	1,556,377	1,460,185	126,215
June 30, 1943 . . .	1,832,125	1.4	3,209,177	1,487,068	1,722,109	110,016
June 30, 1942 . . .	1,462,051	1.1	2,808,000	1,415,194	1,392,806	69,245
June 30, 1941 . . .	1,232,649	0.9	2,628,113	1,454,088	1,174,025	58,624

place to another within the U.S. are the results of a survey of the movement of the civilian population (omitting persons in institutions) between Dec. 1941 and March 1945. In this survey an inquiry was made of a representative sample of about 30,000 families in March of 1945, in which each person was asked where he was living on Dec. 7, 1941. This survey indicates that 15,330,000 persons were living in 1945 in a county different from that in which they lived in 1941. Of this number, 7,670,000 had moved from one state to another, and 3,580,000 had moved from one to another of the three regions designated the north, the south and the west. The figures representing interstate movement are shown by regions in Table IV. The interstate migration in this 3½-year period somewhat exceeded the migration recorded in the 1940 census for the 5-year period 1935 to 1940, in which, out of a total of 15,734,798 intercounty migrants, 6,495,049 had crossed state lines and 2,647,651 had moved from one major region to another. A better measure of the relative extent of internal migration, as between these two periods, is the average per year. The average number of interstate migrants per year in the more recent period was 2,360,000, as compared with 1,300,000 in the earlier (and longer) period. Even this difference, however, represents perhaps not quite so much increase in mobility as one would have expected to find as a result of war conditions, with the extensive migration of workers to centres of war production.

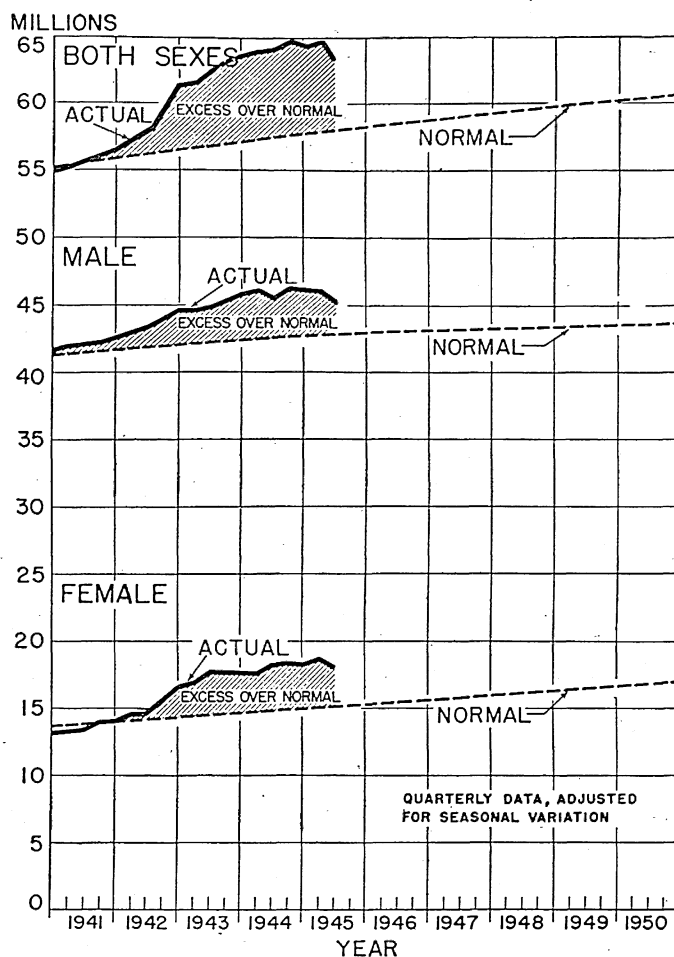
Table IV.—Interstate Migration of Civilian Population, by Regions,  
December, 1941, to March, 1945

Residence in 1945	Total migrants between states	Between states in same region	Total	Migrants between regions		
				Residence in 1941		
				The North	The South	The West
Total . . .	7,670,000	4,090,000	3,580,000	1,550,000	1,630,000	400,000
The North . . .	2,950,000	1,710,000	1,240,000	...	980,000	260,000
The South . . .	2,390,000	1,610,000	780,000	640,000	...	140,000
The West . . .	2,330,000	770,000	1,560,000	910,000	650,000	...

Another feature of the survey just referred to was a question on farm residence at the beginning and the end of the period covered. The answers to this question indicated that 5,440,000 people moved from farms to nonfarm areas, while 2,510,000 were found living on farms in 1945 who had been living in nonfarm areas in 1941. In this exchange the farm population sustained a net loss of 2,930,000. During the same period, the farm areas also lost about 1,500,000 through enlistments and inductions into the armed forces.

Because of the demand for workers in war production centres, the rate of migration from farms was much greater during this period than in normal times, though there had been for many years a continued and fairly extensive migration from farms to urban areas. The net loss through the movement of civilians from farms averaged around 900,000 a year in the period from 1941 to 1945, which may be compared with an average of 375,000 per year during the depression decade of the 1930s and 630,000 per year during the 1920s.

This wartime migration to and from farms was largely a short-distance movement between a city or town and its surrounding rural areas, as shown in Table V. Of the 4,160,000 persons 14 years old and over who left the farm population, 2,480,000 moved from farm to nonfarm areas within the same county; 920,000 moved to a different county within the state;



TRENDS in the labour force, 1941-50 (Source: U.S. Bureau of the Census)

and only 760,000 moved from a farm in one state to a nonfarm area in another state. The reverse movement from nonfarm areas to farms was distributed in somewhat similar fashion.

Table V.—Civilian Migration Between Farms and Nonfarm Areas:  
December, 1941 to March, 1945

Item	From farm to nonfarm	From nonfarm to farm	Net loss to farm areas
Total farm-nonfarm migrants (all ages) . . . . .	5,440,000	2,510,000	2,930,000
Farm-nonfarm migrants 14 years old and over . . . . .	4,160,000	1,890,000	2,270,000
Farm-nonfarm migration involving movement—			
Between states . . . . .	760,000	350,000	410,000
Between counties in same state . . . . .	920,000	510,000	410,000
Within same county . . . . .	2,480,000	1,030,000	1,450,000

Apparently the cities had drawn to a considerable extent upon workers from nearby farming areas, both to expand production in their own war industries and to replace the workers who had entered the armed forces or migrated to other cities to take more attractive war jobs. A considerable amount of migration thus results from urban workers' moving to a different city and being replaced by migrants from surrounding rural areas. A relatively large proportion of the long-distance migrants were city workers, that is, workers who lived in nonfarm areas both in 1945 and 1941.

**Employment and Labour Force.**—On the basis of data obtained each month from a representative sample of about 30,000 households, monthly estimates were published from March 1940 giving the number of persons in the civilian labour force, the number employed (with separate figures for those in agriculture and those in nonagricultural occupations), and the number unemployed. These figures are summarized for the month of July 1940 to 1945, in Table VI. The month of July, it may be

Table VI.—Civilian Employment and Unemployment in the United States: 1940 to 1945

(Figures are exclusive of persons in institutions)

Item	July 1945	July 1944	July 1943	July 1942	July 1941	July 1940
Civilian population 14 years old and over . . .	93,110,000	92,980,000	94,360,000	98,680,000	99,760,000	99,950,000
Male . . . . .	40,110,000	40,530,000	42,350,000	47,130,000	48,800,000	49,620,000
Female . . . . .	53,000,000	52,450,000	52,010,000	51,550,000	50,960,000	50,330,000
Civilian labour force . . . . .	53,750,000	55,000,000	56,040,000	56,770,000	56,550,000	56,420,000
Male . . . . .	34,940,000	35,890,000	37,380,000	41,220,000	42,150,000	42,570,000
Female . . . . .	18,810,000	19,110,000	18,660,000	15,550,000	14,400,000	13,850,000
Per cent of population 14 and over . . .	57.7	59.2	59.4	57.5	56.7	56.4
Male . . . . .	87.1	88.6	88.3	87.5	86.4	85.8
Female . . . . .	35.5	36.4	35.9	30.2	28.3	27.5
Employed . . . . .	52,660,000	54,000,000	54,750,000	54,340,000	51,310,000	48,010,000
Male . . . . .	34,380,000	35,410,000	36,670,000	39,710,000	38,570,000	36,680,000
Female . . . . .	18,280,000	18,590,000	18,080,000	14,630,000	12,740,000	11,330,000
Unemployed . . . . .	1,090,000	1,000,000	1,290,000	2,430,000	5,240,000	8,410,000
Male . . . . .	560,000	480,000	710,000	1,510,000	3,580,000	5,890,000
Female . . . . .	530,000	520,000	580,000	920,000	1,660,000	2,520,000
Per cent of labour force . . . . .	2.0	1.8	2.3	4.3	9.3	14.9
Male . . . . .	1.6	1.3	1.9	3.7	8.5	13.8
Female . . . . .	2.8	2.7	3.1	5.9	11.5	18.2
Employed in nonagricultural industries . . .	43,520,000	44,330,000	45,050,000	44,340,000	41,380,000	37,350,000
Male . . . . .	27,350,000	27,890,000	29,050,000	31,510,000	30,100,000	27,270,000
Female . . . . .	16,170,000	16,440,000	16,000,000	12,830,000	11,280,000	10,080,000
Employed in agriculture . . . . .	9,140,000	9,670,000	9,700,000	10,000,000	9,930,000	10,660,000
Male . . . . .	7,030,000	7,520,000	7,620,000	8,200,000	8,470,000	9,410,000
Female . . . . .	2,110,000	2,150,000	2,080,000	1,800,000	1,460,000	1,250,000
Per cent of total employed . . . . .	17.4	17.9	17.7	18.4	19.4	22.2
Male . . . . .	20.4	21.2	20.8	20.6	22.0	25.7
Female . . . . .	11.5	11.6	11.5	12.3	11.5	11.0

noted, represents the peak in the seasonal variation in the number of persons in the labour force, being a month of active employment in agriculture and also a month in which many young persons are working during school vacation.

The effect of the induction of men into military service and the fact of their partial replacement by women are clearly indicated by the figures shown for the civilian labour force. The number of males in the civilian labour force in July 1940 was 42,570,000, which number had declined by July 1945 to 34,940,000. The number of females in the labour force, on the other hand, increased from 13,850,000 in July 1940 to a maximum of 19,110,000 in July 1944, with a slight decrease to 18,810,000 by July 1945.

The gradual disappearance of unemployment is likewise indicated by these representative monthly figures. In July 1940, 14.9% of the labour force was unemployed (including those on public emergency work); by July 1941, this percentage had been reduced to 9.3; by July 1942, to 4.3; by July 1943, to 2.3; and by July 1944, to 1.8, which last figure may be assumed to represent approximately the minimum number of persons who will, in July of any year, be in process of passing from one job to another—the so-called “frictional unemployment.”

The number of persons employed in agriculture declined from 10,660,000 in July 1940 to 9,140,000 in July 1945. This net loss of 1,520,000 resulted from a decline of 2,380,000 in the number of males employed in agriculture, partly offset by an increase of 860,000 in the number of females so employed. The number of persons employed in nonagricultural occupations increased from 37,350,000 in July 1940 to a maximum of 45,050,000 in 1943, and stood at 43,520,000 in July 1945. The number of females employed in nonagricultural occupations was 10,080,000 in July 1940 and 16,170,000 in 1945, the increase in this number thus accounting for practically all of the in-

crease in the whole number of nonagricultural workers.

Recent changes in employment and the labour force are indicated by the figures in Table VII, the first column of which gives an over-all measure of the entire labour force, including persons in the armed forces as well as civilian workers. (The July data in this table differ slightly from the figures shown for July 1945, in Table VI, because of a minor change in the methods followed in the monthly survey, adjustments for which had not yet been carried back into the earlier records.) Some of the changes shown in the month-to-month data are the usual seasonal changes, like the decline in agricultural employment between

July and Nov. or Dec. 1945; others, like the increase in unemployment, measure changes resulting from the closing down of war industries and the re-employment of personnel in civilian activities. The increase in unemployment, up to Dec. 1945, it may be noted, was far less than had been expected. The decrease of more than 5,000,000 in the total labour force, including the armed forces (or the excess over the usual seasonal decline of around 2,000,000), represents in part the fact that many recently discharged veterans were not yet either at work or actively seeking work, and in part the probably permanent retirement from the labour force of women who had taken jobs under stress of wartime demands.

**Normal Labour Force Estimates.**—As a basis for forecasts of employment needs and as a standard for measuring temporary wartime increases in employment, estimates of the “normal” labour force were computed for the years 1941 to 1950. These estimates represent the labour force that would have been expected if the trends of preceding years had continued after 1940 under economic conditions similar to those of 1940.

During the war years, the actual number of persons in the labour force (including the armed forces) was much greater than what would have been expected on a basis of long-term trends, the excess amounting in 1944 to approximately 6,500,000.

Table VII.—Total Labour Force by Employment Status: July to Dec. 1945

Week ending		Civilian labour force (14 years old and over)					Unemployed	
		Total labour force including armed forces	Total civilian labour force	Employed		In non-agricultural industries		In agriculture
				Total employed				
Total								
Dec. 1945.		61,160,000	53,310,000	51,360,000	44,170,000	7,190,000	1,950,000	
Nov. 1945.		62,620,000	53,440,000	51,730,000	43,310,000	8,420,000	1,710,000	
Oct. 1945.		63,750,000	53,110,000	51,560,000	42,770,000	8,790,000	1,550,000	
Sept. 1945.		64,790,000	52,900,000	51,250,000	42,450,000	8,800,000	1,650,000	
Aug. 1945.		66,510,000	54,350,000	53,520,000	44,470,000	9,050,000	830,000	
July 1945.		67,500,000	55,220,000	54,270,000	44,430,000	9,840,000	950,000	
Male								
Dec. 1945.		43,800,000	36,130,000	34,650,000	28,660,000	5,990,000	1,480,000	
Nov. 1945.		44,250,000	35,280,000	34,100,000	27,750,000	6,350,000	1,180,000	
Oct. 1945.		44,990,000	34,590,000	33,660,000	27,060,000	6,600,000	930,000	
Sept. 1945.		45,870,000	34,250,000	33,320,000	26,660,000	6,660,000	930,000	
Aug. 1945.		46,910,000	35,020,000	34,590,000	27,700,000	6,890,000	430,000	
July 1945.		47,150,000	35,140,000	34,660,000	27,530,000	7,130,000	480,000	
Female								
Dec. 1945.		17,360,000	17,180,000	16,710,000	15,510,000	1,200,000	470,000	
Nov. 1945.		18,370,000	18,160,000	17,630,000	15,560,000	2,070,000	530,000	
Oct. 1945.		18,760,000	18,520,000	17,900,000	15,710,000	2,190,000	620,000	
Sept. 1945.		18,920,000	18,650,000	17,930,000	15,790,000	2,140,000	720,000	
Aug. 1945.		19,600,000	19,330,000	18,930,000	16,770,000	2,160,000	400,000	
July 1945.		20,350,000	20,080,000	19,610,000	16,900,000	2,710,000	470,000	

It seemed likely that some part of this excess would persist for several years after the war, especially if relatively full employment was maintained. On the other hand, war casualties would subtract somewhat from the number of men who would have been in the labour force, had there been no war.

Table VIII, which presents the 1950 estimates by age and sex against a background of earlier census figures, provides material for some analysis of the significance of the estimates. As between one age group and another, there are wide differences in the percentage of the population in the labour force, but within a given age group there is usually evidence of a consistent trend. In the age group 14 to 19 years, for example, both male and female, there is a consistent decline in labour force participation (which means either working or seeking work), resulting presumably from longer time spent in school. Likewise, with both males and females 65 years old and over, there is a decrease, resulting mainly from earlier retirement. On the other hand, the figures indicate a continuous increase in the percentage of women between 20 and 64 years of age in the labour force. The 1950 estimates, it may be noted, represent the result of trends already established prior to 1940 and do not include those women who came into the labour force under stress of wartime conditions, many of whom might still be in the labour force at the end of the decade.

In Table IX actual labour force data for the years 1941 to 1945 are presented for comparison with the estimated normal labour force. In this table the figures represent averages for the year rather than estimates for a single period. The "normal" estimates are thus somewhat larger than the corresponding figures in Table VIII, partly because of seasonal variations, the labour force in April being less by about 2,000,000 than the maximum in midsummer, and partly because of natural growth from month to month, which adds about 700,000 to the labour force in the course of a year.

Table IX.—"Normal" Labour Force, 1941 to 1950, and Actual Labour Force, 1941 to 1945

Year	(Figures in thousands)								
	Actual labour force including armed forces (average for year)			"Normal" labour force (average for year)			Excess of actual over "normal"		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
1941	55,730	42,150	13,580	55,340	41,500	13,840	390	650	-260
1942	58,430	43,540	14,890	56,030	41,850	14,180	2,400	1,690	710
1943	62,460	45,010	17,450	56,740	42,220	14,520	5,720	2,790	2,930
1944	64,010	45,950	18,060	57,360	42,500	14,860	6,650	3,450	3,200
1945	*63,220	*45,360	*17,860	57,940	42,760	15,180	*5,280	*2,600	*2,680
1946	...	...	...	58,500	42,990	15,510	...	...	...
1947	...	...	...	59,010	43,180	15,830	...	...	...
1948	...	...	...	59,510	43,360	16,150	...	...	...
1949	...	...	...	59,990	43,520	16,470	...	...	...
1950	...	...	...	60,470	43,670	16,800	...	...	...

\*Preliminary figures.

The normal labour force estimated for 1950, it may be noted, exceeds by nearly 500,000 the figure of 60,000,000 jobs which had been so much discussed in late 1945; and the actual labour force of 1950 is likely to be appreciably larger than this figure, since the holdover of wartime excess employment is likely to exceed the relatively small number of war casualties. (About 300,000 deaths of persons in military service had been reported up to the end of 1945.)

Table VIII.—Population and Labour Force, April 1930 and 1940, and Estimated Population and "Normal" Labour Force, April 1950, by Sex and Age, for the United States

AGE AND SEX	(Population and labour force in thousands)								
	Population			Labour force			Per cent of population		
	1930	1940	1950	1930	1940	1950*	1930	1940	1950
<b>Both Sexes</b>									
Total, all ages . . . . .	122,775	131,669	144,330	47,404	53,299	59,165	38.6	40.5	41.0
Under 14 years . . . . .	33,674	30,566	34,627	—	—	—	—	—	—
14 years and over . . . . .	89,101	101,103	109,703	47,404	53,299	59,165	53.2	52.7	53.9
<b>Male</b>									
Total, all ages . . . . .	62,137	66,062	71,961	37,008	40,284	42,853	59.6	61.0	59.6
Under 14 years . . . . .	17,049	15,508	17,637	—	—	—	—	—	—
14 years and over . . . . .	45,088	50,554	54,324	37,008	40,284	42,853	82.1	79.7	78.9
14 to 19 years . . . . .	6,973	7,398	6,473	2,795	2,619	2,155	40.1	35.4	33.3
20 to 24 years . . . . .	5,343	5,693	5,843	4,747	5,035	5,169	88.8	88.5	88.5
25 to 44 years . . . . .	18,259	19,686	21,640	17,498	18,817	20,611	95.8	95.6	95.2
45 to 64 years . . . . .	11,184	13,371	15,065	10,173	11,954	12,974	91.0	89.4	86.1
65 years and over . . . . .	3,329	4,406	5,303	1,795	1,859	1,944	53.9	42.2	36.7
<b>Female</b>									
Total, all ages . . . . .	60,638	65,607	72,369	10,396	13,015	16,312	17.1	19.8	22.5
Under 14 years . . . . .	16,625	15,058	16,990	—	—	—	—	—	—
14 years and over . . . . .	44,013	50,549	55,379	10,396	13,015	16,312	23.6	25.7	29.5
14 to 19 years . . . . .	6,976	7,341	6,300	1,591	1,395	1,038	22.8	19.0	16.5
20 to 24 years . . . . .	5,539	5,895	5,716	2,316	2,688	2,783	41.8	45.6	48.7
25 to 44 years . . . . .	17,932	19,987	22,262	4,404	6,107	8,547	24.6	30.6	38.4
45 to 64 years . . . . .	10,254	12,713	15,294	1,842	2,550	3,637	18.0	20.1	23.8
65 years and over . . . . .	3,312	4,613	5,807	243	275	307	7.3	6.0	5.3

\*Estimated "normal" labour force; actual labour force likely to be somewhat higher.

The relation between the actual labour force and the normal labour force is indicated for the major part of the war period in the chart on p. 187, in which the shaded area represents the amount by which the wartime labour force exceeded the estimated normal. The diagram is plotted on the basis of quarterly data which are not yet available, at this writing, for the third and fourth quarters of 1945. As indicated by the averages presented in Table IX, the steep downward trend shown for the actual labour force during the second quarter of 1945 was not maintained in the latter half of the year, though the trend presumably still continued downward.

**Marriages.**—The number of marriages in the United States increased rapidly, under stress of approaching war conditions, from 1939 to 1942, then declined slightly in 1943 and still further, to about the 1940 level, in 1944. The decline apparently came to an end during the first half of 1945, and a new increase began, based first on the promise of recovery from wartime restrictions and then reflecting the actual return of large numbers of veterans from the war areas. The annual data for the United States as a whole are summarized in Table X, while the month-to-month changes from 1941 to the end of 1945 in the number of marriage licences granted in the 92 cities of 100,000 or more (containing about one-third of the nation's population) are presented in Table XI.

The very considerable increases in the numbers of marriage licences issued in the large cities in the months from July to Dec. 1945, without doubt represent marriages of veterans returning from overseas. If increases of this magnitude were to continue through the early months of 1946, a total for the fiscal year ending June 30, 1946, might rival the record year 1942. The number of licences issued in Dec. 1945, exceeded the number issued in Dec. 1944, by 32.5%. The large-city total for the entire year 1945 was 10.8% higher than that for 1944 and larger than any earlier year's record except the peak year, 1942.

Table X.—Marriages in the United States: 1939 to 1945

Year	Number of marriages	Increase (+) or decrease (−) in preceding year	
		Number	Per cent
1945*	1,600,000	155,000	+9.4
1944	1,445,000	-132,000	-8.4
1943	1,577,000	-181,000	-10.3
1942	1,758,000	79,000	+4.7
1941	1,679,000	114,000	+7.3
1940	1,565,000	190,000	+13.8
1939	1,375,000	...	...

\*Preliminary estimate.



Table XI.—Marriage Licences Issued in Cities of 100,000 or More, by Months: 1941 to 1945

Month	Number					Increase (+) or decrease (-), 1944-1945	
	1945	1944	1943	1942	1941	Number	Per cent
Total, 12 months . . . . .	568,713	513,147	561,962	594,908	547,177	+55,566	+10.8
January . . . . .	41,907	41,140	42,042	51,572	30,694	+767	+1.9
February . . . . .	35,696	39,727	41,321	42,033	31,453	-4,031	-10.1
March . . . . .	41,308	40,119	41,684	40,870	32,663	+1,189	+3.0
April . . . . .	39,725	43,032	45,783	47,998	43,381	-3,307	-7.7
May . . . . .	44,994	45,165	47,680	49,487	54,389	-171	-0.4
June . . . . .	55,287	52,153	60,502	60,723	63,956	+3,134	+6.0
July . . . . .	49,308	40,390	48,625	46,085	43,424	+8,918	+22.1
August . . . . .	49,997	43,498	48,419	52,033	54,880	+6,499	+14.9
September . . . . .	45,676	42,043	48,094	50,968	47,190	+3,633	+8.6
October . . . . .	51,871	42,056	45,844	52,915	47,406	+9,815	+23.3
November . . . . .	55,688	40,610	45,910	49,901	42,303	+15,078	+37.1
December . . . . .	57,256	43,214	46,058	50,323	55,438	+14,042	+32.5

**Families.**—The number of families in the United States continued to increase during the war, in spite of the fact that the civilian population was actually growing smaller from year to year as a result of inductions into the armed forces. According to estimates based on a sample survey made in May 1944, there were at that time approximately 37,000,000 families, or about 2,000,000 more than in April 1940. Preliminary returns from a survey made in Nov. 1945 indicate an increase in the number of families to about 37,600,000. These figures, it may be noted, represent an annual increase of about 500,000 families after 1940.

The increase in the number of families was the result of continued additions to the population and the abnormally high marriage rate which had prevailed from 1940, offset in part by the merging of families as a result of inductions into the armed forces. Many of the war marriages did not result in the formation of new families, either because the bridegroom was about to be inducted or because he was already in the service at the time of marriage. If, therefore, the increase in the marriage rate had occurred unaccompanied by these other wartime conditions, the increase in the number of families would have been even more rapid.

The extent to which temporary separations resulting from inductions into military service and other wartime conditions, such as the migration of individual workers to war production centres, may have checked the increase in the number of families can be judged by the fact that in May 1944 there were 2,770,000 families having as head a married woman whose husband was absent from the household. This number exceeds by about 2,000,000 the number of similar families in 1940; and it is safe to assume that the major part of this increase, at least, was made up of families having as head the wife of a man absent in military service. This assumption is supported by statistics obtained in a survey covering all married women (including those who were not heads of families) in Feb. 1944, in which it was shown that out of 4,220,000 married women with husbands absent, 2,760,000 were women whose husbands were in the armed forces.

The classification of families by sex and marital status of head is shown for 1944 and 1940 in Table XII. It may be noted that the increase in the number of families between 1940 and 1944 was entirely in families having female head, these forming 20.3% of the total in 1944, as compared with 15.3% in 1940. From other tabulations of the survey it may be noted that there were considerable increases in the number of families with married male heads 45 years old and over, a slight increase in the number with such heads 35 to 44 years old, but very radical decreases in the number with married male heads under 35 years of age.

**Census Releases Available.**—Current figures on any of the subjects for which the latest data are summarized above may be obtained on request from the bureau of the census, Washington 25, D.C. There are monthly reports on the labour force and on marriage licences issued in the large cities, and releases on other subjects from time to time through the year.

Table XII.—Families in the United States by Sex and Marital Status of Head, May, 1944 and April, 1940

Marital status of family head	1944		1940		Per cent	
	1944	1940	1944	1940	1944	1940
All families . . . . .	37,040,000	35,124,380	100.0	100.0		
Families having male head . . . . .	29,510,000	29,762,800	79.7	84.7		
Married, wife present . . . . .	26,350,000	26,632,400	71.1	75.8		
Married, wife absent . . . . .	520,000	447,280	1.4	1.3		
Single . . . . .	1,220,000	1,323,400	3.3	3.8		
Widowed and divorced . . . . .	1,420,000	1,359,720	3.8	3.9		
Families having female head . . . . .	7,530,000	5,361,580	20.3	15.3		
Married (husband absent) . . . . .	2,770,000	795,160	7.5	2.3		
Single . . . . .	1,070,000	903,460	2.9	2.6		
Widowed and divorced . . . . .	3,690,000	3,662,960	10.0	10.4		

(See also ALIENS; BIRTH STATISTICS; HOUSING; IMMIGRATION AND EMIGRATION, U.S.; MARRIAGE AND DIVORCE; WAGES AND HOURS; WEALTH AND INCOME, U.S. DISTRIBUTION OF.) (L. E. T.)

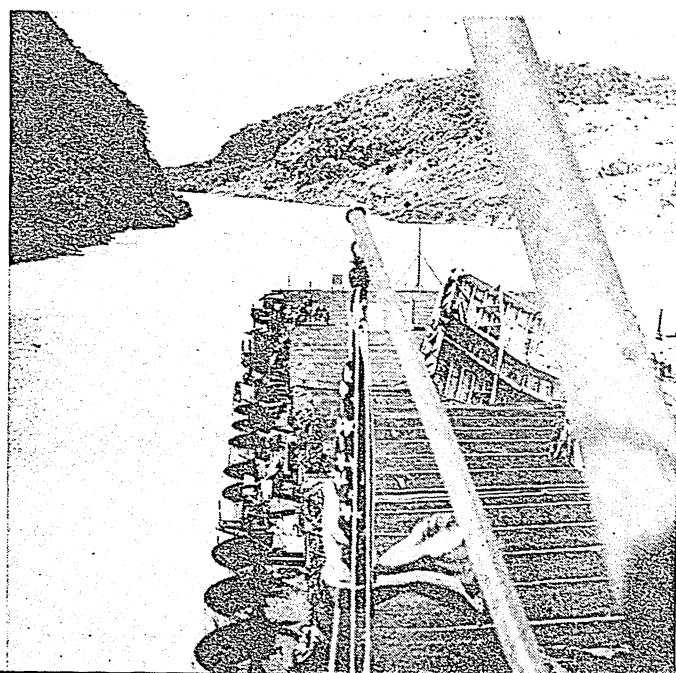
**Centennials:** see CALENDAR, 1946, page xxii.

**Central America.** That section of the Americas situated between Mexico on the north and Colombia on the south. Six republics are located in the area: Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica and Panamá; in addition it includes the colony of British Honduras and the Panama Canal Zone. Area: approximately 222,675 sq.mi.; pop.: about 8,500,000. Most of the inhabitants live in the highlands of the western cordillera.

**History.**—The political history of Central America in 1945 was somewhat less disturbed than during the previous year. No government was overthrown by rebellion; the most serious of several minor revolts and plots occurred in El Salvador in June. In Guatemala constitutional guarantees were suspended for 30 days in April and again for two months starting early in October, due in both cases to the asserted discovery of plots against the administration in power. Opposition leaders were arrested and many of them deported. One minor rebellion was reported from Honduras in April, and a few terroristic bombings took place in Panamá in the latter part of the year.

Three new administrations assumed office peacefully during 1945. In Guatemala President Juan José Arevalo took office on March 15 immediately following promulgation of a new constitution; he had been elected in December. Salvador Castañeda Castro was installed as chief executive of El Salvador after a January election from which other candidates withdrew. In Panamá a provisional government headed by former ambassador to the United States Enrique A. Jimenez was es-

STEAMING through the Panama canal, the escort carrier U.S.S. "Sangamon" nears journey's end at Norfolk, Va. Its elevator was blown up in the Ryukyus on May 4, 1945, when a Japanese suicide plane exploded on the flight deck



established after the resignation of President Adolfo de la Guardia on June 15. In this republic a national assembly started preparation of a new constitution at this time, while another change in constitutions occurred in December when El Salvador reverted to its 1886 constitution. A ban on political activity in connection with the presidential election scheduled for 1946 was lifted in Nicaragua in July by President Anastasio Somoza.

Foreign relations during the year were marked by a renewal of claims by Guatemala to British Honduras; they had been in abeyance for the war period. Guatemala and Costa Rica opened relations with the soviet union, and El Salvador indicated its intention of doing so. Panamá and Guatemala broke with the Franco regime of Spain. All republics either ratified the United Nations charter formed at the San Francisco conference or took steps toward this end. The republics participated in this conference and the earlier hemisphere parley in Mexico City, although in regard to the latter there was for a time dispute as to whether El Salvador should be admitted. During the summer the presidents of El Salvador and Guatemala met with a view toward working out a plan for union and later an agreement eliminating certain economic and political barriers was reportedly signed. Ostensibly designed as a step toward a Central American union, the plan found little favour in other republics.

Figures released by the United States government in October revealed that lend-lease military goods valued at \$23,020,000 had been sent to the five northern republics, with Guatemala receiving by far the larger part (\$21,089,000).

**Trade and Communication.**—With the ending of World War II many controls imposed at the start of hostilities were lifted in the several republics. Imported articles remained in short supply and the cost of living remained high. An increase in shipping facilities caused by the ending of the European phase of the struggle allowed restoration of the banana industry to almost normal levels. The elimination of coffee quotas during the year had little effect on the Central American nations since most had been able to ship their entire crops under the existing allowances. Hope of eventual completion of the Central American portion of the Inter-American Highway was stimulated by a recommendation by President Truman of the United States that Congress appropriate \$25,000,000 for this purpose. (See articles on individual countries.)

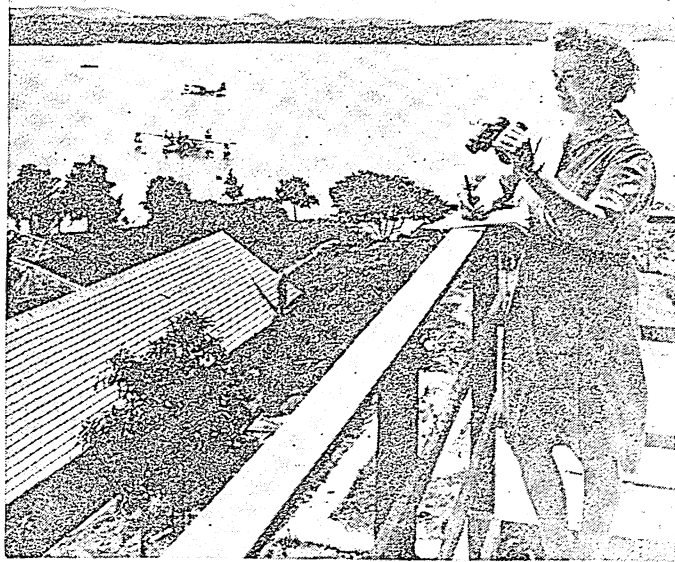
**BIBLIOGRAPHY.**—Dana G. Munro, *The Five Republics of Central America* (1918); Chester Lloyd Jones, *The Caribbean Since 1900* (1936); C. D. Kepner, *Social Aspects of the Banana Industry* (1936). Films.—*Central America* (Encyclopædia Britannica Films Inc.). (D. Rd.)

**Cereals:** see BARLEY; CORN; OATS; RICE; RYE; WHEAT.

**Ceylon.** A British crown colony, lying off the southern extremity of India and approaching within 6° of the equator. Area 25,332 sq.mi.; pop. (est. Dec. 31, 1943) 6,197,000. Chief towns (pop. census 1931): Colombo (cap. 284,155); Jaffna (45,708); Galle (34,424); Kandy (37,147). Governor (1945): Sir H. Monck-Mason Moore; languages: English, Sinhalese, Tamil; religions: Buddhism and Hinduism the chief.

**History.**—The report of the Soulbury commission on constitutional reform was published in the autumn of 1945. It recommended self-government on the British model, as a step to full dominion status. Ceylon was to have a bicameral legislature with cabinet responsibility; but certain subjects, such as defense, currency, external affairs and the protection of the rights of minorities, would be reserved to the governor general.

On Nov. 1 the secretary of state for the colonies announced in parliament that the constitution proposed by the Soulbury commission would be offered to the people of Ceylon. The



GROUND FORCE member of the British WAAF posted at a Ceylon flying boat base. She radio-telephoned landing instructions to incoming pilots

Ceylon state council accepted by 51 votes to 3 the British government's proposals.

War conditions gave an additional stimulus to local industries. Factories were established for the manufacture of various products, and loans to a maximum value of 10,000 rupees were granted to approved applicants. The state council debated the report of the committee which had been investigating the defects of the educational system. Its leading recommendation was to the effect that all education, from the kindergarten to the university, should be free. (H. G. RN.)

**Education.**—In 1942: Sinhalese and Tamil schools 4,114; scholars, 276,290 boys, 227,003 girls; English and bilingual schools 408; scholars, 53,882 boys, 19,846 girls. Total number of schools 5,799; scholars 785,936.

**Banking and Finance.**—Revenue (est. 1944-45) \$75,601,200; expenditure (est. 1944-45) \$74,396,400; public debt (Sept. 30, 1942) \$58,122,500; currency Rs.1=100 cents=1s. 6d. in 1944=30.12 U.S. cents.

**Trade and Communication.**—Overseas trade, merchandise, 1943: imports \$127,200,000; exports (domestic) \$161,700,000. Communication and transport: roads, motorable (1943) 6,551 mi.; railways (1943) (106 mi. narrow gauge) total 912 mi.; shipping, entered (1942) 2,724,000 net tons; motor vehicles licensed (Dec. 31, 1941), 20,092 motor cars and taxis; 4,394 trucks and vans; 2,486 omnibuses; 2,644 cycles; 66 tractors; 231 trailers; wireless receiving set licences (Dec. 31, 1940), 9,736; telephone instruments in use (1938), 10,424.

**Agriculture.**—Production, in short tons: rice (1938-39) 330,000; copra (including coco-nut oil) (1941) 169,401; tea (1943) exports 131,450; rubber (1943) shipments 137,500.

**Chain Stores:** see BUSINESS REVIEW.

**Chambers of Commerce.** In a year sharply divided into distinct periods of war and of peace, the activities of the Chamber of Commerce of the United States displayed a natural variation during 1945.

Until victory was assured, first priority was given to winning the war. Services developed during preceding war years were continued and augmented, as necessary, in order to keep businessmen informed of the ever-changing and complex effects of wartime regulations and to present to government officials the views and opinions of U.S. business.

With the surrender of Japan in August, this objective was supplanted by the urgent problem of reorienting the country's

vast industrial machine from production for war to the production of peacetime goods. This was a many-sided problem, involving major shifts in the plant operations, the flow of materials, the employment pattern and many other factors. Complicating the picture was the fact that some wartime controls were revoked almost immediately, while others were retained for varying lengths of time. The same lack of uniformity affected the supply of raw materials.

Recognizing the difficulties inherent in making many radical alterations in the business and industrial structure in a short time, the national chamber threw all its resources into the task of facilitating reconversion. During the period immediately after the cessation of hostilities, while governmental controls were being rescinded in wholesale lots, it issued daily bulletins to its membership. Nor did it content itself with acting as a transmitter of information; frequent consultations with government officials helped the organization to determine policies and to adjust federal actions to the needs of business.

While first priority was given to these primary objectives, the normal work of the chamber was not neglected. The views of its membership on legislative and economic questions affecting business life were determined and presented to appropriate federal agencies; the formation of local committees to study governmental affairs was encouraged; and the merits of free enterprise as a motivating force for progress were vigorously championed.

In May 1945, Eric A. Johnston of Spokane, Wash., was re-elected to a fourth term as president of the national chamber. Ralph Bradford was the general manager. (X.)

**Junior Chambers of Commerce.**—The objectives of the United States Junior Chamber of Commerce are: (1) improvement of the individual community through active participation in civic projects; (2) building and training of leaders, accomplished through individual participation of young men who adopt a worth-while civic project, plan its execution, arrange its financing, physically participate in its accomplishment and report in a businesslike manner the results of the program. Young men are enabled to receive education in a complete business cycle, giving them civic poise, friendships, contacts and experience in accomplishment; (3) the awakening and development of "active" citizenship through participation in community and governmental affairs.

Members, "Jaycees," as they are called, are men of good repute, ages 21 through 35. Each organization is autonomous but is provided state affiliation to exchange ideas. The U.S. Junior Chamber of Commerce consists of affiliates in every state and territory. Its purpose is co-ordination of projects, presentation of assistance in expanding the local program and recognition, nationally, of accomplishment. Special emphasis in 1945 was placed upon service to returning veterans; interest in affairs of government; and preparation of projects in Agriculture, Aviation, Americanism, Fire Prevention, Public Safety, Public Health, Sports and Recreation, Youth Activities, Community Face-Lifting and International Relations.

The U.S. Junior Chamber of Commerce regularly publishes *Future*, a magazine devoted to young men. It is financed principally from dues at the rate of \$1.00 per year. Supplementary finances were secured from sponsorship of nationwide projects.

The headquarters address in 1945 was the LaSalle hotel, Chicago, Ill. Its principal officers were: Henry Kearns, president; Rex McMorris, executive vice-president; Ken Kennedy, treasurer. (H. Ks.)

**Chandler, Albert Benjamin** (1898— ), U.S. politician and baseball commissioner, was born July 14 in Corydon, Ky., and served in

the U.S. army in 1918. He was graduated with an A.B. degree from Transylvania college, Lexington, Ky. (1921), studied at Harvard university (1921–22), and received his LL.B. from the University of Kentucky (1924). Chandler began practising law at Versailles, Ky., in 1924, was elected to the state house of representatives, 1929, was lieutenant governor of Kentucky, 1931–35 and was governor, 1935–39. He resigned the governorship in Oct. 1939 to fill a vacancy in the U.S. senate and was elected for a full six-year term in Nov. 1942. During his youth and college years, Chandler starred in football, basketball and baseball. He played semi-professional baseball with several small teams and also acted as coach for high school basketball teams in Kentucky. On April 24, 1945, the owners of the 16 major league baseball clubs, by unanimous vote, selected Chandler to fill the position of baseball commissioner vacated by the death of Kenesaw Mountain Landis. Chandler accepted the post, which carried a seven-year contract at an annual wage of \$50,000, and announced his resignation from the senate Oct. 9.

**Channel Islands:** see BRITISH EMPIRE.

**Chapultepec Conference:** see INTER-AMERICAN CONFERENCE ON PROBLEMS OF WAR AND PEACE; PAN-AMERICAN UNION.

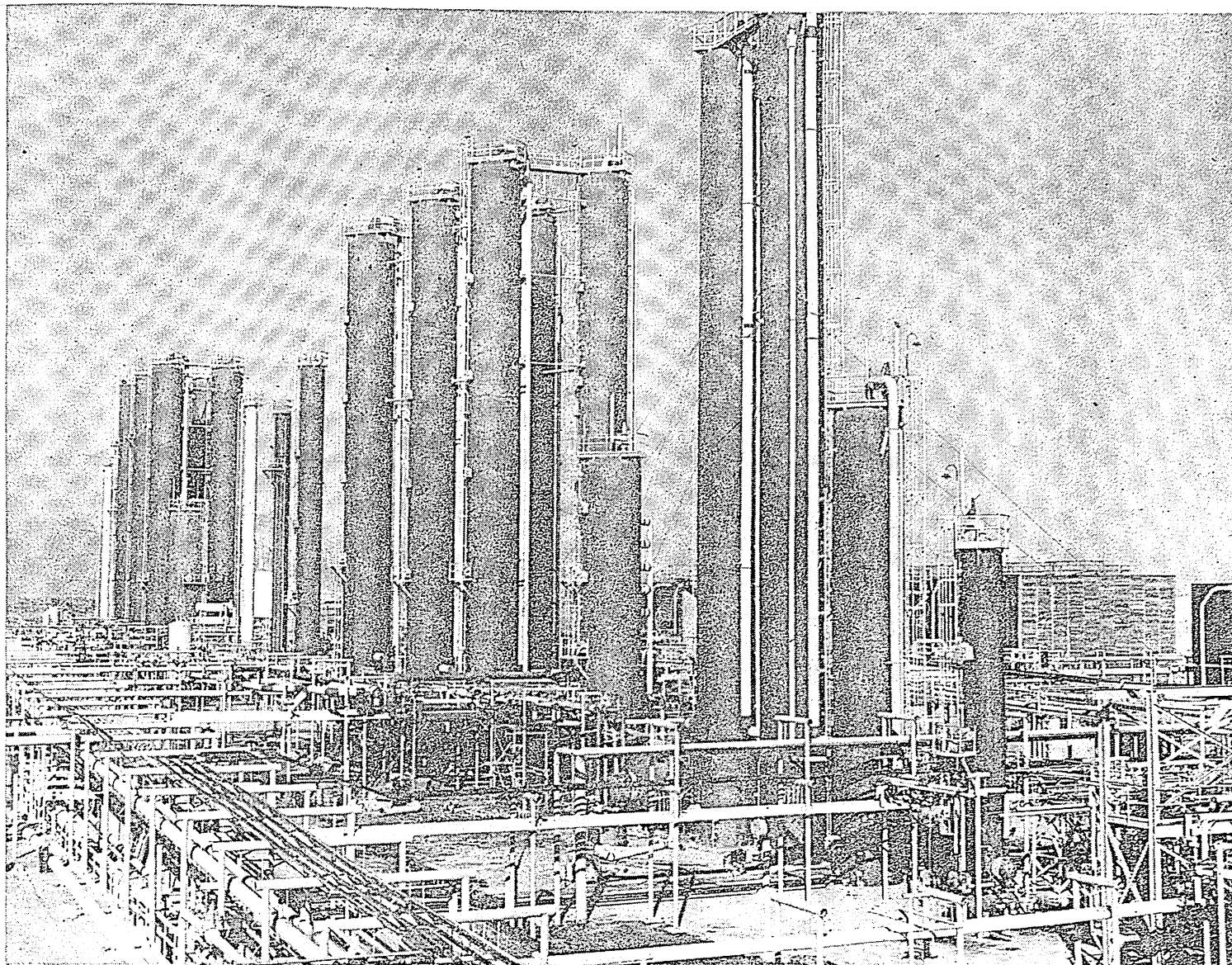
**Charles** (CHARLES THÉODORE HENRI ANTOINE MEINRAD, COUNT OF FLANDERS) (1903— ), prince of Belgium, was born in Brussels, Oct. 10, 1903, brother of King Leopold III of the Belgians. On Sept. 20, 1944, shortly after the liberation of Belgium from German occupation, Prince Charles was appointed regent by a joint vote of the parliamentary chambers, as the king was still a prisoner of the enemy. On May 8, 1945, King Leopold was freed by Allied troops at Salzburg (see article BELGIUM for the subsequent political crisis). On May 11, Prince Charles went to Salzburg and returned with a written request that he retain the regency until the king, then in poor health, should be fit to travel. In August the regent paid a visit to London which, in spite of official denials, was popularly believed to be connected with the crisis mentioned above. (W. FOR.)

**Charter of the United Nations:** see UNITED NATIONS CONFERENCE ON INTERNATIONAL ORGANIZATION.

**Chauvel, Sir Henry George** (1865–1945), Australian army officer, was born April 16, in New South Wales. He attended the Sydney and Toowoomba grammar schools and at 21 years of age joined the New South Wales cavalry regiment, becoming a second lieutenant. Later, he was attached to the Queensland mounted infantry and the mounted police, and was appointed to the Queensland permanent staff in 1896. In the years preceding World War I, he was adjutant general of the Australian military forces, later saw active service in Egypt and Gallipoli and was a cavalry leader in the Palestine and Syrian campaigns. He was cited in despatches nine times. Following the war, Gen. Chauvel became inspector general of the Australian military forces in 1919 and chief of the general staff in 1923, holding both posts until 1930. In World War II, he served as inspector-in-chief of the Australian home guard. He died in Melbourne, March 4.

**Cheese.** The production of cheese in the United States exceeded the total of 1944, or about 1,035,000,000 lb. in 1945 compared with 1,031,000,000 lb. in 1944 and a prewar average of 724,000,000 lb. A large part of the output was set aside for government purchase until October when restrictions on manufacture were released. The per capita consumption of





BUTADIENE was produced from normal butane in 1945, at this government-owned plant operated by Phillips Petroleum Co. Butadiene is one of the copolymers of Buna-S synthetic rubber

civilians was about 5 lb. which was near the prewar average. A subsidy of 3.75 cents per lb. to processors was discontinued in November and the ceiling price advanced in proportion. The production of cheese declined near the end of the year however, and stocks were expected to be sharply reduced at the year's end. The delay in purchasing supplies for relief purposes was a factor that caused some of the decline in production. About one-third of the stocks were government-owned in November. (See also BUTTER; DAIRYING; MILK.) (J. C. Ms.)

**Chemical Therapy:** *see* CHEMOTHERAPY.

**Chemistry.** Many of the topics covered in this report come as a result of lifting of wartime restrictions in the United States during 1945, but a large volume of non-restricted material was published also. Most spectacular from the restricted list was that dealing with the chemistry of the atomic nucleus. This work gave rise to four new chemical elements, numbers 93 to 96.

**Elements 93-96.**—Until recently the list of chemical elements began with hydrogen and ended with uranium. To appreciate the announcement of four new elements it is necessary to understand the basic features of atomic structure. An atom, the smallest unit of an element, is composed of a tiny but relatively massive nucleus and a large external sphere of influence containing relatively weightless electrons. The weight of the

nucleus is traceable to the positive charges and neutrons which are contained therein, the number of positive charges being invariable and different for each atom. The neutron is a neutral particle consisting of a positive charge balanced by a negative charge. It contributes, therefore, to the mass of the nucleus (because of its positive charge) but not to the charge of the nucleus. Electrons are negative particles. A neutral atom contains the same number of electrons outside the nucleus as there are positive charges within. An electron may be captured by a neighbouring atom in the production of molecules or ions. These external electrons are responsible for the chemical properties of an element.

Although the number of positive charges in the nucleus of an atom cannot vary, the number of neutrons may vary. Two nuclei of the same element containing different numbers of neutrons are called isotopes. It is obvious from this that isotopes of the same element have differing atomic weights, but identical chemical properties since the number of positive and negative charges is not disturbed. Isotopes cannot be separated, therefore, by chemical means.

The two isotopes of hydrogen are called hydrogen and deuterium. The nucleus of hydrogen contains simply one positive charge, whereas deuterium or "heavy hydrogen" contains one neutron in addition to the positive charge. Helium, the second element, contains a nucleus with two positive charges and two neutrons, hence an "atomic weight" of 4. Carbon, the sixth element (at. wt. 12), contains 6 positive charges and 6 neutrons. This kind of thing continues till one reaches uranium (at. wt. 238) with a nucleus holding 92 positive

charges and 146 neutrons. Chemists refer to it as element number 92 because of the 92 positive charges in the nucleus. The isotope of uranium of atomic weight 235 also is No. 92, but it contains only 143 neutrons within the nucleus. Natural uranium is a mixture containing 99.3%  $U^{238}$ , and 0.7%  $U^{235}$ , and a trace of a third isotope  $U^{234}$ .

Under "Chemistry" in the *Book of the Year* for 1941 mention was made of the decomposition of  $U^{235}$  and the tremendous power production thereby released. The "atomic bomb" was the expression of this power in 1945. To achieve this end the two isotopes of uranium had to be separated in quantity and, except for the enormous governmental subsidy of about \$2,000,000,000, such a separation would have required several decades. Since uranium hexafluoride,  $UF_6$ , exists as a gas above 56°C. it was the reference compound selected for most of the separation procedures. These physical methods, among others, were adopted for the separation of  $U^{235}F_6$  from  $U^{238}F_6$ : electromagnetic deflection (depending on molecular mass) of a beam of ionized  $UF_6$  molecules, diffusion through porous barriers permitting the lighter gaseous molecules to penetrate a little faster than the heavier ones, and thermal diffusion of uranium hexafluoride in a vertical annular tube kept hot at the core and cool at the outside thereby attracting the heavier isotope to the cooler surface.

Radium, as it decomposes, ejects from its nucleus a fast-moving helium ion known as an "alpha particle." If this helium bullet is directed so as to collide with a beryllium atom a neutron is expelled from the beryllium nucleus at high velocity. The velocity of this stream of neutrons may be moderated by passing it through heavy water, graphite, or other materials. It is this type of slow-moving neutron that causes the disintegration of uranium 235 into two smaller atoms such as barium and krypton. The energy released in this process is 5,000,000 times that obtained from burning an equal weight of coal. As a matter of fact, uranium 235 gives off neutrons spontaneously. In a pile of pure natural uranium (chiefly 238) of sufficient size these neutrons penetrate the 238 molecule to yield a short-lived isotope of uranium (at. No. 92, at. wt. 239). Heat is generated spontaneously, and one of the neutrons in this nucleus throws out its negative charge as a "beta particle," thereby increasing the number of positive charges in the nucleus from 92 to 93. The element thus formed is named neptunium. In turn, it loses another beta particle in the course of a few days, giving rise to plutonium, element 94. This element, discovered late in 1940 by G. T. Seaborg, E. M. McMillan, A. C. Wahl and J. W. Kennedy, was first obtained pure in weighable quantities in 1942 by B. B. Cunningham and L. B. Werner. Only a couple of years later it was produced industrially at Hanford, Wash. This site was selected to utilize the cooling action of the Columbia river. The construction of the massive plant at Hanford was a triumph of co-operation between chemical engineers, chemists and physicists, because its preliminary design was under way at a time when the world's supply of plutonium was invisible to the naked eye. As is well known, plutonium resembles uranium 235 in that its nucleus can be made to disintegrate by slow-moving neutrons.

Two new elements, as yet unnamed, were announced on Nov. 16, 1944, by G. T. Seaborg at a meeting of the American Chemical society held at Northwestern university, Evanston, Ill. These elements, 95 and 96, were found to be among the products produced by bombardment of uranium and plutonium with very high energy (40,000,000 electron volts) helium ions in the 60-in. cyclotron of the University of California, Berkeley, Calif.

Seaborg calls attention to the fact that in the periodic arrangement of the chemical elements those above actinium (No. 89), namely, Ac, Th, Pa, U, Np, Pu, 95, 96, seem to represent

the beginning of an "actinide" series not unlike the rare earth series from lanthanum (No. 57) to lutecium (No. 71). This provides an explanation for the general similarity in chemical behaviour of the new elements: e.g., the valences of uranium are 3, 4, 6 with 6 the most stable; neptunium, 4, 5, 6 with 4 the most stable; plutonium, 3, 4, 5, 6 with 3 the most stable; and the prediction of very stable trivalent states for elements 95 and 96.

**British Anti-Lewisite.**—The need for protection against injuries from the use of lewisite as a war gas prompted British and U.S. chemists to find an effective therapeutic agent. Announcements of the solution of this search were made by R. A. Peters and by L. L. Waters and C. Stock. Lewisite, an organic arsenical, is made by catalytic interaction of acetylene and arsenic chloride. Although lewisite was not used in World War II the antiarsenical developed proved to be of value in the treatment of types of arsenical poisoning encountered in civilian medicine. British anti-lewisite or BAL is 2, 3-dimercapto-1-propanol,  $HSCH_2-CHSH-CH_2OH$ . The method developed for its manufacture involved addition of bromine to allyl alcohol followed by reaction with sodium hydrogen sulphide at 60–70° C. under a hydrogen sulphide pressure of 100 lb. in<sup>2</sup>. Ammonium hydroxide stabilizes the substance to permit its vacuum distillation without pyrolysis.

**Sodium Fluoroacetate.**—Another discovery of wartime research which had an important peacetime application is the rodenticide "1080" or sodium fluoroacetate,  $FCH_2COONa$ . This salt is effective in water solution, and rodents find such solutions palatable. Unfortunately, the substance is extremely poisonous also to other animals such as dogs; hence it is necessary to restrict its application as a rodenticide to responsible agencies.

**Toluene from Petroleum.**—Demand for toluene during wartime is always heavy because it is the source of T.N.T. The annual U.S. production of toluene in 1918 was 15,000,000 gal., obtained almost entirely from coal tar. By 1939 the output was 30,000,000 gal., but in 1944 the quantity had skyrocketed to 250,000,000 gal. The increase came chiefly from petroleum sources by three methods: (1) about one-fifth by recovery of naturally occurring toluene from straight run and cracked naphthas; (2) about seven-tenths by dehydrogenation of methylcyclohexane, which occurs to the extent of 30–40% in feed stock from Texas petroleum. This is the "hydroforming process" of the Standard Oil Co. of Indiana; (3) about one-tenth by  $AlCl_3$ -isomerization of dimethylcyclopentane (made from light gasoline and aluminum chloride) to methylcyclohexane, then dehydrogenating the latter. This process was developed by Shell Oil Co.

Two catalysts reported to be effective for the dehydrogenation of methylcyclohexane are molybdena-on-alumina which is regenerated with air every four hours (to burn off the deposited carbon), and nickel-tungsten sulphide which is regenerated with hydrogen semiannually. The first of these catalysts was used in the hydroforming process, conditions for which were 540°C. and 250 lb. pressure. The magnitude of the installation may be appreciated somewhat by pointing out that the cost of catalyst per. charge was \$400,000, such a charge being effective for about seven months.

The toluene as produced was mixed with paraffins, cycloparaffins and olefins. Separation from this mixture was a major problem. The problem was solved by use of two new techniques: (1) extractive distillation with phenol, the latter clinging to the toluene more than to the paraffins; (2) azeotropic distillation with methanol or methyl ethyl ketone. Distillation towers as tall as an eight-story building were used in these steps, and toluene of 99% purity was obtained.

**Butadiene from Petroleum.**—During 1945 synthetic rubber

plants in the United States for government rubber containing styrene (GR-S) had an estimated capacity of 1,000,000 tons. In contrast, the best German annual production was about 17,000 tons. About one-third of the butadiene for the U.S. production came from alcohol, the remainder coming from petroleum. Butadiene from petroleum may cost 6.4 cents per lb., whereas that from alcohol is estimated at not less than 9 cents.

Refinery gases, the butanes and butylenes, were the chief source materials. The undesired isobutylene was selectively polymerized by sulphuric acid into diisobutylene, useful for aviation gasoline. The desired 1- and 2-butenes were separated from the butanes by azeotropic distillation with furfural or acetone through huge columns containing 75 bubble trays, a column being on the order of 200 ft. high and 13 ft. diameter. These butenes, mixed with steam to give a hydrocarbon partial pressure of 1 to 2 lb. per sq.in. absolute, were passed over a catalyst at 620°C. The conversion to butadiene per pass was about 25%, and separation of the butadiene was by means of azeotropic distillation with furfural or extractive distillation with cuprous ammonium acetate. The catalyst, as yet undisclosed, was regenerated periodically with hot steam which removed the carbon as carbon monoxide.

Conversion of butane to butadiene may follow either a two-step (butane to butene to butadiene), or the Houdry one-step process. Two plants were using the latter in 1945. The process called for a chromia-alumina catalyst at 595°C. and 1.5 lb. pressure. Every 7-15 minutes the carbon deposit on the catalyst burned off with air.

**Thiophene.**—Search for a new method of making butadiene from butane guided chemists at the Socony Vacuum laboratories to the discovery of a practical synthesis of thiophene. They reasoned that sulphur at sufficiently high temperatures might pull away the hydrogens of butane, to form butadiene and hydrogen sulphide. The reasoning was good because a substantial amount of butadiene was isolable under certain conditions, but the method proved to be much more attractive as a source of thiophene. A yield of 70% (by recycling) was obtainable by heating a mixture of one part of butane with 1.5 parts of sulphur at 650°C. for one-tenth of a second, followed by quick cooling. The conversion per pass was 20-24% based on butane.

Thiophene,  $C_4H_4S$ , had been primarily of interest as the impurity (0.1%) in coal tar benzene. It was fairly well studied in the six decades after its discovery, but never with anything but academic motives. Industrial utilization in 1945 seemed assured.

Thiophene resembles benzene in that it displays conventional substitution reactions with bromine, chlorine, nitric acid, or sulphuric acid; but the greater reactivity of thiophene is noteworthy. Its reactions with mercuric salts, or ethylmagnesium bromide, or acid chlorides in the presence of stannic chloride all contrast to the corresponding nonreactions with benzene. F. S. Fawcett and H. E. Rasmusson, working with purer thiophene than was hitherto available, found its boiling point to be 84.1°C. and its melting point -38.5°C.

**Organic Silicon Compounds.**—E. G. Rochow and collaborators of General Electric Co. developed a new process for making organo silicon halides which proved to be especially useful in the preparation of dimethylsilicon dichloride  $(CH_3)_2SiCl_2$ , namely, the interaction of methyl chloride with hot pellets of an alloy of silicon and copper (10% Si). Some methylsilicon trichloride and other products are formed concurrently. Interest in this compound stems from the unusual properties of the substance it yields on reaction with water. First the dihydroxy analog is produced  $(CH_3)_2Si(OH)_2$ , and it then undergoes inter-

molecular dehydration. One may visualize the first dehydration product to be of this structure:  $HO-Si(CH_3)_2-O-Si(CH_3)_2-OH$ , and the next  $HO-Si(CH_3)_2-O-Si(CH_3)_2-O-Si(CH_3)_2-OH$ , and so forth. The extent of this dehydration may be controlled somewhat, so that the products formed may vary in physical properties from light liquids to rubbery solids. This process is known as "curing." A partly cured product may be cured further by heating to 400°C., or by using such dehydrating agents as sulphuric acid or boric acid. A methyl silicone rubber, thus prepared, has several thousand  $[(CH_3)_2SiO]$ -units in its molecule. This may be used at temperatures much higher than ordinary rubber could withstand. Another interesting application was in electrical insulation. A wire wound with glass fibre and then impregnated with a partly cured silicone resin may then be cured at 400°C. to give a product which is remarkably durable at high temperature and of high dielectric quality.

**Starch.**—T. J. Schoch of Corn Products Refining Co. made the novel discovery in 1941 that corn starch could be separated fairly readily into two fractions by adding butyl alcohol to a 2% starch solution. About one-fifth of the starch solids separated. This material, known as "amylose" or the "linear fraction," is crystalline and gives an intense blue coloration with iodine. The unprecipitated portion, known as "amylopectin" or the "branched fraction," gives a red coloration with iodine. A 5% solution of amylose sets to a rigid gel, whereas a 5% solution of amylopectin remains a mobile liquid. Evidence supports the belief that amylose is a linear arrangement of glucopyranoses with glucosidic attachments at positions 1 and 4. Amylopectin is a much larger polymer with the glucose units considered to be in a branched structure. Like amylose, most of the glucosidic attachments involve positions 1,4 but occasionally position 6 (or 2) participate as well.

R. L. Whistler and G. E. Hilbert of the U.S. department of agriculture found that the triacetates of amylose and amylopectin differ greatly in film-forming ability. Brittle films are formed from amylopectin triacetate, much like the brittle films from completely acetylated whole starch. Amylose triacetate, on the other hand, readily forms films of good tensile strength and suppleness, resembling those made of cellulose triacetate.

**Acetyl Peroxide.**—Organic peroxides are used extensively to bring about the polymerization of unsaturated compounds (such as styrene, acrylic esters, allyl compounds, etc.). M. S. Kharasch and collaborators announced that in the presence of a trace of acetyl peroxide phosphorus trichloride or carbon tetrachloride can be made to add to unsaturated hydrocarbons. Kharasch regarded the acetyl peroxides as a source of methyl radicals:  $(CH_3CO)_2O_2 \rightarrow CH_3 + CO_2 + CH_3COO$ . The methyl radical soon disappears by reacting with  $CCl_4$  (or  $PCl_3$ ) to give trichloromethyl (a new radical) and methyl chloride. The olefin,  $RCH=CH_2$ , adds trichloromethyl giving  $RCH-CH_2-CCl_3$  which changes into  $RCHCl-CH_2-CCl_3$  and  $CCl_3$  by reaction with more carbon tetrachloride. The new  $CCl_3$  radical sets up a chain reaction.

Methyl radicals (from acetyl peroxide) also have been shown to cause the conversion of acetic acid ( $CH_3COOH$ ) into succinic acid  $(-CH_2COOH)_2$ ; methyl chloroacetate into methyl dichlorosuccinate; methyl succinate into methyl butanetetra-carboxylate, etc.

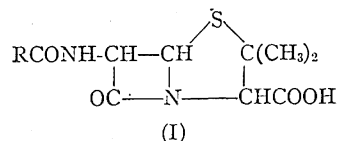
Alkylbenzenes (such as ethylbenzene or isopropylbenzene) were discovered to behave similarly at the relatively low temperature of 125-145°C. in the presence of acetyl peroxide. As judged by the products formed ( $CH_3CHPh-CHPh-CH_3$  from  $CH_3CH_2Ph$ ), it is evident that the methyl radical at this temperature exerts a highly specific action at the carbon atom holding the phenyl group.

**Penicillin.**—Late in Dec. 1945 the Committee on Medical

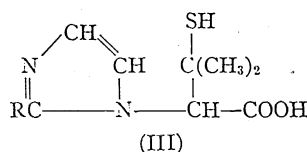
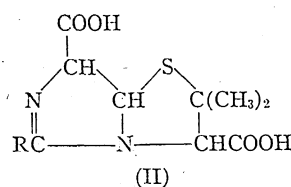


Research, Office of Scientific Research and Development, representing 21 U.S. research organizations, and the Medical Research Council, London, representing 17 British laboratories published a summary of principal findings on the structure of penicillin secured up to the end of 1944. Several antibiotics of the penicillin class have been found, all possessing the general formula,  $\text{RCO-NH}-(\text{C}_7\text{H}_9\text{ONS})-\text{COOH}$ . In what is known as F-penicillin (or penicillin-I in Britain) the RCO group is 3-hexenoyl, or  $\text{CH}_3\text{CH}_2\text{CH}=\text{CHCH}_2\text{CO}-$ ; in G-penicillin (or penicillin-II) it is phenylacetyl or  $\text{C}_6\text{H}_5\text{CH}_2\text{CO}-$ ; in X-penicillin (or penicillin-III), p-hydroxyphenylacetyl, or  $\text{HOC}_6\text{H}_4\text{CH}_2\text{CO}-$ ; in K-penicillin it is caprylyl,  $\text{C}_7\text{H}_{13}\text{CO}-$ . In dihydro-F-penicillin the RCO group represents caproyl,  $\text{C}_6\text{H}_{11}\text{CO}-$ . These structures explain the formation of phenylacetic acid, p-hydroxyphenylacetic acid, etc. as hydrolytic products of penicillin. Acid hydrolysis of penicillin was found to yield penicillamine, characterized as D- $\beta$ ,  $\beta$ -dimethylcysteine,  $\text{HSCMe}_2\text{CH}(\text{NH}_2)\text{COOH}$ . Unstable "penaldic acids,"  $\text{RCNHCH}(\text{COOH})\text{CHO}$ , were formed concurrently and these decomposed readily into "penilloaldehydes,"  $\text{RCNHCH}_2\text{CHO}$ . Thus, G-penilloaldehyde is phenylacetamidooacetaldehyde.

A thiazolidine structure (I) containing a beta lactam configuration explains these and subsequent results and was in 1945



receiving most active attention as the structure for penicillin. Opening of the 4-membered lactam ring by alkaline hydrolysis gives rise to salts of a dicarboxylic acid named penicilloic acid. The penillic acids (II) are obtained by holding penicillin at  $30^\circ\text{C}$ . in dilute mineral acids. Treatment of the penillic acids with mercuric chloride is a method used to open the S-containing ring. Carbon dioxide is detached in this process and penillamines



(III) are formed. Although the synthesis of penicillin was not announced it appears to be clear that the groundwork was established for an understanding of most of its chemistry.

**Streptomycin.**—Another antibiotic which received prominence during 1945 is streptomycin, because in contrast to penicillin it is effective towards the gram negative bacteria. It seems to be particularly effective towards tularaemia and urinary infections. Not much of it was produced, and less was known concerning its structure than penicillin, but Karl Folkers and co-workers made progress in structural studies. They concluded that it has the general constitution of a hydroxylated base named streptidine which is attached through a glycosidic linkage to a nitrogen-containing disaccharide-like molecule. The latter contains a methylamino group and a carbonyl group. The formula of streptomycin is considered to be either  $\text{C}_{21}\text{H}_{37}\text{N}_7\text{O}_{12}$  or  $\text{C}_{21}\text{H}_{39}\text{N}_7\text{O}_{12}$ . Streptidine is  $\text{C}_8\text{H}_{18}\text{N}_6\text{O}_4$ . (See also ATOMIC BOMB; PHYSICS; VITAMINS.)

**BIBLIOGRAPHY.**—*Chemical Abstracts* (1945); *Science*, vol. 102; H. D. Smyth, *Atomic Energy for Military Purposes*; *Industrial and Engineering Chemistry*, and its *News Edition* (1945).

**FILMS.**—*Catalysis*; *Chemistry and a Changing World*; *Colloids*; *Electrochemistry*; *Molecular Theory of Matter*; *Oxidation and Reduction*; *Velocity of Chemical Reaction* (Encyclopædia Britannica Films Inc.). (C. D. Hu.)

## Chemotherapy.

For the first time after large-scale manufacture was begun penicillin was removed

from controlled sale and made freely available in 1945 to physicians and hospitals. This drug had been previously rationed since the supply was not sufficient to meet the demand and because the needs of the armed forces had to be met first. Such freedom of sale permitted a more widespread use of the drug. It was claimed to bring about speedy recovery in trench mouth. Its use in syphilis was continued, especially in cases of congenital syphilis. It was found to be effective in agranulocytosis, a condition in which the white blood cells decrease in number. Penicillin was found to save lives of those suffering from this disease, probably by preventing infection which apparently is the primary cause of death.

Streptomycin, which, like penicillin, is known as an antibiotic, was used in humans suffering with tuberculosis. The results were sufficiently encouraging to warrant further trial. It was also shown to have value in other infections which were immune to the action of penicillin and the sulfonamides. Streptomycin is of much value in the control of infection in the urinary tract, an illness which is especially likely to occur following injury to the spine. Only small amounts of the drug were available in 1945 and much remained to be learned about it. However, sufficient knowledge was gained concerning the chemical structure to justify hope that the drug might soon be made synthetically, in which case the supply would be plentiful.

At the end of the year 1945 considerable publicity was given to a wartime secret involving an alcohol (2,3 dithiopropanol) called BAL. This name was derived from British anti-lewisite because the material was developed as a treatment for lewisite, a war gas poisoning. The British shared their secret with the Americans, to learn that it could be injected to counteract arsenic poisoning such as may occur in patients being treated with arsenic for syphilis. They also learned that it may be of value in the treatment of mercury poisoning which, if substantiated, is of considerable importance because of the frequency with which mercury poisoning follows accidents with mercury bichloride, a poisonous substance often used as an antiseptic and disinfectant. BAL acts, at least in part, by combining with the arsenic and forming a new compound which can be excreted from the body.

A careful study was made of more than 5,000 cases of thyroid gland disease which had been treated with thiouracil, a drug released for sale in Jan. 1946. Until this study was completed it was difficult to determine the real value of the compound since it has dangerous possibilities even when used carefully. However, the drug was shown to have more than sufficient value to offset its dangers, and it provides a means of saving the lives of many patients suffering from hypothyroidism (excessive activity of the thyroid gland) who cannot be helped by operation. The unique feature of the study is the way in which it was done: manufacturers of the product, the Food and Drug administration and clinicians who had studied the compound pooled their knowledge, which was submitted in a report to the Council on Pharmacy and Chemistry for publication so that all physicians could be informed concerning the proper use of thiouracil before the drug was released in interstate commerce. Never before had there been such a co-operative project. Another drug claimed to be useful in the treatment of hypothyroidism is thiobarbital, which also has a slowing down effect on overactive thyroid glands.

Cholera was successfully controlled by administering blood plasma, salt solution and sulfadiazine. The blood plasma is used to dilute the concentrated blood which occurs in this disease; the salt solution to supply fluids for the body which are lost in enormous quantities and which account for the thickening of the blood; and sulfadiazine to counteract the organism responsible for the disease. Formerly almost half, and even

more at times, of the victims died. With the new treatment it appeared as if most sufferers would be saved.

Late in the year influenza vaccines were made available for civilian use. For the first time civilians appeared to have a vaccine which would permit them to acquire immunity to influenza, at least against Types A and B influenza. According to army studies, as high as 75% of those vaccinated may be protected in varying degrees, although it was not known how long the immunity would last. Another measure of immunity to become more generally available was that concerned with measles protection, it being provided by the injection of globulin, a substance derived from the serum fraction of human blood. Supplies were made available throughout the country through the co-operation of the American Red Cross, which was responsible for collecting the blood, and manufacturers, who processed the blood.

Various authorities agreed that vitamin D may play an important role in the prevention of dental caries and recommended that its importance be considered in programs designed to prevent or lessen tooth decay.

A new drug, tridione (3,5,5-trimethyl-oxazolidine-2,4-dione), was used in the treatment of petit mal epilepsy and found worthy of further investigation.

Another new drug still in need of more study, but in an entirely different medical field, is benadryl which was suggested for hay fever and other forms of allergy. Unfortunately, it causes a sedative action, mental confusion and disturbances of vision.

Chaulmoogra oil and a chemical salt known as ethyl chaulmoograte were used with doubtful success for the treatment of leprosy. On the basis of recent evidence a compound known as promin, a member of the sulfone series and a distant relative of the sulfonamides ("sulfa" drugs), was hailed as the most effective compound yet made available for the treatment of leprosy. It also needed further study to clarify its real value.

Curare, an old Indian arrow poison, was broken down chemically to provide pure substances which could be injected to cause relaxation in body muscles. It was used to overcome abnormal stiffness or spasticity which occurs in certain diseases and to obtain greater muscle relaxation with less anaesthesia during operations.

Because of the seriousness of fungus infections of the feet and body, especially in the armed forces, much attention was given to this problem. Few remedies were found to be of worthwhile value until a mixture of undecylenic acid (a fatty acid found in perspiration), zinc undecylenate and talc was tested. This compound was shown to have marked effect on fungi and to be the most useful preparation yet available for controlling fungus infections.

Attention was focused on the technique of injecting food substances in the presence of food deficiencies. Sugar, salt, vitamins and even protein can be administered into a vein and used by the body to overcome depleted reserves, a procedure of considerable value in the presence of starvation, lasting illness and severe operation. The role of food material given by injection is important since even the most potent drugs have limited value if the patient has no reserves which his body can use for normal recovery. Medical literature contains at least one report of a man being fed entirely by vein for eight weeks.

Tropical diseases were the object of a renewed onslaught of investigation because of their wartime and peacetime importance. The advances made in chemotherapy in this field were not as great as were hoped for and the results could not be made public until all secrecy of wartime research was lifted and the experimental observations made generally available. Virus diseases were also subjected to much study, this work being aug-

mented by knowledge concerning antibiotics and the electromicroscope. Once again a final report on this work had to await the availability for co-ordination of all the research that was undertaken and completed during World War II. (See also DENTISTRY; MEDICINE; PNEUMONIA; SURGERY; UROLOGY; VITAMINS.) (A. E. SH.)

**Chemurgy.** Florida was a notable scene of chemurgic accomplishment in the United States in 1945. A new use for an old crop, sweet potatoes, made its largest commercial advance. A new crop, ramie, first began to push into substantial acreages.

Both these developments took place in the Everglades section. At Clewiston the United States Sugar corporation completed, and at the year's end had ready to put into operation, a \$7,000,000 plant for extracting starch from sweet potatoes. Annual production was expected to be 75,000,000 lb. of starch materials and 30,000,000 lb. of livestock feed. New employment for 2,500 workers was promised.

The crop from 15,000 ac. was to be required to supply 40 freight carloads of sweet potatoes which the plant's daily operations required. A special variety of large size with high starch content was bred for production on the Everglades soils. They are planted in the fall and left in the ground until needed, since the crop is not damaged in that area by freezing. Yields average more than 20 tons per ac.; the maximum was 39 tons. More than 20% of the content is starch.

The six-acre plant at Clewiston included one notable new method in starch production. Previous plants, such as the one at Laurel, Miss., where much experimental work had been done by the department of agriculture, utilized settling tables to recover the starch from the mashed pulp. The Clewiston plant used centrifugals instead, achieving greater speed and efficiency in far less space.

Sweet potato starch was expected to compete with the tropical root starches, cassava, tapioca and arrowroot, which had been heavily imported from the East Indies. Imports in 1939 approached 500,000,000 lb. For certain uses in the adhesive and textile industries the root starches were preferred to corn starch.

Waxy corn, however, a new variety, yields a similar starch. The previous maximum of 15,000 ac. of this variety was increased substantially in 1945, principally in Illinois and Iowa. The product was marketed principally as a tapioca substitute.

CHICKEN FEATHER YARN, an experimental project of the U.S. Rubber Co. in 1945. The yarn was expected to provide cloth rivalling wool in lightness and warmth, and to utilize millions of pounds of feathers otherwise scrapped each year



The second significant development in Florida was with a fibre crop. This was ramie, long known in the orient, but only currently finding a commercial foothold in the United States. Heretofore ramie had been available only after costly and inefficient hand processes. Perfection of machines that effectively and economically decorticate and degum the fibre opened the way to large-scale domestic production.

Ramie was described as the most remarkable of all natural fibres. Lustrous and silky in appearance when fully degummed, it blends well with other fibres. When woven with wool the fabric will not shrink. When wet, ramie is a half stronger than when dry, and it is eight times stronger than cotton or silk. Practically immune to mildew, it washes well, absorbs more water than cotton, dries quickly and gives off no lint. It takes commercial dyes well and is said to be superior at holding colour.

The plant will grow wherever the ground freezes no more than two or three inches deep, but makes its greatest growth naturally in such a relatively frost-free area as the Everglades. There it may be seen as an upright stalk five to eight feet high. It grows from roots from which three or more crops may be taken annually for seven or eight years, when replanting usually becomes desirable. An optimistic view, perhaps justifiable, was that once ramie became well known the demand would make its production profitable even in such areas of lower yield as the southern fringes of the cotton belt.

The acreage actually planted by the close of 1945 and contemplated for early 1946 was probably in excess of 5,000. Two substantial processing plants were being erected, one by the Florida Ramie Products company near Belle Glade and another by Newport Industries, Inc., near Pahokee.

All but a small proportion of the feathers removed from dressed poultry had always been a complete waste. Disposal of the 50,000 to 75,000 tons thrown away yearly had been a nuisance. Two 1945 discoveries in chemurgy promised to convert this agricultural waste into a source of income.

First it was found that by a cheap chemical solution wet feathers could be prevented from decomposing. This allowed their preservation and transportation, both previously difficult.

Then it was found that after mechanical removal from the quills, which are discarded, the barbs could be reduced by weight to a heavy syrup. This, when extruded through spinnerets, such as are used in making rayon and nylon, appears in the form of fibres which can be stabilized in a chemical bath and made into yarn. Three-fourths of the feathers from each fowl and four-fifths of each feather are said to be usable.

The yarn was woven into an odourless fabric which is lustrous, softer and lighter than wool and readily dyed. Feathers, like wool are of protein character. Mixed with other fibres the feather fabric is attractive in appearance.

The feather research program was conducted in part by the Western Regional laboratory of the department of agriculture and in part by the United States Rubber company. Although it exhibited the product in public, the company expected to conduct further experimentation before commercial production was recommended.

The three principal advances in the field during 1945 represented each of the three major divisions of the farm chemurgic concept: sweet potato starch, a new use for an old crop; ramie, a new crop; fabric from feathers, an economic utilization of an agricultural waste.

FILMS.—*Science and Agriculture* (Encyclopædia Britannica Films Inc.). (W. McM.)

**Chennault, Claire L.** (1890— ), U.S. army air officer, was born Sept. 6 in Commerce, Tex. A school teacher during World War I, young Chennault was called up for service in 1917 and served in the aviation

section of the signal reserve corps in the United States. After the war, he became an officer in the army air corps and commanded a pursuit squadron in Hawaii 1923–26. He retired from the army in 1937 and in the same year accepted General Chiang Kai-shek's offer to become aviation adviser to China; he then helped the Chinese to create an air force to fight the invading Japanese. In 1941, he founded the American Volunteer group of the Chinese army—a flying squadron of U.S. volunteer aviators who later became known as the "Flying Tigers." Though seriously hindered by inferior planes, the "Flying Tigers" reflected their superior training under Chennault by repeatedly repulsing Japanese air attacks on the Burma road—then China's lifeline. Chennault was called back to active duty with the U.S. army air force on April 16, 1942. On July 14, 1945, Chennault announced his resignation as commander of the U.S. 14th air force. He retired from active duty late in 1945 and then went to China, reportedly as adviser on commercial aviation to the Chungking government.

**Chernyakhovsky, Ivan Danilovich** (1907?–1945), Russian army officer, was born in Uman in the Ukraine, the son of a railway worker. Orphaned while a child, he worked as a cowherd and later as a longshoreman in Novorossisk. By good fortune, he was able to attend a military school and there was grounded in the fundamentals of strategy that stood him in such good stead during World War II. Chernyakhovsky was a colonel when the Germans invaded Russia in June 1941. He covered himself with distinction during the fighting on the Western Dvina in the summer of 1941, and a year later he was promoted to the rank of major general. In Feb. 1943 he led the soviet forces that broke through the German hedgehog defenses at Kursk. For this achievement, he was made a colonel general. By the spring of 1944, he had been promoted to the rank of army general and had been given command of the 3rd White Russian army. His forces, in conjunction with Gen. Ivan Bagramyan's army, cleared the Germans from White Russia. By autumn Chernyakhovsky had reached the approaches to East Prussia, and in Oct. 1944 his were the first Russian troops to cross into German territory on the eastern front. During the great offensive that started in Jan. 1945, Chernyakhovsky's armies conquered nearly all of East Prussia and he was about to complete this task when he died, Feb. 18, from a wound received in battle.

**Cherries:** *see* FRUIT.

**Chess.** The "Big Four" of U.S. chess—Arnold S. Denker, Anthony E. Santasiere, Reuben Fine and Samuel Reshevsky—continued their dominance of men's championships during 1945. Denker of Forest Hills, N.Y., defended his championship in the national tournament, while Santasiere, a New York city school teacher, won the open championship of the U.S. Chess federation with eight victories and three draws. Fine, the Washington, D.C., speed specialist, won his fourth straight rapid transit title, and Reshevsky, seven-time national champion from Boston, won the Pan-American tournament. George Kramer, 16-year-old youth from Rego Park, L.I., won the New York state title, while Paul R. Ellis of New York won the U.S. amateur.

Mrs. Gisela Kahn Gresser of New York successfully defended her women's national championship, while the Pan-American tournament ended in a tie between Mrs. Mary Bain of Miami, Fla., and N. May Karff of Boston.

The United States was soundly beaten, 15½ to 4½, in a ten-man radio match with Russia. Extensive international competition was planned for 1946, including tentative arrangements for a



U.S. team to play in Russia. The board of directors of the U.S. Chess federation also announced the first world chess tournament after 1939 would be held in 1946 in Buenos Aires, Argentina. Dr. Alexander Alekhine of Paris won the world tournament in 1939.

(M. P. W.)

**Chiang Kai-shek** (1887- ), Chinese statesman and soldier, was born Oct. 31 at Feng-hwa, Chekiang. As president of the Chinese republic, commander in chief of all military forces and director general of the Kuomintang, devoting his life to China's struggle for independence and freedom and leading the Chinese people through black and helpless days and eight long years of resistance against aggression, he was greatly gratified and elated with Japan's acceptance of the unconditional surrender terms laid down in the Potsdam proclamation. In his victory message of Aug. 15, 1945, Chiang stated that the Chinese faith in justice had been rewarded. However, as a realist, Chiang regarded victory as not yet final and was fully aware of the difficult problems of national unity and reconstruction confronting him. Determined to preserve national unity and terminate the period of political tutelage, he announced in his 1945 New Year's message that a constitutional government should be established before the end of the war instead of within one year after the war. In an interview on Jan. 18 of that year Chiang reiterated that the differences between the government and the communists would be settled peaceably and added that there would be no civil war so long as he was head of the government. After the breakdown of the negotiations between the government and the communists, Chiang declared on March 1 that, "Today, but for the Communists and their armed forces, we are a united nation." Rejecting the communist proposal of a coalition government, Chiang urged the communists to incorporate their army and local administration into the national army and government. This speech evoked an open attack by the communists. This was the first time during World War II that any group publicly denounced Chiang. Upon Chiang's repeated invitations, Mao Tse-tung, the communist leader, arrived in Chungking on Aug. 28 to negotiate. As the year ended Chiang's passionate desire to create a united, strong and democratic China was far from

fulfilled.

Chiang was educated in China and Japan and rapidly rose to power after 1926. In 1927 he married Mei-ling Soong and established the national government in Nanking following his split with the Chinese communists. After 1927 Chiang was continuously in power, and through the eight years of war he was the leader and symbol of a resurgent China. (See also CHINA.)

**BIBLIOGRAPHY.**—Chiang Kai-shek, *Resistance and Reconstruction* (speeches 1937-43) and *Before Final Victory* (speeches 1943-44); R. Berkov, *Strong Man of China*; Hollington Tong, *Chiang Kai-shek*. (H. T. CH.)

**Chicago.** Second largest U.S. city, a port of entry and the county seat of Cook county, Ill., at the southwest corner of Lake Michigan, Chicago is the largest centre of U.S. rail traffic and of long-distance air routes. Mayor in 1945: Edward J. Kelly.

The population of the city proper by the federal census of 1940 was 3,396,808. The white population numbered 3,115,379; non-white, 281,429. The population of the 1,119 sq.mi. comprising the metropolitan district was 4,499,126.

Combined civilian and military population of the Chicago area was estimated at 4,850,000 at the end of 1944 by the federal reserve bank. Return of approximately one-third of the 450,000 persons who entered the armed forces from the Chicago area was offset by departures of civilians leaving war industries and by reduction of military establishments.

Demobilization and reconversion of war industries had reduced the total working force of the area from 2,300,000 on Jan. 1, 1945, to 2,262,000 on V-J day. The industrial force had increased by 1,880,000 from 1940 to the end of World War II. Industrial output in the same period had increased 200%.

At the end of 1945 rapid progress had been made in turning industries to peacetime production and employment had steadied. Lack of building materials retarded construction, however, and the city suffered a severe housing shortage.

Strikes increased sharply after V-J day. During 1945, 178,000 workers were on strike in 415 plants compared with 80,500 in 233 plants in 1944. Most of the strikes were of short duration and orderly. Of those who walked out, 114,260 were members of the C.I.O., 48,168 of the A.F. of L., 15,505 of independent unions and 728 of no union affiliation. The most serious disturbance was from the strike of an independent teamsters union which tied up 6,000 trucks for 11 days. This strike was put down by the army which moved in troops and manned trucks.

Paralleling industrial growth, the city's financial resources were largely enhanced. At the close of 1945 Chicago bank deposits totalled \$8,597,676,000, nearly \$1,000,000,000 more than in 1944. Savings deposits amounted to \$1,270,969,000 showing a gain of \$279,000,000 during the year.

Chicago crimes in 1945 numbered 38,533, an increase of 10% over 1944. Murders numbered 204, only two more than in 1944, but rapes increased to 310 from 264 and burglaries from 9,502 to 10,962.

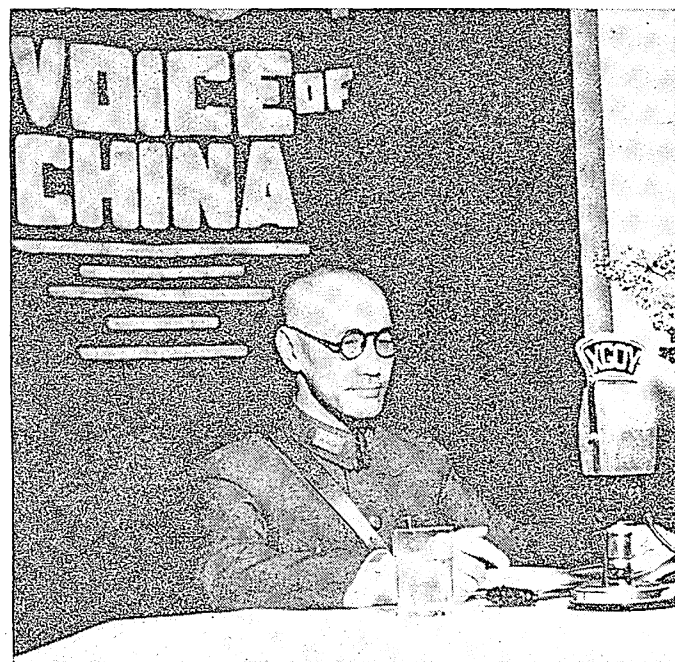
The divorce suits filed in 1945 exceeded all previous yearly records, totalling 19,430 or 15% more than in 1944. Decrees exceeded the number granted in any other year by 1,000.

By a vote of 285,596 to 46,594 the people on June 8 established a Metropolitan Transit authority to buy and operate the city's bus lines, street railways, subways and elevated lines. At the close of 1945 negotiations were virtually complete for the inauguration of municipal ownership.

At the same election the park board was authorized to provide 23 additional large parks, 127 20-acre playgrounds and 560 smaller play spots at an ultimate cost of \$60,000,000 for the 15,000 ac. involved.

The city's policy of providing free lodgings, food and transit

GENERALISSIMO CHIANG KAI-SHEK, broadcasting over the "Voice of China" on Aug. 15, 1945, announced the surrender of Japan and an end to eight years of war with Japan



to members of the armed forces was continued throughout 1945 and a total of 19,000,000 visits to U.S.O. centres had been attained by Dec. 22, 1945.

Budgets for the various branches of municipal government for 1946 were set as follows: city operating budget \$69,397,488; school board \$78,879,654; park board \$23,390,822; sanitary district \$59,453,669 (including \$25,359,161 new construction); Cook county \$25,688,000. Long range projects under way in the Chicago area under joint city and state auspices included highway reconstruction \$287,219,500; Congress street super highway \$45,000,000; new airport \$40,000,000. (L. H. L.)

**Chicago, University of.** An institution of higher education and research in Chicago, Ill. Founded in 1891, the university is privately endowed, co-educational and nonsectarian. In the academic year 1944-45, the university conferred 1,111 degrees, of which 585 were bachelor's (including 231 bachelor's degrees for general education conferred by the college, which admits students into its four-year program after the sophomore year of high school); 258 were master's degrees in the arts and sciences; 72 were doctor of philosophy degrees; and 196 were professional degrees in business administration, divinity, law, medicine and library science.

After exclusion of income from auxiliary enterprises and restricted expendable funds, as well as most of the income received and paid out on numerous contracts with the United States government for war purposes (all nonprofit undertakings) the estimated regular budget income for the year 1945-46 was \$10,296,491, an increase of \$1,293,706 over the previous year's actual income of \$9,002,785. The total current income for the year 1944-45, before the exclusions mentioned above, was \$32,616,357. Gifts for all purposes for 1944-45 amounted to \$2,361,944, an increase of 28.9%. Endowment funds as of June 30, 1944, were \$70,856,444; and the book value of all university assets was \$136,626,038.

After the atomic bombs were dropped on Japan, the U.S. war department revealed that the University of Chicago, through its metallurgical laboratory, was one of the major centres of research in the development of the bomb. This work, of the most secret nature, was first carried on under the auspices of the Office of Scientific Research and Development and later under the Manhattan district of the army engineers. The atomic age began Dec. 2, 1942, when physicists achieved release of atomic energy in a self-sustaining nuclear chain-reacting pile in a squash rackets court in the west stand of Stagg field. Operated at a low level, this pile served as the prototype of a pilot plant at Oak Ridge, Tenn., and of the vast production plant at Hanford, Wash. The metallurgical laboratory, directed by Arthur H. Compton, Nobel prize winner, and Charles H. Swift, distinguished service professor of physics, engaged the services of most of the members of the university's department of physics and chemistry, but it was fundamentally a great co-operative effort of the army, university scientists and industrial organizations of the U.S., engineers, industry and public agencies. Members of the metallurgical laboratory, in addition to their key achievement of the self-sustaining pile, determined the chemical properties of plutonium; devised a method of its chemical separation from uranium and fission products and in general solved the problems involved in mass production of plutonium. All this work was carried on with submicroscopic amounts of plutonium by means of "tracer" chemistry, and the step from this laboratory study to the design of the Hanford works based on it was of the order of 10,000,000,000 times. In the laboratory, Dr. Glenn T. Seaborg of the University of California and others identified two new transuranic elements, numbers 95 and 96. In

addition to directing the metallurgical laboratory, the University of Chicago operated a pilot plant on a site made available to the government by the Cook county board of forest preserve commissioners; operated the Clinton semiworks at Oak Ridge; and co-operated with the DuPont company in designing the production plant at Hanford.

Because of the important implications of the work in nucleonics, not only in nuclear energy, but in biology, medicine and other areas, the university made plans to continue fundamental research in this field. It organized the Institute of Nuclear Studies and appointed to it Enrico Fermi, professor of physics, who won the Nobel prize for his studies of the atom; Harold C. Urey, professor of chemistry, Nobel prize winner for his work on heavy water; Edward Teller, professor of physics, from George Washington university; Walter H. Zinn, associate professor of physics, College of the City of New York; Maria G. Mayer, research associate in physics, from Columbia university; Philip W. Schutz, professor of chemical engineering, from Columbia university and others. Samuel K. Allison, member of the Chicago faculty from 1929 and professor of physics, was made director. Two other organizations were formed, the Institute of Radiobiology and Biophysics, directed by Raymond E. Zirkle, professor of botany, and the Institute of Metals, directed by Cyril Smith, formerly research metallurgist of the American Brass company.

During 1945 an administrative reorganization of the university was effected to form a central administration office which would enable the university to deal more efficiently with the many matters an institution of its size faces. Robert M. Hutchins, president, was made chancellor of the university and its principal officer; Ernest C. Colwell, formerly vice-president, was elected president; Reuben G. Gustavson, formerly president of the University of Colorado, was named vice-president and dean of faculties; Wilbur C. Munnecke continued as vice-president in charge of business affairs; and Neil H. Jacoby, formerly secretary of the university, was made vice-president in charge of development. William Benton, formerly vice-president, was elected assistant to the chancellor at his request, because of numerous activities off campus, but shortly after his election resigned to become assistant U.S. secretary of state.

In the area of academic administration, a new constitution was adopted which added to the university senate, formerly limited to full professors, the associate professors and those of the assistant professors who had been faculty members for three years.

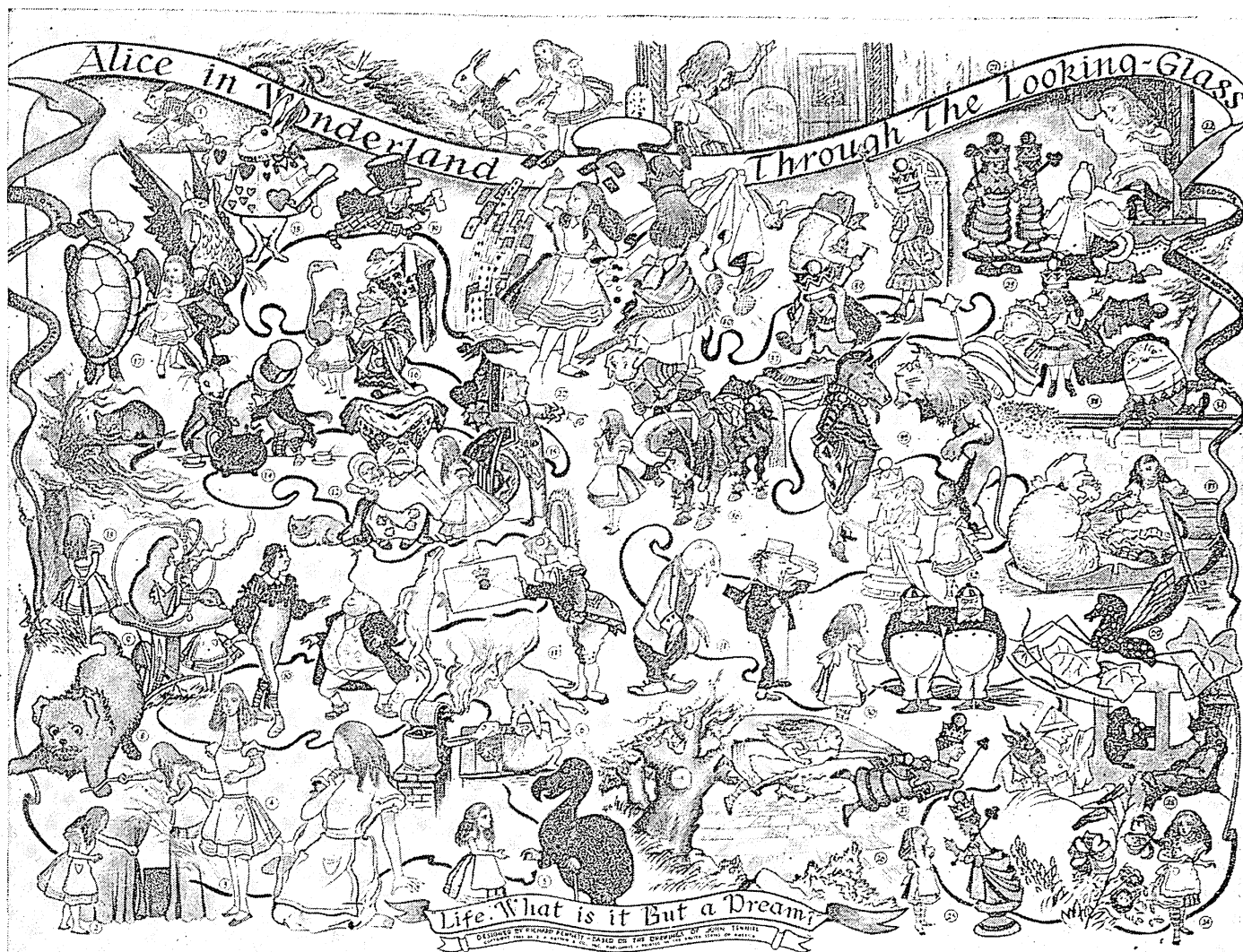
Because of rising costs, the university in June 1945 increased tuition rates on an average of 10%, and consolidated incidental student fees. One of the most pressing of the postwar problems was that of providing housing for the number of students seeking entrance. Despite energetic efforts, it was impossible to provide living quarters for all of the students qualified to enter. The number of veterans registering in the autumn quarter under the "G. I. Bill of Rights" was 514, and under the Vocational Rehabilitation bill was 38.

(For additional statistics of enrolment, faculty members, endowment, library volumes, etc., see UNIVERSITIES AND COLLEGES.)

**Chiefs of Staff, The Combined:** see COMBINED CHIEFS OF STAFF, THE.

**Child Labour:** see CHILD WELFARE.

**Children's Books.** Children's book publishing in the United States during 1945 exceeded that of 1944, in the first 11 months of the year, by less than a score of titles, for in 1945 there were 604 juvenile books pub-



Map of *Alice in Wonderland* and *Through the Looking Glass*, designed by Richard Bennett and published and copyrighted in 1945. The drawings are based on those of John Tenniel and follow Alice's adventures, which are numbered and identified by quotations below the map (quotations not given here)

lished as against 585 in 1944. The wartime format remained much the same, the poorer quality of paper, narrow margins and thinness in the physical size of books for older children, but colour predominated in the picture books. Outstanding in the effective use of colour were *Little Lost Lamb* by Golden MacDonald, *Into the Ark* by Marjorie Hartwell and *The Little Fisherman* by Margaret Wise Brown. Picture story books were Winifred Bromhall's *Belinda's New Shoes*, Elizabeth Hamilton's *The P-Zoo* and Dorothy Lathrop's *The Skittle-Skattle Monkey*. Two picture books had a Russian theme, Rebecca Reyher's *My Mother Is the Most Beautiful Woman in the World* and Lee Kingman's *Ilenka*. The train-minded boy enjoyed *Railroad ABC* by Jack Townend, *Clear the Track* by Louis Slobodkin and *The Little Red Engine Gets a Name* by Diana Ross.

An interest in the daily activities of children of other countries was reflected in *Little Boat Boy* by Jean Bothwell, *Jungle Boy* by Lysle Carveth and *Gold of Glanaree* by Maura Laverty. The beginning of the China trade was told by Carl Carmer in *Wildcat Furs to China*, while the U.S. in the early 1900s was found in *Sibby Botherbox* by Mabel Leigh Hunt and *Strawberry Girl* by Lois Lenski. Family life in the U.S. characterized *The Burro of Barneget Road* by Delia Goetz and *The Mitchells* by Hilda Van Stockum; Maine was the setting for Berta and Elmer Hader's *Rainbow's End* and humour was the keynote of Phil Stong's *Censored, the Goat* and Myra Richardson's *The Mule Skinners*.

Older boys read *Smoke Jumper* by Marjorie Hill Allee and *Wings over the Desert* by Graham Dean, while their preference for dog stories was satisfied with *Brave Companions* by Ruth Knight and Stephen Meader's *Skipper's Family*.

Historical stories for older boys had a wide range in period, witness Herbert Best's *Border Iron*, Katharine Gibson's *Arrow Fly Home* and Magdalen King-Hall's *Sturdy Rogue*. Girls enjoyed stories of the U.S. past in *Harvest of the Hudson* by Erick Berry, *Jonica's Island* by Gladys Malvern and *The Year Without a Summer* by Ethel Parton, as well as in Martha Kiser's *Sylvia Sings of Apples* and in Marjorie Hayes' *Green Peace*.

Two books of special interest were Steingrímur Arason's *Golden Hair* and Florence Hayes' *The Eskimo Hunter*, while Evelyn Stefansson's *Within the Circle* covered the Arctic regions.

The desire for stories of girls of today was met by Adele DeLeeuw's *With a High Heart*, Mary Margaret McBride's *Tune in for Elizabeth* and Noel Streatfield's *Theatre Shoes*, as well as by Elizabeth Janet Gray's *Sandy*.

The World War II background was found in *Heroes in Plenty* by Theodora Dubois and *Reunion in Poland* by Jean Karsavina.

*Here Is India* by Jean Kennedy and *The Land and the People of India* by Manorama Modak were timely. Cornelia Spencer in *The Land of the Chinese People* and Katherine Shippen in *New Found World* contributed two notable books on China and South America. The interest in nonfiction was further evidenced by Jeanne Bendick's *Making the Movies*, John Floherty's *Flowing Gold*, Jo and Ernest Norling's *Pogo's Mining Trip* and Alex



Novikoff's *Climbing Our Family Tree*. Lena Barksdale's *That Country Called Virginia* was a regional history. Animals and nature were the subject of Clarence Anderson's *A Touch of Greatness* (horses), Gladys Cook's *American Champions* (dogs), Dorothy Hogner's *Farm Animals* and Jannette Lucas' *Indian Harvest*.

The field of biography stretched from *Lenin* by Nina Brown Baker, *Garibaldi* by Jean Burton, *American Emperor*, the story of Dom Pedro II of Brazil by Rose Brown, to Daniel Webster in *Keep My Flag Flying* by Mary Carroll, Patrick Henry in *Son of Thunder* by Julia Carson and Joseph Jefferson in *Good Troupers All* by Gladys Malvern. Laura Long's *Square Sails and Spice Islands* was of the Perry family, Arna Bontemps's *We Have Tomorrow* was short biographies of 12 outstanding Negroes and Charlie May Simon's *Art in the New Land* presented sketches of 16 U.S. artists.

Tolerance, understanding of minority groups and democracy at work characterized books from the youngest to the oldest reader, as in Lorraine and Jerrold Beim's *Two Is a Team*, Georgene Faulkner's *Melindy's Medal* and Jesse Jackson's *Call Me Charley*. Irmengarde Eberle's *The Very Good Neighbors*, Doris Gates' *North Fork* and Florence Crannell Means' *The Moved-Outers* were sincere and forthright. John Tunis wrote *A City for Lincoln* and the Literature committee of the Association for Childhood Education edited *Told Under the Stars and Stripes*. Art by children in Russia was the theme of *Little People in a Big Country* by Norma Cohn. A dramatization of *Caddie Woodlawn* by Carol Brink and an anthology *Very Young Verses* by Barbara Geismer and Antoinette Suter further reflected the arts. *You Can Write Chinese* by Kurt Wiese, *Let's Do Better* by Munro Leaf and *We Are the Government* by Mary Elting satisfied a variety of interests.

Modern tales of whimsy and magic were *The Plain Princess* by Phyllis McGinley and *Stuart Little* by E. B. White. Traditional folk literature was represented by 9 *Cry-Baby Dolls* by Josephine Bernhard, *John Henry and the Double Jointed Steam Drill* by Irwin Shapiro, *True and Untrue* by Sigrid Undset and *Koos the Hottentot* by Josef Marais. (See also BOOK PUBLISHING; PRIZES OF 1945.) (E. A. Gs.)

**Children's Bureau, United States:** see CHILD WELFARE.

## Child Welfare.

The devastating effect of the war on children was summed up at the International Labour conference (Paris) in the fall of 1945 in the following words:

"Millions of children have died under enemy oppression and millions of others face a seriously compromised future since, in each of the occupied countries, countless numbers of children and young people have suffered from undernourishment and neglect, from the loss of parents, friends and homes, from the horrors of concentration camps and the slavery of labour camps, from the complete lack of opportunities for educational, social and cultural development, or, uprooted from their own countries, have lost their nationality and even their identity."

Moreover, because of disrupted transportation facilities, lack of machinery and the physical and spiritual exhaustion of the people, relief and reconstruction proceeded slowly for the most part in war-torn areas and the sufferings of the war years continued.

The United Nations Relief and Rehabilitation administration, operating in central, eastern and southern Europe, supplied food, drugs, seeds and other necessities; it maintained camps for displaced persons; it took measures for the improvement of public health; and it established milk stations, day nurseries, children's hostels and welfare stations for mothers and children. It also sent emergency relief supplies to Belgium, France, Luxembourg, Netherlands and Norway and to China and the Philippines, assisted in procuring supplies for countries not requir-

ing its financial assistance, such as Denmark and administered camps for displaced persons in Germany and the middle east.

The Food and Agriculture Organization of the United Nations, first permanent United Nations organization to be established, aimed through developing an adequate and suitable food supply for all peoples, to improve the average health, eliminate deficiency diseases and further decrease maternal and infant mortality.

**In Countries Devastated by War.—Belgium.**—Although underfeeding, tuberculosis, forced labour and other conditions associated with war and armed occupation had serious effects on children and young people, rapid progress was being made by Belgium in reconstruction by the fall of 1945. One measure of value for children was a social-insurance order effective on Jan. 1, 1945, raising allowances for children, with double benefits for orphaned children.

**China.**—It was estimated in the spring of 1945, that there were 84,000,000 displaced persons, many of them children, in China. The government had set up institutions caring for 200,000 children, and industrial co-operatives were caring for 500,000 refugee children. A hundred thousand tons of food, clothing and medicines supplied by U.N.R.R.A. reached Chinese ports about the end of 1945.

**France.**—A slight improvement over the winter of 1944-45 was noted in the fall of 1945, in France, but there was still a great shortage of fuel, food and other necessities. Infant mortality was from two to three times higher than before the war. Grave malnutrition and tuberculosis were prevalent. To check the spread of tuberculosis the government ordered periodic physical examination of all school children. Of great concern was the social maladjustment among adolescents. To check juvenile delinquency a law of 1945 provided for separate juvenile courts, the appointment of trained probation officers and the use of educational measures instead of penalties. A department of families and population was established in 1945. Provision was made for larger family allowances and for an increase in the birth bonus for the first child in a family.

**Germany.**—In Germany, where the university towns of Heidelberg and Bonn only were spared destruction by bombing, the urban population struggled to exist in the midst of rubble and ruin. Minimum rations were issued to civilians by military authorities and relief organizations. Some 1,300,000 displaced persons, including about 100,000 children under 14, were still in assembly centres under the care of U.N.R.R.A. in the fall of 1945.

**Great Britain.**—The raising of the school-leaving age in England and Wales to 15 years, as prescribed by the Education act of 1944, was postponed until April 1, 1947, because of the shortage of teachers and of school accommodations. In Scotland the Education act, 1945, provided for the raising of the school-leaving age to 15 years on April 1, 1946, and to 16 years subsequently, and the education authorities were required to prohibit or restrict the employment of children of school age. The British Family Allowances act of 1945 provided for payment to the parents of an allowance of five shillings a week for each child, except the first, below school-leaving age. In Dec. 1945 announcement was made that compulsory registration of 16-year-old boys and girls for premilitary training and service was discontinued. Strict rationing of food and clothing was continued.

**Greece.**—In Greece, victim of three successive military occupations and of civil war, out of 7,500,000 inhabitants, 1,200,000 were homeless, 400,000 had tuberculosis and 2,500,000 had malaria, according to government reports in the fall of 1945. U.N.R.R.A. assumed responsibility for relief and rehabilitation in Greece in April 1945. In addition to procuring and distribut-

ing food and clothing for children, U.N.R.R.A. assigned two child-welfare specialists to help the Greek ministry of social welfare organize a bureau of child welfare. A technical committee on child welfare was also set up to co-ordinate services for children. Colonies for debilitated children were opened where 35,000 children at a time could spend three weeks.

*Italy.*—Many Italian towns were practically demolished, leaving 8,500,000 people homeless, according to the Italian government delegate to the International Labour conference in Oct. 1945. Shortages of raw materials, wheat and fuel were serious. Many schools had been requisitioned, and young people were finding great difficulty in readjusting themselves to school life. Juvenile vagrancy was a serious problem in cities. Attempts were being made to improve the condition of nonagricultural workers by granting a cost-of-living allowance to their dependents. Italy was receiving assistance from U.N.R.R.A. including extensive school-lunch and other feeding programs for children and pregnant women.

*Netherlands.*—Although the Netherlands made rapid strides in recovering from the terrible winter of 1944-45 when the Germans flooded extensive territory and civilian transport was paralyzed by a railway strike undertaken voluntarily in co-operation with the Allied military authorities, acute shortages still existed in housing, fuel and food in the fall of 1945. Infant mortality was said to be nearly four times the normal figure.

*Philippine Islands.*—As a result of the Japanese occupation of the Philippines, livestock and fishing boats and gear were lost and food production was greatly reduced. After liberation

the Philippine government administered relief with the co-operation of the U.S. military forces. During the spring of 1945 approximately 7,000 U.S. citizens, including some children, were repatriated from the Philippines. They received immediate assistance in the form of cash, clothing, medical care, transportation, living quarters and counselling services through the Social Security board's civilian war-assistance program administered by state public welfare agencies with the assistance of the American Red Cross.

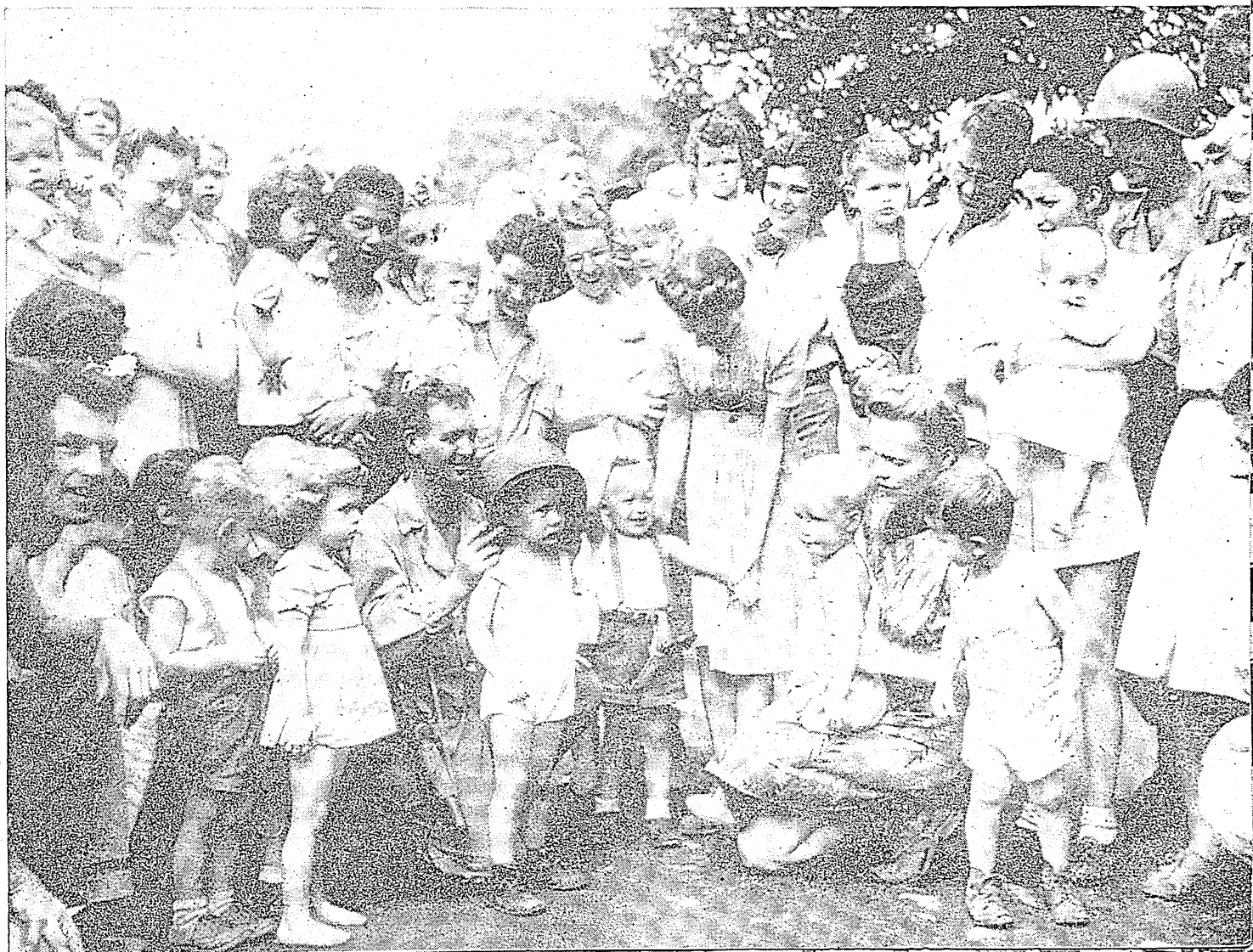
*Poland.*—The Polish minister of labour and social welfare reported in Oct. 1945 that of Poland's 7,000,000 children under 14 years of age, 650,000 were full orphans; 300,000 were separated from their parents, many of whom had presumably perished; 1,000,000 had lost one parent; and 2,000,000 children with their parents were in need of food and clothing.

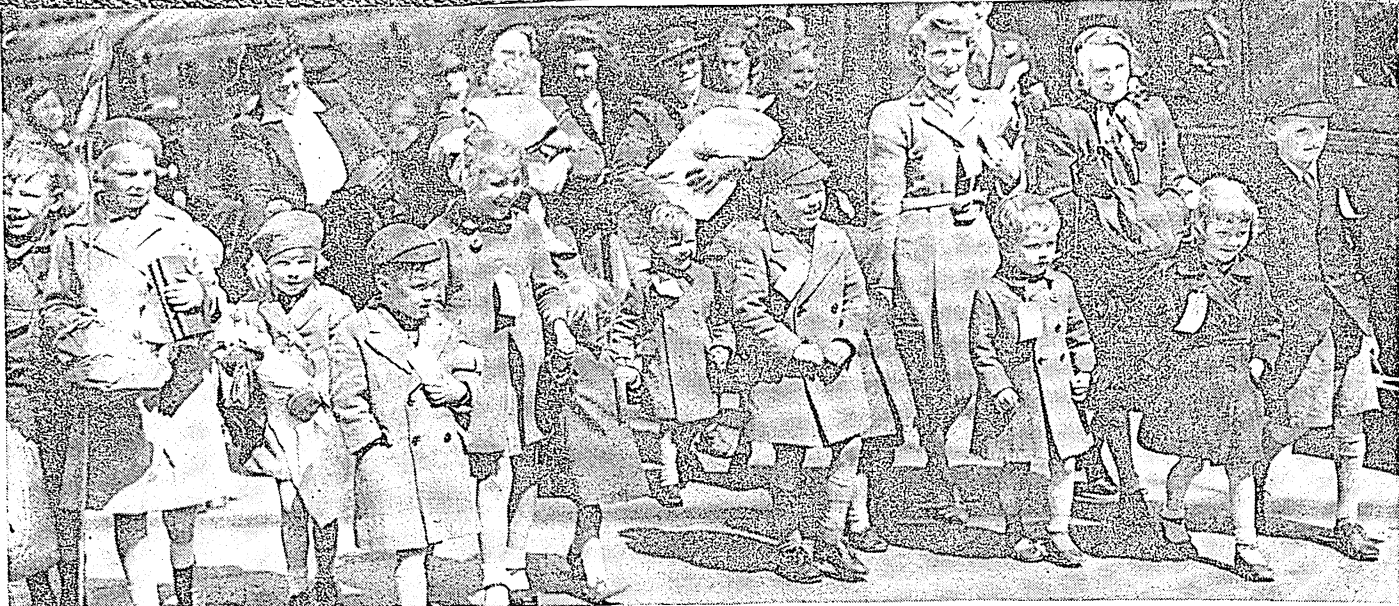
*Soviet Union.*—In the soviet union 11,000 maternity beds, 28,000 places in day nurseries and 1,500 health centres for mothers and children were added to existing facilities. Medical supervision of expectant mothers was made available earlier in pregnancy than had been the practice. The opening of a new type of maternity home, "the home for the mother and child" was reported, where women could stay three months before childbirth and three months afterward with their babies. Committees on children's vacation camps were set up as agencies of the municipal governments. To protect the health of employed youth a census of young workers was taken in many localities, physicians were appointed to give them periodic examinations and care for their health, medical treatment was provided if necessary and measures were taken to improve their living conditions. The civilian food situation improved somewhat in 1945 and further improvement was expected during the first half of 1946.

In the Americas.—Fortunate enough to escape both bombing and military occupation, the children of the Americas nevertheless felt the impact of war through food restrictions, through housing shortages, through family strains and dislocations and in many cases through the death or injury of the father or other relative in the armed forces. Even before the end of the war, however, plans were afoot to improve the health and welfare of children in the postwar period.

Two inter-American conferences were held at which child welfare was a subject of consideration: the First Pan American Congress of Social Service in Santiago, Chile, Sept. 1945, and the Inter-American Conference on Problems of War and Peace (g.v.) held in Mexico City, Feb. 21 to March 8, 1945. The declaration of social principles of America,

AMERICAN CHILDREN, born in Bilibid prison, Manila, are shown with their mothers who were liberated by U.S. troops early in 1945 after three years' internment





BRITISH EVACUEES arriving in London after the close of the war in 1945. More than 100,000 women and children were being brought back to their homes from the Midlands and north England after a five-year absence. Some of these children saw London for the first time

adopted by the Conference on Problems of War and Peace, contained basic precepts fundamental to family life and to the welfare of children.

**Argentina.**—In Argentina the national bureau of public health was reorganized and its activities extended to the entire country. The reorganized bureau's duties included enforcement of laws for the protection of health; organization of a nationwide system of registration of vital statistics; and measures in the field of maternal and child health. A division of aid to school children was set up in the department of labour and social welfare to administer medical and dental care and a feeding program for school children.

**Brazil.**—In Brazil the service of assistance to minors in the ministry of justice and interior was reorganized, and its functions were expanded to include study of cases referred to it by any juvenile court in the country, medical treatment and rehabilitation measures and supervision of public and private institutions for dependent children. A decree of 1945 ordered the establishment of a national nutrition commission in Brazil to study the eating habits of the people and to promote dietary improvements.

**Canada.**—Canadian children under 16 became entitled to receive a monthly allowance payable to either parent, under the Canadian Family Allowances act of Aug. 1944, effective July 1, 1945. About 3,500,000 children were estimated to be eligible. Rationing of meat was resumed in Sept. 1945 in order to release as much as possible for shipment to Europe.

**Mexico.**—A campaign on behalf of malnourished children was begun in Mexico under the leadership of the federal bureau of child health and welfare. Plans were made to establish clinics for malnourished children from low-income families. The first Mexican institution for tuberculous children was opened in Mexico City.

**Peru.**—The first of a proposed series of maternal and child-health stations in rural districts of Peru was opened in the town of Tingo Maria with a graduate child-health worker, a midwife and two assistants.

**United States.**—*Special Wartime Programs for Children.*—The children's bureau program of emergency maternity and infant care for wives and infants of men in the four lowest pay grades of the armed forces and of aviation cadets continued throughout the year. The total number of cases authorized for care from the time of the first appropriation in March 1943, through Nov. 1945 was more than 1,065,000 (938,000 maternity cases and 127,000 pediatric cases). During the year ended June 30, 1945, the number of cases authorized for care was 484,000. This program was administered by state health departments with funds appropriated by congress to the children's bureau amounting to \$45,000,000 for the year ended June 30, 1945, and \$44,189,500 for the ensuing year.

The nursery schools and child-care centres, financed in part through funds from the Federal Works agency under the Community Facilities (Lanham) act, continued to operate throughout 1945, although their existence was threatened when the Federal Works agency announced in August that all wartime grants under the act must be discontinued as of Oct. 31, 1945. Their existence through Feb. 1946 was assured, however, when in response to requests from individuals, women's groups and organized labour, the president asked congress to allow the Federal Works agency to use sufficient funds to carry them through the emergency period. On June 30, 1945, there were 2,892 of these projects in operation, with an enrolment of more than 107,000 children.

The number of children receiving allowances under the Servicemen's Dependents Allowance act increased throughout the war period, reaching approximately 3,500,000 by June 1945.

Some 140,000 children of men in the armed forces were receiving payments through the Veterans' administration in June 1945 on account of the death of their fathers.

**Social Security Programs.**—The federal and state co-operative programs for children established in 1935 under the Social Security act and administered by the children's bureau of the U.S. department of labour continued in operation, although the volume of services provided during the war period was impaired by the shortages in personnel. The programs included federal grants to the states for maternal and child-health services (title V, part 1), services for crippled children (title V, part 2) and child-welfare services (title V, part 3). Basic services were maintained in every state under all three programs, except that Utah did not participate in

the program of child-welfare services. Payments to state health and welfare agencies from federal funds during the year ended June 30, 1945, were as follows:

Maternal and child-health services.....	\$5,553,000
Services for crippled children.....	3,874,000
Child-welfare services .....	1,366,000

In all cases these funds were supplemented or matched in large part by state and local funds so that the federal grants by no means represented the total amounts spent for the programs.

Under the program of aid to dependent children administered by the Social Security board of the Federal Security agency under title IV of the Social Security act, some 647,000 children received allowances totalling \$12,300,000 in Aug. 1945, with the federal government reimbursing state departments of public welfare for 50% of payments up to \$18 a month for the first child and \$12 for each additional child in a family. Through old-age and survivors insurance benefits (title II of the Social Security act), also administered by the Social Security board, 356,000 children who were survivors of insured persons were receiving monthly payments totalling over \$4,416,000 in Aug. 1945.

**Vital Statistics.**—The bureau of the census reported continued lowering of infant and maternal mortality rates in 1944. The infant mortality rate, based on deaths of infants under 1 year of age, dropped from 40.4 per 1,000 live births in 1943 to 39.8 in 1944. The maternal mortality rate fell from 24.5 per 10,000 live births in 1943 to 22.8 in 1944, establishing the lowest rate on record for the U.S. The live birth rate for 1944 was 20.2 per 1,000 population. This was somewhat below the 1943 rate of 21.5 but was higher than for any year from 1928 to 1941.

**Juvenile Delinquency.**—Indications that state and local efforts to prevent juvenile delinquency and to control community influences detrimental to youth were meeting with some success began to appear. Preliminary reports for 1944 from 225 juvenile courts reporting to the children's bureau showed a decrease of 5% in the number of delinquency cases disposed of. Widespread public concern over the detention of children in jails was apparent and many communities undertook to study the problem and take steps to meet it. The National Probation association began a study of types of detention care and practice in selected communities.

**Adoption and Illegitimacy.**—Disclosure of adoption abuses resulted in increased public interest in adoption procedures and their control. Of special concern were the problems of unsupervised placement of babies by private individuals, sometimes for profit; reports of the birth of babies outside of wedlock to married women whose husbands were serving overseas; placement of children across state and national boundary lines; and the shortage of facilities and unevenness of standards of service for unmarried mothers. Services for Negro mothers and their children were especially inadequate. Adoption petitions were filed for some 50,000 children during 1944 in the country as a whole, according to estimates of the children's bureau based on information submitted by some 26 state welfare departments. Fully half of these children were being adopted by step-parents or other relatives. In more than one-third of the other cases the children were placed through some responsible agency. This left a large group, almost two-thirds of the children who were being adopted by nonrelated persons, in whose placement no authorized agency had a hand—children given away or even sold without proper consideration of parental rights, investigation of the placement or any record being kept of the child's identity.

About 60% of the children being adopted in 1944 were born out of wedlock. Ten states did not include the item of legitimacy on the birth certificates, yet the number of illegitimate births reported to the bureau of the census in an average year was approximately 80,000. There were signs of an increase in the actual number of illegitimate births during the war years, but because of the great increase in the total number of births, the ratio of illegitimate births to total births decreased somewhat. The children's bureau worked with state welfare departments and other agencies to improve standards of care and supervision and prepared for their use materials on adoption laws and procedures and, in collaboration with the Social Security board and the American Red Cross, on services for unmarried mothers and their children.

**Youth Employment.**—Some 3,000,000 boys and girls 14 through 17 years of age were at work in April 1945, according to estimates based



on sample labour-force surveys made by the bureau of the census. This was approximately the same as the number at work in April 1944 and three times as many as the number recorded by the census of 1940. Half were working full time and not attending school, and half were working in addition to attending school. Nearly one-third of the 3,000,000 were under 16 years of age. During the peak of summer employment the number of young workers rose to between 4,000,000 and 5,000,000, as in previous war years. No official records were available of children under 14 who were at work, either during the summer or during the school year.

Illegal employment of children and youth continued to increase, as indicated by reports of child-labour inspections under the child-labour provisions of the Fair Labor Standards act of 1938, administered by the children's bureau of the U.S. department of labour. Violations of the child-labour provisions, which set a minimum age of 16 for employment in establishments producing goods for shipment in interstate or foreign commerce, with limited employment in nonmanufacturing and nonmining occupations permitted for 14- and 15-year-olds outside school hours and employment in occupations found by the chief of the children's bureau to be particularly hazardous for minors prohibited under 18 years, were reported in 3,481 establishments in the year ended June 30, 1945, an increase of 18.5% from 1944. The number of minors found to be illegally employed in the year ended June 30, 1945, was 13,289, an increase of 57.5% from 1944. Industrial injuries to minors increased greatly during the war period in states for which figures were available, and involved illegal employment of children in many cases.

In 1945, as in the two previous years, the children's bureau and the U.S. Office of Education took the lead in sponsoring a back-to-school campaign to encourage school attendance and to persuade high-school students holding summer jobs to return to school in the fall. The drive was supported by other federal agencies, by state agencies and by private national organizations. Early reports indicated that the downward trend in high-school enrolment had been checked and some increases were evident.

Planning for the postwar needs of students and employed and unemployed young people was undertaken by an interagency committee on youth employment and education. Among the subjects under consideration by the committee, of which the chief of the children's bureau was chairman, were student-aid programs, provision for educational and work opportunities, placement services and guidance and counselling.

**Building the Future.**—Next steps for children and youth in the U.S. during the postwar period were outlined by the National Commission on Children in Wartime, appointed by the chief of the children's bureau, in a report, *Building the Future for Children and Youth*, issued in April 1945. This report was based on recommendations of the children's bureau advisory committees on maternal and child health, on social services for children and on the protection of young workers; and on a statement on the co-ordination of mental-hygiene programs for children and youth issued by a joint committee representing professional societies in the mental-hygiene field. It called for the extension of federal and state health and welfare programs for children and of social-insurance programs contributing to family support; recommended federal aid for education and state legislation to improve adoption laws and establish a state 16-year minimum age for employment; outlined proposals for state and community planning for children and youth; and recommended immediate intensive study of mental-hygiene programs, guardianship laws and practices, leisure-time services and a program for youth during the reconversion period. Several states appointed commissions with broad responsibilities for planning for children and youth.

International planning for child welfare was included in a conference in May 1945, held at the invitation of the International Labour office. Child-welfare experts from some 11 countries met in Montreal, Canada, to prepare material for discussion at the 27th session of the International Labour conference, which was held in Paris, Oct. 15 to Nov. 5, 1945. The Paris conference affirmed its deep interest in the welfare of children and young persons and adopted a draft resolution presented by a special committee on the protection of children and young workers. This resolution urged the governments, while encouraging individuals and families to fulfil their obligations to the fullest extent, to accept responsibility for assuring the health, welfare and education of all children and young persons and the protection of all youthful workers of either sex, regardless of race, creed, colour or family circumstances, both through national action and through international co-operation. The resolution included recommendations on family income, security, medical care and health services, social services and educational opportunities. It also urged a 16-year minimum age for admission to employment with school attendance required to the same age, strict regulation of hours of employment and prohibition of night work, special protection from hazardous work, requirement of work permits, provision of placement services, vocational guidance and suitable work opportunities and payment of wages commensurate with the work performed. It recognized, however, that in some countries these were objectives that must be approached step by step. (See also BIRTH STATISTICS; CENSUS DATA, 1945; CRIME; FEDERAL BUREAU OF INVESTIGATION; INFANT MORTALITY; MARRIAGE AND DIVORCE; SOCIAL SECURITY.)

**BIBLIOGRAPHY.**—International Labour Conference, *Provisional Record, Twenty-seventh Session*, Paris, No. 34 (Nov. 1945); United Nations Relief and Rehabilitation Administration, *Report of the Director General to the Council for the Period 1 April 1945 to 30 June 1945* (Washington, D.C.); *Noticario del Instituto Internacional Americano de Protección a la Infancia* (Feb. 1945 Montevideo, Uruguay); U.S. Department of Agriculture, *World Food Situation in 1945-46*, Office of Foreign Agricultural Relations (Oct. 1945); U.S. Department of Labour, *Annual Report of the Chief of the Children's Bureau to the Secretary of Labor, Fiscal Year Ended June 30, 1945*; "Building the Future for Children and Youth"—*Next Steps Proposed by the National Commission on Children in Wartime* (April 1945) (Children's Bureau Pub. 310); *The Child*, monthly bulletin of the Children's Bureau (issues of 1945);

*Monthly Labor Review*, Bureau of Labour Statistics (Nov. 1945); Federal Security Agency, *Social Security Bulletin* (Oct. 1945) (Social Security Board). Argentina: *Boletín Oficial* (March 24, 1945, Buenos Aires); *Infancia y Juventud* (No. 31-32, 1944, Buenos Aires). Great Britain: *Ministry of Labour Gazette* (June, July and Oct. 1945). Soviet Union: *Meditsinski Rabotnik* (July 5, 19 and 21, 1945, Moscow); *Pravda* (Oct. 26, 1945, Moscow). (K. F. L.)

**Chile.** A republic fronting on the south Pacific coast of South America for about 2,600 mi., its average width being only 110 mi. Area: 286,396 sq.mi. Pop. (1940 census) 5,023,539; official est., Jan. 1, 1944, 5,237,432; density (1944), 18.29 per sq.mi. Composition of the population is largely European; mestizos are estimated at 15% and Indians at 5%; oriental and Negro elements are negligible. Most of the population lives in the central valley; Santiago province alone has 1,463,441 inhabitants (density per sq.mi., 223.12). The capital is Santiago (1944 pop. est., 952,075). Other important cities, with 1944 pop. ests., are Valparaíso (209,945), Concepción (85,813), Viña del Mar (65,916), Talca (50,464), Antofagasta (49,106), Chillán (42,817), Temuco (42,035), Iquique (38,094), Talcahuano (35,774) and Valdivia (34,496). Chile is a unitary republic with a president popularly elected for a four-year term and a bicameral congress including a senate of 45 members and a chamber of deputies of 147. President in 1945: Juan Antonio Ríos.

**History.**—Debate in the congress in February over Chile's war status led Pres. Ríos to assert Feb. 14, 1945, that Chile recognized a state of belligerency with Japan but not with Germany because "that nation is defeated." He added that Chile had had identity of purpose and action with the United Nations after severance of axis diplomatic relations Jan. 20, 1943, and that a formal war declaration against Japan would follow. Ambassador Marcial Mora on Feb. 14 signed the United Nations pact for Chile at Washington. The senate and the deputies on April 5 and 11, respectively, approved a war declaration, and the president and his cabinet signed it April 11. A wave of sabotage, directed especially against naval and merchant vessels, broke out in March. Four vessels were destroyed or damaged by fire, with a death list of 83 in the most serious case. Serious riots broke out at a Santiago church May 12 at the celebration of a mass for the death of Benito Mussolini. The U.S. and Chile signed an agreement at Washington May 24, 1945, for the establishment of a three-year naval mission, including army, navy and marine officers, to advise the Chilean armed forces. Domestic politics continued disturbed during 1945. Congressional elections, March 4, were immediately followed by a collective cabinet resignation which Pres. Ríos refused to accept. Later figures showed that rightist groups had won 23 senate seats and leftists 22; in the chamber of deputies rightists were indicated to have 71 seats divided as follows: Conservatives 36; Liberals 31; Progressive Liberals 1; Agrarians 3; leftists divided 75 seats as follows: Radicals 38; Communists 18; Socialists 7; Falange 5; Democrats 7; one independent was elected. Pres. Ríos later planned to organize a cabinet including Radicals, Liberals, Democrats and Agrarians but, because of party disagreements, abandoned the plan April 30. A new cabinet sworn in May 14 was composed chiefly of moderate leftists from the Radical, Socialist, Democratic and Chilean Falange parties. When the congress organized, May 22, Senator (and ex-president) Arturo Alessandri was elected president of the senate and Conservative Deputy Juan Antonio Coloma president of the lower house. Chile's worst mine disaster occurred June 19 when fire broke out in the Braden Copper company's great Teniente mine at Sewell in the Andes, with a loss of life of almost 500. The first Pan-American Social Service congress met at Santiago on Sept. 9 with delegates present from 15 nations. Strikes proved troublesome in 1945, three of the worst being a strike in the Iquique region in March, involving about 7,000 nitrate, railway, port and staff

workers; one at Valparaíso beginning Sept. 26 involving long-shoremen protesting the use of Chilean naval personnel for loading coal on a vessel bound for Argentina; and another in which 30,000 nitrate, copper, railway and port workers in the north went out on strike on Oct. 13 over alleged nonfulfilment of arbitration terms in a labour dispute. A trial of Germans accused of espionage activities resulted in conviction of 26 on June 8.

Pres. Ríos visited the U.S. in October and was entertained by Pres. Truman Oct. 11. An important purpose of the visit was allegedly to get U.S. commitments concerning the Chilean copper industry.

**Education and Religion.**—School enrolment in 1943 was reported to be 576,900 in 5,364 primary schools, 87,265 in 418 intermediate schools and 6,402 in five universities. The literacy rate in 1943 was estimated at 76%, third highest of all Latin American states.

Roman Catholicism is the dominant religion although church and state were separated following the adoption of the 1925 constitution. Pope Pius XII on Dec. 23 elevated José Caro Rodríguez, archbishop of Santiago, to the rank of cardinal; it was the first occasion that Chile had had a dignitary of that rank.

**Finance.**—The monetary unit is the peso, valued in Dec. 1945 at 3.04 to 5.16 cents (U.S.). Preliminary 1946 budget figures estimated expenditures at 5,192,000,000 pesos and revenues at 4,882,000,000 pesos; the deficit was to be met by increases in postal and telegraph rates and retention of recent presumably temporary increases in income and other taxes. Estimate of expenditures for 1946 was later increased to 5,825,000,000, most of the additional sum being pledged to salary increases for government workers and teachers. The budget for 1945 totalled 4,749,036,000 pesos (1944: 3,787,994,000). Chief revenues in 1945 included: national property, 53,521,000 (1944: 50,405,000); national services, 267,001,000 (1944: 230,962,000); direct and indirect taxes, 3,426,511,000 (1944: 2,938,636,000); miscellaneous income, 1,002,005,000 (1944: 567,992,000). Important expenditures in 1945 were: office of the president, 3,844,000 (1944: 3,417,000); national congress, 27,529,000 (1944: 27,289,000); interior, 731,520,000 (1944: 592,169,000); foreign relations, 41,734,000 (1944: 40,898,000); finance, 688,494,000 (1944: 565,369,000); public education, 776,350,000 (1944: 515,430,000); justice, 137,759,000 (1944: 134,488,000); war, 690,048,000 (1944: 528,637,000); navy, 439,042,000 (1944: 436,706,000); aviation, 126,019,000 (1944: 123,685,000); public works and highways, 507,452,000 (1944: 298,619,000); public health and social security, 398,940,000 (1944: 341,048,000). Expenditures for public works reflected a large increase in 1945 and it was anticipated that they would continue to be large for some years to come because of the approval early in 1945 of a 3,000,000,000 peso six-year plan of public works; major items of such expenditure were to be irrigation and land development, highways and bridges, railway construction and improvements, ports, sewage systems, drinking water and conservation development and the University of Chile. A portion of the funds required was to be derived from 75% of the extraordinary copper tax (estimated at 400,000,000 pesos) and 200,000,000 pesos from the sale of 7% bonds. Deficit financing continued to be a serious problem; the accumulated budget deficit at the beginning of 1945 was 562,000,000 pesos, excluding the overdraft under special extra-budgetary laws.

**Trade and Communications.**—An export balance usually prevails. Exports in 1944 were valued at \$197,746,000 and imports at \$149,092,000. The principal exports are copper, nitrate and iodine, wool, hemp, legumes, rice and sheep skins; the U.S. in 1944 took 64% by value of all Chilean exports, Argentina

8%, Brazil 4%, Peru 2% and Great Britain 1%. Principal imports are textiles, chemicals, machinery and mineral, agricultural and metallurgical products; the U.S. in 1944 provided 43% by value of Chilean imports, Argentina 17%, Peru 17%, Brazil 10% and Great Britain 6%. The government on Feb. 6 announced a three months' extension of the minerals purchase contract by the United Commercial company. Late in July 1945, Chile and the U.S. announced conclusion of a trade agreement by which Chile granted unilateral concessions for one year on a long list of tariff items, chiefly in the textile, clothing, chemical and metallurgical fields. The action virtually restored benefits which the U.S. formerly enjoyed on a most-favoured-nation basis until the cancellation of a Franco-Chilean agreement. Chile expressed the hope that its concessions might lead to a treaty of friendship, commerce and navigation. Imports in the first half of 1945 totalled 415,587,369 gold pesos in value (an increase of 37,269,676 more than the same period in 1944) and exports in the same period were valued at 603,538,344 gold pesos (a gain of 66,826,406 pesos from the first half of 1944).

Highway mileage totals 28,125 and includes 2,118 mi. of macadam or otherwise hard-surfaced roads, 7,459 mi. of gravel and 1,445 mi. of improved earth roads. Railway mileage is 5,407, most of it in two major systems, the Ferrocarriles del Estado (state railways) and the Antofagasta and Bolivia Railway Co. Chile has 92 airports to serve three major aviation lines. The Chilean section of the Antofagasta-Salta (Argentina) railway was expected to be completed in 1945. The state railways anticipated a deficit of about 130,000,000 pesos in 1946.

Transportation facilities in general were heavily overtaxed in 1945.

**Production.**—Coal production in 1944 was estimated at 2,508,515 short tons, the highest output in 20 years. Wine production in 1944 was 82,951,772 gal., the highest figure from 1938. Iron ore production in 1944 was 19,475 short tons as against 1943 production of 5,111 short tons and a normal production of about 1,653,450 tons. Rough rice production in 1944-45 was estimated at 165,772,526 lb. and milled rice at 102,779,017 lb. Wool production in 1944-45 was estimated at 17,085 short tons. Fruit crops in 1944-45 were estimated at 600,000 boxes of 46 lb. Other agricultural production estimates for 1944-45 (in short tons) were: wheat 988,842; beans 84,759; lentils 15,327; potatoes 522,667; sunflower seed 31,946; hemp 6,628; oats 133,656; barley 86,238.

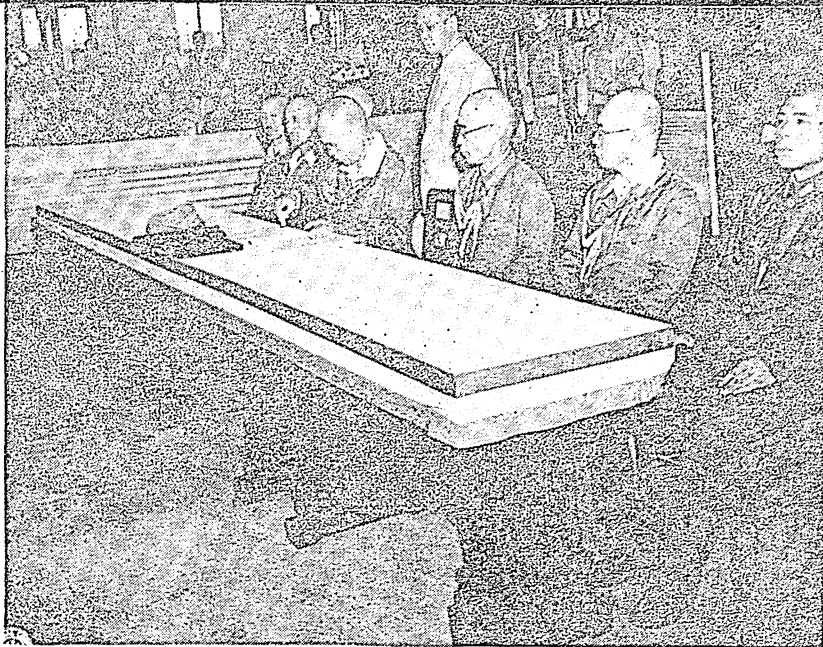
**BIBLIOGRAPHY.**—Manuel Bianchi, *Chile and Great Britain* (1945).

**FILMS.**—*Chile* (Encyclopædia Britannica Films Inc.). (R. H. FN.)

**China.** A republic of Asia. With the recognition of the independence of Outer Mongolia and the restoration of Taiwan (Formosa) and Manchuria (in 1945, 9 provinces, previously 3) China has 34 provinces and two special areas, Tibet and Taiwan, totalling about 3,858,900 sq.mi. According to the ministry of interior, the estimated population of China in March 1945 was 454,928,000, excluding more than 6,000,000 in Taiwan. The estimated population of the leading cities in March 1945 was: Nanking, 1,019,148; Shanghai, 3,726,757; Peiping, 1,550,561; Tientsin, 1,217,646; Chungking, 1,037,630; Canton, 1,115,000.

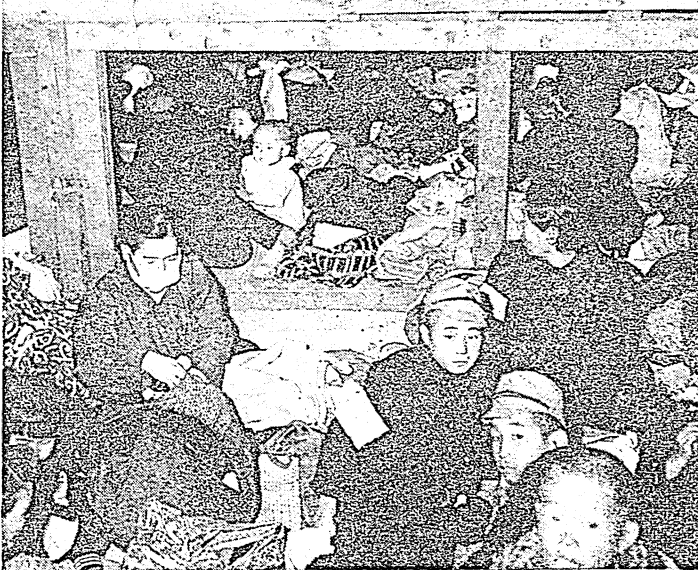
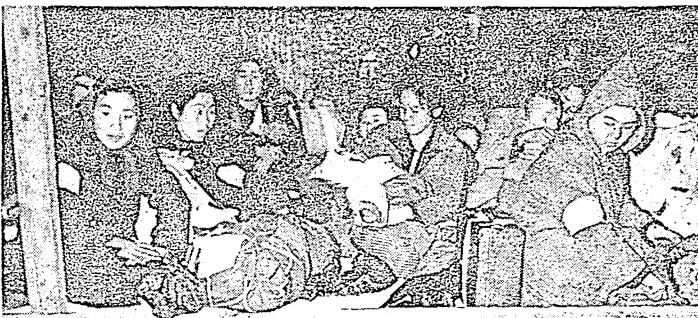
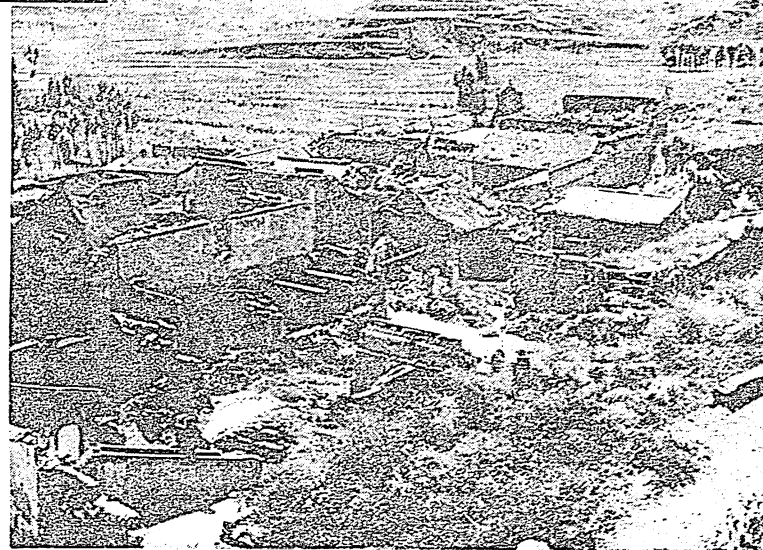
Capital: Nanking; President (1945): Chiang Kai-shek.

**History.**—The Chinese people, who withstood more than eight years of hardship and privation in resisting aggression, were jubilant over Japan's acceptance of the Potsdam surrender terms on Aug. 14, 1945. But their jubilation and longing for peace were soon shattered when the communists demanded the right to accept the surrender of the Japanese in China, and, subsequently, the government and communist troops raced to control the important centres in north China and Manchuria.



Left: JAPANESE SURRENDER of about 1,000,000 troops in China took place at Nanking on Sept. 9, 1945 (Chinese time). Gen. Yasuji Okamura, seen stamping the document, signed for Japan; Gen. Ho Ying-chin accepted for the Chinese government

Right: CHINESE COMMUNISTS avenged destruction of this and other villages in China's border region by united guerrilla action against the Japanese in 1945

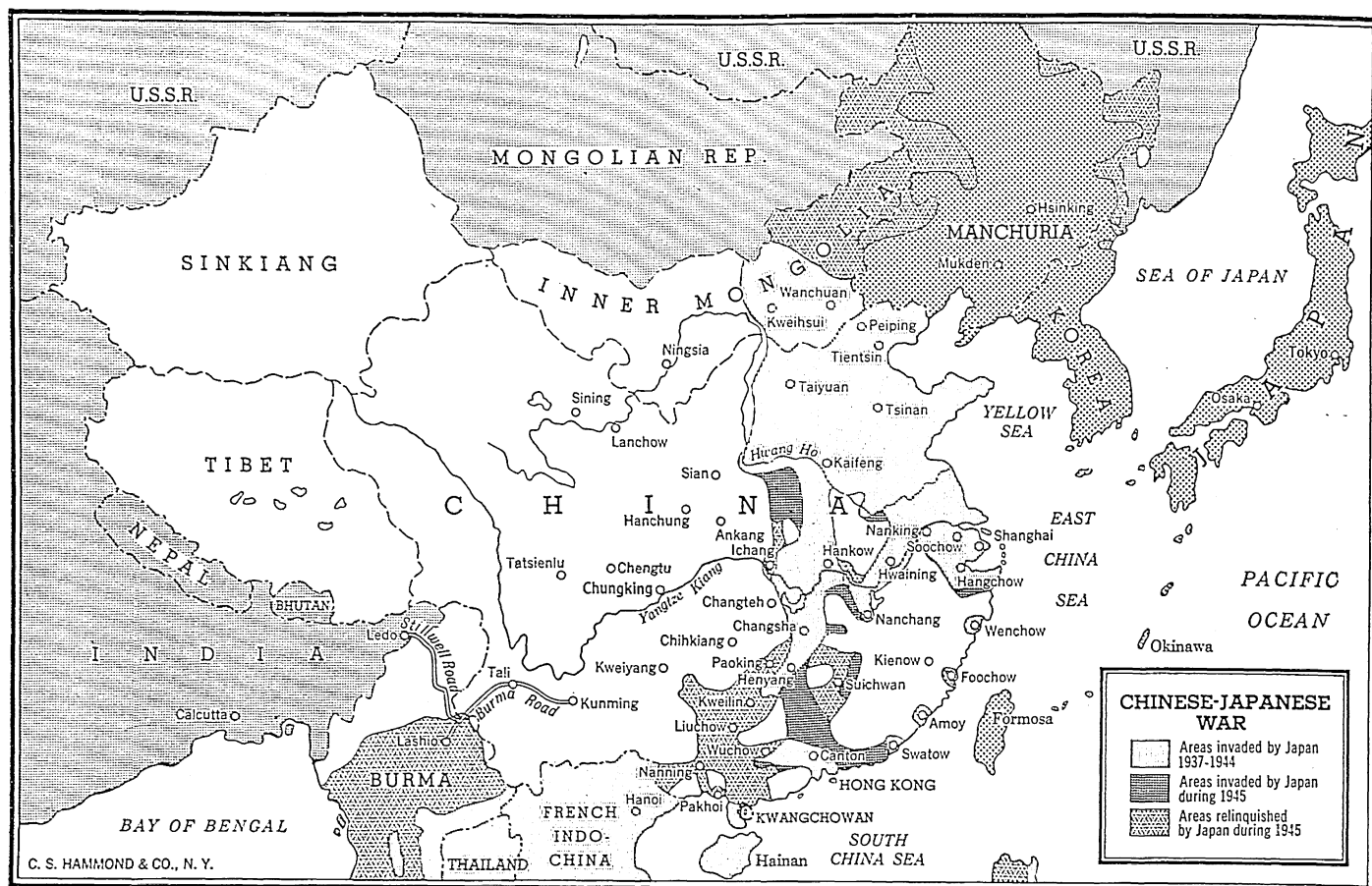


Above: REPATRIATED from China in 1945, these Japanese civilians, mainly war widows and children, are shown in their quarters below deck on a small merchant ship, which is carrying them from Shanghai to Japan

Right: CROWDS in Kunming, China, watch the first truck convoy over the new Stilwell road roll by. The convoy reached China on Jan. 28, 1945







The defeat of Japan and the threat of open civil war overshadowed all other developments in China in 1945.

Early in the year improvements in Chinese fighting strength and morale were evident. On the Burma front the Chinese succeeded in forcing the enemy to retreat from the Yunnan-Burma border area and in reopening a land supply route. In the China theatre the Chinese, counterattacking with U.S. air assistance, forced the Japanese into a strategic retreat in May. Before Japan surrendered, China had recovered Foochow, Nanking, Wenchow, Liuchow and Kweilin. It was agreed that all the Japanese forces within China (excluding Manchuria), Formosa and northern Indo-China should surrender to Generalissimo Chiang Kai-shek. Hong Kong, which was assigned to the China theatre after Pearl Harbor, was surrendered to Great Britain but on Aug. 24 Chiang expressed the hope of a rational settlement of the Hong Kong question through legal processes. The signing of the surrender document in Nanking on Sept. 9 officially ended the Sino-Japanese war, which cost China more than 3,500,000 military casualties plus many millions of civilians.

The important political developments were: (1) the decision of the sixth Kuomintang congress (May 5-21) to terminate the period of political tutelage by setting the date for the People's congress (national assembly) for Nov. 12, 1945; (2) the resolutions adopted by first session of the fourth People's Political council in July urging the government to achieve national unity by political means, to bring about democratic reforms and to ensure civil liberties; (3) the appointment on May 31 of T. V. Soong and Wong Wen-hao to succeed Chiang Kai-shek and H. H. Kung as president and vice-president of the executive yuan respectively, and the appointment on July 30 of Wang Shih-chieh to succeed T. V. Soong as minister of foreign affairs. The fundamental political problem was the relationship between the government and the communists which assumed military and diplomatic importance.

China was well established within the United Nations. It was

one of the inviting powers of the Conference on United Nations organization and played a conciliatory but important role at San Francisco from April 25-June 26. China completed the work of abolishing the unequal treaties by signing new treaties with Sweden and the Netherlands in April and May. On Aug. 18 France signed the Sino-French convention on the rendition of the leased territory of Kwangchow-wan. Perhaps the most important diplomatic developments were the signing of the Sino-Soviet treaty of friendship and alliance on Aug. 14 (ratified on Aug. 24), and the issuance of President Truman's statement on U.S. policy toward China on Dec. 15 following Maj. Gen. Patrick J. Hurley's dramatic resignation and the immediate appointment of General George C. Marshall as his successor. The important provisions of the Sino-Soviet treaty were: (1) China's recognition of the independence of Outer Mongolia; (2) Sino-Soviet joint ownership and administration of the main railways in Manchuria for 30 years; (3) for 30 years Port Arthur to be a Sino-Soviet joint naval base and Dairen to be a free port; (4) Russia to withdraw its troops from Manchuria, to keep its hands off Sinkiang and to render moral and military support to the national government. Truman's statement declared that the cessation of civil war, broadening of the legitimate national government and elimination of the communist army were essential to achieve a strong, united and democratic China. These two documents had an important bearing on the government-communist relationship.

The perennial government-communist negotiations were resumed after President Chiang's three urgent invitations, Aug. 16-25, to Mao Tse-tung, the communist leader, to come to Chungking to discuss problems of national unity and reconstruction. On Aug. 28, two days after the Sino-Soviet treaty was made public, Mao accompanied by former U.S. Ambassador Hurley arrived in Chungking. On Oct. 10 they reached an agreement in principle to work for a united and democratic China and to form a Political Consultative council and a Mil-

tary committee to solve the fundamental military and political problems upon which they failed to agree. Before these two bodies could meet, serious fighting between government and communist troops broke out anew. However, with Russian consent and U.S. assistance in landing government troops in Manchuria and with the arrival of General Marshall in China and of the communist delegates to the Political Consultative Council in Chungking in late December, the prospect of achieving China's unity again looked bright.

**Education.**—During the eight years of war with Japan there was a steady quantitative increase of higher and secondary institutions. Excluding schools in former occupied areas, there were in July 1945, 145 institutions of higher learning with an enrolment of 73,667; 3,455 secondary schools with an enrolment of 1,101,087; and 265,417 primary schools with about 18,000,000 pupils. The immediate task in education was to move many of the higher and secondary schools back to their original campuses and to reorganize and re-establish the schools in the former occupied areas.

**Defense.**—Before the reorganization of the army in the spring of 1945, China maintained a nominal strength of more than 300 divisions totalling 5,000,000 men. The reorganization program brought better treatment, pay, rations and medical service to the troops, and disbanded more than 100 divisions totalling 1,700,000 officers and men. About 39 of the 200 divisions were modernized and equipped with U.S. weapons. The communist independent army was estimated at more than 1,000,000. In 1945 China had 16 gunboats of more than 7,000 tons plus 10 very small war vessels taken over from the Japanese.

**Finance.**—The exchange rate ranged from the official Chinese \$20 to U.S. \$1 to an official Ch. \$500 to U.S. \$1 with government subsidies added to the official rate, but the black market rate reached the peak of Ch. \$3,000 to U.S. \$1 in July 1945. In June the price of basic goods such as food and clothing was almost 1,000 times that of June 1937. The volume of note issuance in Free China alone was estimated at Ch. \$400,000,000,000. The 1945 budget was estimated at about Ch. \$200,000,000,000, 190 times larger than that of the year 1937, and the actual expenditures were even greater. Only about 45% of the budget could be met by taxation. From 1938 to Aug. 1945, Russia, the United States and Britain extended loans to China totalling £58,047,000 and \$870,000,000. Up to May 31, 1945, China received U.S. lend-lease materials valued at \$362,000,000.

In June 1945, excluding the banks in former occupied areas, the government, local and private banks numbered 587 (2,531 branch offices) with a total capital of Ch. \$2,388,204,500 and paid-up capital of Ch. \$2,123,949,364.

**Trade and Communication.**—Excluding goods exchanged under barter arrangements, China's total imports and exports in 1944 amounted to Ch. \$3,494,918,980 and Ch. \$789,907,846 respectively.

In 1931 China had more than 10,000 mi. of railways, most of which were in Manchuria and North China. In June 1945 Free China had only about 770 mi., more than two-thirds of which were built after 1937. Before July 1937 China had about 72,000 mi. of highways. During World War II more than 8,000 mi. were built, and in June 1945 Free China had about 52,100 mi. of highways with only about 4,000 motor vehicles. China's telecommunications and civil aviation remain insignificant in proportion to its population.

**Agriculture, Manufactures, Mineral Production.**—China does not produce enough food for its population. The estimated yearly production of important crops during 1931-37 in China (excluding Manchuria) was about 2,900,000,000 piculs (1 picul=133½ lb.). Based on the 1931-37 average production in 15 Free China provinces, the crop production in the same area

showed slight change during the war while livestock production registered a sharp decrease. In Free China industrial production of producer's and consumer's goods showed a definite drop in 1944 and 1945. In 1936, excluding Manchuria, China's chief mineral production approximately was: coal, more than 15,000,000 tons; pig iron, 155,640 tons; steel, 50,000 tons. In 1943, Free China's mineral production in short tons was as follows: coal, 6,868,034; pig iron, 35,072; steel, 9,974; refined tungsten, 9,926; refined tin, 4,648; refined antimony, 480. (See also WORLD WAR II.)

**BIBLIOGRAPHY.**—*China Handbook 1937-43* and *China Handbook 1944*, Chinese ministry of information; *Chinese National Government Year Book 1944* (in Chinese); *Chinese Year Book 1943*, Council of International Affairs; G. B. Cressey, *China's Geographic Foundations and Asia's Lands and Peoples*; Robert Payne, *Forever China*; David Nelson Rowe, *China Among the Powers*; Gunther Stein, *The Challenge of Red China*; Chih Tsang, *China's Postwar Markets*. Periodicals: *Amerasia*; *Asia*; *China at War*; *China Monthly*; *Contemporary China*; *Far Eastern Survey*; *Pacific Affairs*; *Voice of China*.

**FILMS.**—*Children of China*; *People of Western China* (Encyclopædia Britannica Films Inc.). (H. T. CH.)

**Chinese-Japanese War:** see WORLD WAR II.

**Chinese Turkestan:** see SINKIANG.

**Chosen:** see KOREA.

**Christian X** (1870- ), king of Denmark, of whom a biographical account will be found in *Encyclopædia Britannica*. Nephew of Queen Alexandra of Great Britain, he succeeded his father, Frederick VIII, in 1912. King Christian became increasingly popular with the passing years and kept in close contact with his people.

From the invasion in 1940 until the popular uprising against the Germans in Aug. 1943, King Christian had maintained an autonomous Danish administration; from Aug. 1943, until the liberation in 1945, the king was a virtual prisoner in his own castles at Sorgenfri or Amalienborg. It was therefore quite natural that much of the national enthusiasm on freedom from the German yoke expressed itself in demonstrations at Amalienborg. On the king's 75th birthday, Sept. 26, 1945, Copenhagen was bedecked with flags, flowers and pictures, and royal relatives came from Norway and Sweden to honour the popular monarch of the Danes. (See also DENMARK.) (F. D. S.)

**Christian Science.** The religion founded by Mary Baker Eddy and represented by the Church of Christ, Scientist, which was organized at Boston, Mass., in 1879. The textbook of this religion, *Science and Health with Key to the Scriptures*, written by Mrs. Eddy, was published in 1875.

From the beginning of World War II, the Christian Science Church, through its Camp Welfare Committee, supervised the activities of its more than 1,000 Christian Science Wartime Ministers and volunteer workers, whose duty it was to minister to the spiritual and material needs of the men and women in the armed forces at home and abroad. Christian Science services were also conducted by these Wartime Ministers and workers wherever possible. Although of civilian status, they served with the approval of and in co-operation with army and navy chaplains and commanding officers, and were always on duty to respond to requests for Christian Science healing and help.

In 1945, there were 25 chaplains in the United States army and one in the navy. Four of these chaplains received bronze stars for meritorious service.

The literature published by The Christian Science Publishing Society, which includes *The Christian Science Journal*, a monthly publication listing Christian Science churches and societies, was available at all Reading Rooms maintained by the churches, as well as at all rest rooms and recreational centres provided for

servicemen and servicewomen.

A Christian Science War Relief Committee co-operated with other relief groups in the United States and Canada in supplying money and clothing to sufferers in the British Isles, Europe and Russia, without regard to race, colour, or creed. There were 970,000 garments shipped to continental Europe alone. This did not include the thousands of pieces of knitted garments supplied to men and women in the armed forces of the United States and its allies. With the end of the war in Europe, a Christian Science Postwar Relief Committee was formed.

Transcribed radio programs prepared in The Mother Church, The First Church of Christ, Scientist, in Boston, Mass., were broadcast over more than 100 stations throughout the United States and Canada. The Mother Church also continued its periodic broadcasts of Sunday "Columbia Church of the Air" programs over the Columbia Broadcasting System.

*The Christian Science Monitor*, an international daily newspaper, published by The Christian Science Publishing Society, maintained its usual large staff of correspondents throughout the world, including correspondents in all theatres of war. *The Monitor* received a fire-prevention award of a \$500 gold medal for outstanding service in the field of fire prevention. It also received the Helms Athletic Foundation award in recognition of noteworthy achievement in the realm of sports. It won First Honorable Mention in the over-50,000 circulation group in the Annual Exhibition of Newspaper Typography conducted by N. W. Ayer and Son, Inc. (W. D. K.)

**Christian Unity.** One of the chief devices counted on to advance Christian unity was a series of international commissions set up by the world conferences at Oxford and Edinburgh in 1937. Though British, American and Swedish study groups were at work, World War II largely prevented the capacity functioning of these commissions. With the end of the war a beginning was made in reconstituting them on a world scale so that a continuous endeavour to secure a meeting of minds on the major points of difference and difficulty was expected to go forward.

On the organizational side the necessary assemblies to complete the setting up of the World Council of Churches were similarly in progress. With the end of the war numerous preliminary committees met looking to a formal meeting of the Council's Provisional committee early in 1946. The broken threads of personal contact were promptly picked up and important deputations went back and forth between major denominations and representatives of the World Council, especially in countries inaccessible during the hostilities. Dr. S. M. Cavert, general secretary of the Federal Council of Churches of Christ in America, was loaned to the World Council headquarters in Geneva, Switzerland, for a period of six months as a contribution of the American Church to the reconstructive process.

The appalling need of European populations beyond the relief measures undertaken by governments and the U.N.R.R.A. diverted much of the concern and activity of the World Council to supplying the immediate physical needs of individuals and families. Beyond this a major department of reconstruction and interchurch committee set up long-term strategic plans for the institutional reconstruction of war-wrecked European churches and for aiding them in reopening the scenes of normal activities. John D. Rockefeller, Jr. contributed \$1,000,000 for this purpose. Ninety churches in 31 countries definitely accepted membership in the World Council.

Formal integration of churches on a national scale followed in the wake of war changes. The German Church was formally reorganized on Aug. 28, 1945, by an assembly of 100 representatives, including Lutheran, Reformed and United Church bodies,

under the name, Council of the Evangelical Churches in Germany. The organization was described as "going beyond federation but stopping short of amalgamation." Important deputations made contact with the Christian churches in Japan. Without effecting specific ecclesiastical organization, which had to wait on further development of the Japanese situation, they reported the expectation that the enforced unity of most of the Protestant bodies in Japan under totalitarian pressure would be voluntarily continued in a united Japanese Christian Church.

The latest directories of interchurch federations and councils in the United States showed 35 states in 1945 maintaining inclusive types of interdenominational organization which attempted to combine all aspects of the co-operative work of the churches under a single agency. Only seven states were left maintaining narrower forms of co-operation and only a single state with no form of state-wide Protestant co-operative agency. Counting state and local organizations, a total of 535 councils of churches or similar bodies were catalogued in 1945.

The proposal for a federal union of the churches through the adoption of a common name and greatly augmented unity measures continued to be pushed by the distinguished evangelist, Dr. E. Stanley Jones. A nation-wide organization was set up to undertake systematic campaigns in behalf of this movement.

New negotiations for the union particularly of denominations were undertaken between the United Presbyterian and the Reformed Church in America during 1945. The union of the United Brethren and the Evangelical Churches progressed to a point which indicated its early consummation. Negotiations between the Congregational Christian and Evangelical and Reformed denominations continued, a joint session of their national bodies being called for 1946. Discussions of the union of the Presbyterian Churches of the U.S. and the Presbyterian Churches of the U.S.A. were continued but no further action occurred in 1945. The inaugural address of Dr. Henry Pitney Van Dusen, president of Union Theological seminary of New York city, dealt extensively with reunion and revival. Under current world conditions Dr. Van Dusen urged a revival of religion which can take place only in connection with the reunion of the churches whose division makes them inadequate as instruments of religion in a world which desperately needs to be united on the basis of Christian outlooks and convictions.

(H. P. D.)

**Chromite.** Data for 1944 were scarce at the close of 1945 but world production for the remaining war years is shown in Table I.

Table I.—World Production of Chromite  
(Thousands of short tons)

	1940	1941	1942	1943	1944
Cuba . . . . .	57.7	179.9	315.8	390.4	211.8
Greece . . . . .	36.5	?	44	16	?
India . . . . .	62.2	56.1	55.6	37.3	?
New Caledonia . . . . .	61.5	52.4	78.4	55	?
Philippines . . . . .	214.3	330	55	66	?
South Africa . . . . .	180.4	156.4	372.1	179.9	?
Southern Rhodesia . . . . .	308.4	345.4	383.7	293.5	?
Turkey . . . . .	187.2	165.7	159.5	216.9	165
U.S.S.R. . . . .	?	?	440	358	?
United States . . . . .	3.0	14.3	112.9	160.1	45.6
Yugoslavia . . . . .	78.3	?	110	72	?
Total . . . . .	1,616	1,990	2,180	1,992	?

Note.—Figures without a decimal are estimates.

**United States.**—The trend of supply and demand of chromite during World Wars I and II may be compared as shown in Table II.

In addition to revealing the extent to which the U.S. was dependent on foreign sources of supply, these figures emphasize the increased demands that resulted from technological developments during the interwar period. The tonnage record of output in 1939-44 was materially higher than in 1914-19, but



Table II.—Chromite Data for the United States for the periods of World Wars I and II

(In thousands of short tons)							
	Pro-duction	Im-ports	Sup-ply	Pro-duction	Im-ports	Sup-ply	Con-sumption
1914	0.7	83.7	84.4	1939	3.9	355.6	359.9
1915	3.7	85.7	89.4	1940	3.0	736.6	739.6
1916	52.6	129.9	182.5	1941	14.3	1,115.3	1,129.6
1917	49.0	80.9	129.9	1942	112.9	981.6	1,094.5
1918	92.4	112.2	204.6	1943	160.1	928.6	1,088.7
1919	5.7	68.9	74.6	1944	45.6	848.4	894.0

as compared with the existing demand the relative showing was much poorer. Furthermore, much of the 1939-44 output was too low in grade to be salable even under war demand, and remained at the close of 1945 in stock piles.

It was twice demonstrated that only under war demand could the domestic reserves yield an appreciable output, and at best only a fraction of the total required. The availability of foreign supplies is therefore a matter of prime importance. Imports from the chief sources of supply are shown in Table III.

Table III.—Imports of Chromite into the United States (Thousands of short tons)

	1940	1941	1942	1943	1944
Cuba . . . . .	58.2	179.9	137.8	310.7	349.1
Greece . . . . .	15.7	2.2	...	...	...
U.S.S.R. . . . .	...	...	30.1	99.9	112.3
India . . . . .	36.6	10.9	21.3	2.8	...
Philippines . . . . .	175.4	288.4	30.5	...	...
Turkey . . . . .	78.5	61.8	119.5	90.8	98.8
South Africa . . . . .	126.3	189.7	262.3	111.6	40.4
Southern Rhodesia . . . . .	177.9	269.2	277.3	243.5	187.8
New Caledonia . . . . .	48.0	90.2	82.7	32.5	34.5
Total . . . . .	736.6	1,115.3	981.6	928.6	848.4

These figures show the shifts that were made from one source of supply to another as shipping conditions or the progress of the war affected various producers. It was evident that without the Cuban supply close at hand, the chromite supply problem would have been much more difficult.

(G. A. Ro.)

**Chronology:** see CALENDAR OF EVENTS, 1945, pages I-16.  
**Churches, World Council of:** see CHRISTIAN UNITY.

**Churchill, Winston Leonard Spencer** (1874- ), British statesman, was born at Blenheim palace, Oxfordshire, England, on Nov. 30, the elder son of Lord Randolph Churchill and Jennie, daughter of Leonard Jerome of New York city. For his biography and his political career during World War I, see *Encyclopedia Britannica*.

The outbreak of war on Sept. 3, 1939, was the occasion for Churchill's re-entry into the cabinet in his old office of first lord of the admiralty. On May 10, 1940, when the German drive on France began, Chamberlain resigned and Churchill became prime minister. Churchill emerged as a fighting leader and on June 4, 1940, after the evacuation of Dunkirk, he promised that Britain would fight on alone "whatever the cost may be."

Under Churchill's guidance, England, which in 1940 stood alone as the last defense in the west against the armed might of the nazis, was converted into a powerful military and air base, from which Allied armies launched their invasion of western Europe in 1944. Despite Allied military successes in 1944, however, Churchill, for the first time in his four years as Britain's wartime prime minister, faced serious opposition at home and abroad during the year. Dissatisfaction with his support of Premier Hubert Pierlot in Belgium and his refusal to accept Count Carlo Sforza as either premier or foreign minister in Italy came to a head in December when he threw the support of British troops in Greece against the National Liberation Front or E.A.M. when civil war broke out in that country.



"DROPPING THE PILOT." Winston Churchill, British prime minister during World War II, resigned in July 1945 when the Conservative party was defeated in the general election. Cartoon is by Bishop of the *St. Louis Star Times*

During 1944 Churchill participated in two conferences with leaders of the other United Nations. In September he travelled to Quebec where he and President Roosevelt discussed the strategy for the conclusion of the war in Europe and for the destruction of the Japanese.

In October Churchill met with Premier Stalin in Moscow, where the two leaders discussed the policy to be adopted in the Balkan countries and the bringing together of the two factions of the Polish government.

At the beginning of 1945 Churchill attended the Yalta conference (Feb. 4-11) where he, Roosevelt and Stalin mapped the final plans for defeat of the reich and for its postwar treatment. He then conferred with Pres. Roosevelt at Malta, where the two Allied leaders discussed plans for expediting the war against Japan. This was his last meeting with the president, who died April 12. In a eulogy delivered at St. Paul's cathedral, April 17, Churchill described Roosevelt as the "greatest champion of freedom who has ever brought help and comfort from the new world to the old."

Following the defeat of the reich, the Labour party broke away from the coalition government, rejecting Churchill's invitation to remain in the cabinet until the war with Japan was over. Churchill consequently reformed his cabinet, May 25, without the Labour members and then led the Conservative electoral campaign. He exhorted the British electorate to abjure "these socialist dreamers to their utopias or nightmares," but the Labourites scored a huge political upset, winning the elections (July 26). Churchill, who was attending the Berlin conference with Premier Stalin and Pres. Truman when the vote results were tabulated, relinquished his parley seat to his successor, Prime Minister Clement Attlee, and became leader of his majesty's opposition.

**Church Membership.** The following figures are taken from the *Yearbook of American Churches*, compiled under the auspices of the Federal Council of the Churches of Christ in America, published in July 1945. The "inclusive membership" column gives the official records of the church bodies. The "13 years or over" column is given for

use in comparisons and discussions of the relative numerical standing of the churches reported.

Church Membership in the United States in 1944\*

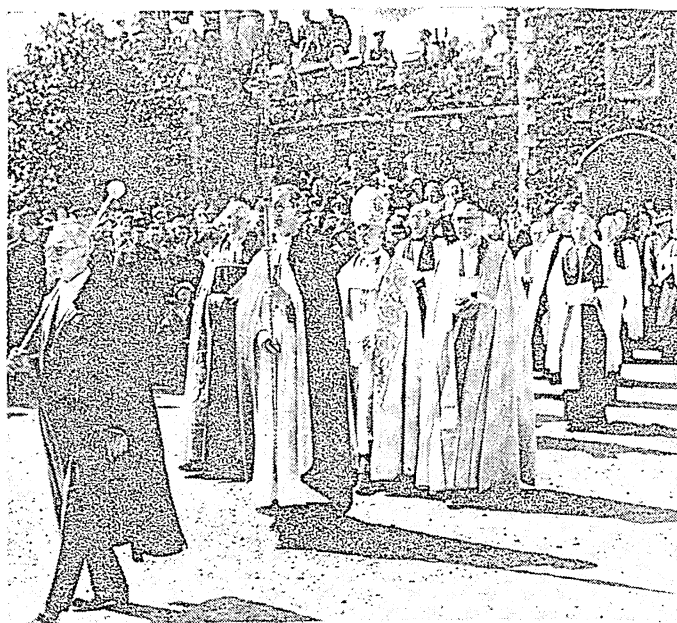
Body	Churches	Inclusive membership	13 years or over
Adventists, Seventh Day . . . . .	2,531	194,832	194,832
Assemblies of God . . . . .	5,055	227,349	227,349
<b>Baptist Bodies:</b>			
American Baptist Association . . . . .	1,064	115,022	93,955
Free Will Baptist . . . . .	1,102	118,871	117,130
National Baptist Convention . . . . .	24,460	4,021,618	3,700,078
National Baptist Convention of America . . . . .	7,286	2,352,339	2,117,091
National Baptist Evangelical assembly . . . . .	451	59,743	48,137
Northern Baptist . . . . .	7,348	1,555,914	1,478,111
Primitive Baptist . . . . .	1,726	69,157	68,881
Southern Baptist . . . . .	25,965	5,667,926	5,384,530
United American Free Will Baptist . . . . .	350	75,000	66,000
Brethren (Dunkers) . . . . .	1,019	180,287	176,100
Church of Christ, Scientist . . . . .	2,113	268,915	268,915
Church of God (Anderson, Ind.) . . . . .	1,412	83,875	71,293
Church of God (Cleveland, Tenn.) . . . . .	1,817	67,137	67,137
Church of God in Christ . . . . .	2,000	300,000	250,000
Church of the Nazarene . . . . .	2,965	187,082	187,082
Churches of Christ . . . . .	3,815	309,551	309,551
Congregational Christian Churches . . . . .	5,753	1,075,401	1,075,401
Disciples of Christ . . . . .	7,917	1,672,354	1,504,115
Evangelical . . . . .	1,994	255,881	249,241
Evangelical and Reformed . . . . .	2,835	675,958	675,958
Federated Churches . . . . .	508	88,411	88,093
Friends (Five Years' Meeting) . . . . .	453	70,000	58,350
Independent Fundamental Churches . . . . .	600	60,000	60,000
<b>Latter Day Saints:</b>			
Church of Jesus Christ of Latter Day Saints . . . . .	1,757	870,346	728,665
Reorganized Church of Jesus Christ of Latter Day Saints . . . . .	563	113,064	102,071
<b>Lutherans:</b>			
American Lutheran . . . . .	1,834	584,499	413,289
Augustana Lutheran . . . . .	1,123	373,163	279,530
Missouri Lutheran . . . . .	4,073	1,356,655	948,371
Norwegian Lutheran . . . . .	2,522	595,034	422,383
United Lutheran . . . . .	3,762	1,690,204	1,213,985
Wisconsin Lutheran . . . . .	914	324,492	191,008
Mennonite . . . . .	500	51,813	50,000
<b>Methodist Bodies:</b>			
African M.E. . . . .	7,265	868,735	667,035
African M.E. Zion . . . . .	2,252	489,244	382,316
Colored M.E. . . . .	4,400	382,000	321,000
Methodist . . . . .	41,067	8,046,129	7,400,000
<b>Presbyterian Bodies:</b>			
Cumberland Presbyterian . . . . .	1,048	64,984	44,786
Presbyterian, U.S. (South) . . . . .	3,500	565,853	519,157
Presbyterian, U.S.A. . . . .	8,462	2,040,399	1,960,399
United Presbyterian . . . . .	847	193,637	174,273
Protestant Episcopal . . . . .	7,894	2,227,524	1,501,777
<b>Reformed Bodies:</b>			
Christian Reformed Church . . . . .	310	128,914	71,831
Reformed Church in America . . . . .	736	169,390	169,390
Salvation Army . . . . .	1,474	208,329	91,664
International General Assembly of Spiritualists . . . . .	236	100,000	100,000
Unitarian . . . . .	364	62,593	62,593
United Brethren in Christ . . . . .	2,748	453,480	390,132
Totals . . . . .	212,190	41,693,104	36,742,985
<b>Other Bodies:</b>			
Eastern Orthodox . . . . .	834	686,287	502,730
Jewish Congregations . . . . .	3,728	4,641,184	3,341,652
Old Catholic . . . . .	54	10,836	8,634
Polish National Catholic . . . . .	146	250,000	200,000
Roman Catholic . . . . .	14,791	23,419,701	17,330,558
Other Bodies . . . . .	22,019	1,791,557	1,590,622
Totals . . . . .	253,762	72,492,669	59,717,181

\*Continental United States only.

The total reported church membership in 1944 was 72,494,669, which is 52.5% of the estimated population. All figures are for the continental United States only. This is the largest total church membership and the highest proportion of church membership in the total population ever reported. The total number of local churches was 253,762, also the largest number ever reported.

Fifty-five religious bodies had 50,000 or more members each, and 97.4% of the church members of the U.S. belonged to these bodies. The remaining 2.6% were in 201 smaller bodies. Of the total reported church membership 32.3% was Roman Catholic; 1.3% Old Catholic, Polish Catholic and Eastern Orthodox; 6.4% Jewish; and 60% Protestant. (L. A. WE.)

**Church of England.** The outstanding religious event of 1945 was undoubtedly the publication on June 19 of *Towards the Conversion of England*, the final report of the archbishops' commission on evangelism, with its penetrating analysis of the spiritual and psychological needs of



THE NEW ARCHBISHOP of Canterbury and Primate of all England, Dr. Geoffrey Francis Fisher, wearing mitre, proceeding to Canterbury cathedral for enthronement, April 19, 1945

the age, its emphasis on the limitations of merely scientific education and on the need for evangelism by trained laymen, and its advocacy of the use of modern agencies of propaganda, including the cinema, drama, radio, television, the press, literature, Christian information and publicity centres and advertising.

It was the second of two years of great reports which had embodied the results of enquiries undertaken during World War II and had laid the foundations for the church's efforts in the ensuing decade. Recommendations made included: the establishment of a central treasury for the church; a minimum of £500 a year for incumbents; £1,000,000 over ten years for the church training colleges for teachers; a central theological college for women; and various developments of youth work.

Apart from the solemn observances of V-E day and V-J day, and from the extensive efforts to provide a fitting welcome back to their parishes for men and women of British forces on demobilization, the events of the year included the enthronement on April 19 of Dr. G. F. Fisher as archbishop of Canterbury and primate of all England, and on Oct. 9 of Dr. J. W. C. Wand as bishop of London; a decision to raise £250,000 for Christian reconstruction in Europe; and the issue by the archbishops of Canterbury and York on Oct. 10 of an appeal for £100,000 as a free gift to the Chung Hua Sheng Kung Hui, the Anglican daughter-church in China, which had sent a unique appeal for help to the Church of England. An intensive campaign was conducted to recruit missionaries, including teachers, doctors, nurses, radiologists and other technicians, for the church overseas. Notable pronouncements by the new primate during the year issued a challenge to the church in connection with education; clarified many misunderstandings of the position of the Church of England in relation to the proposed United Church in south India; and dealt with the future of Germany and the use of the atomic bomb. (Ro. Sro.)

**Church Reunion:** see CHRISTIAN UNITY.

**Cigars and Cigarettes:** see TOBACCO.

**Cinema Industry:** see MOTION PICTURES.

**C.I.O.:** see CONGRESS OF INDUSTRIAL ORGANIZATIONS.

**Citrus Fruits:** see FRUIT.

**City and Town Planning:** see TOWN AND REGIONAL PLANNING.

**City Government:** see MUNICIPAL GOVERNMENT.

**City Manager Plan:** see MUNICIPAL GOVERNMENT.

**Civil Aeronautics Administration.** In its contributions toward resumption and intensification of civil aviation activity in 1945, the Civil Aeronautics administration emphasized the development of personal flying on a mass scale. Assistants for personal flying development were named in six of the nine regions of the CAA and in Washington, D.C., and an industry advisory committee on nonscheduled flying was appointed and met regularly.

To simplify the process of becoming a private pilot, the CAA authorized physical examination by any registered doctor, dropping the previous restriction to designated examiners. The CAA co-operated with the Civil Aeronautics board in formulating new, condensed requirements for the private pilot written examination.

Also aimed at aiding private flying was the CAA air-marking program. Communities were stimulated and guided in applying uniform methods of marking so that they can be recognized from the air.

Assistance was given to state and local governments and private interests in developing plans for airports in line with the CAA national goal of doubling the number of fields existing in 1945 to a total of 6,300.

Thousands of discharged army and navy airmen turned to the CAA for guidance in entering civil aviation. Even before leaving the service, military pilots were given CAA certificates at a rate in excess of 1,000 a week.

Continued replenishment of the reservoir of aviation interest was assured as thousands of elementary and high schools established on a permanent peacetime basis the aviation courses and materials introduced during World War II. CAA technical guidance was furnished through the state school systems, several of which set in motion "flight experience" programs, under which high school students receive about four hours of instruction in the air.

CAA technicians completed the testing of surplus military transports for use on overseas hops by civil air lines, and conducted numerous proving runs to assure safety on newly authorized transoceanic routes.

Working through the Provisional International Civil Aviation organization, the international aviation body at Montreal, Can., and by direct conversations with representatives of foreign governments, progress was made toward establishing world-wide airways facilities of a uniformly high standard.

Technical advances by CAA included a new approach-control system which permits landings every three minutes in "instrument weather"; agreement with the air lines to install direction-finding equipment at key airports for bad-weather landings during the winter of 1945, pending completion of the very high frequency radio ranges and instrument (blind) landing systems perfected by CAA; and experimentation with military radar for civil use. (See also AIRPORTS AND FLYING FIELDS; AVIATION, CIVIL.) (T. P. W.)

**Civilian Defense.** **United States.**—The national Office of Civilian Defense was terminated by executive order of President Truman at the end of the fiscal year, June 30, 1945. It was one of the first of the World War II agencies to be discontinued.

It had been established within the Office of Emergency Management by executive order 8757 of May 20, 1941, and amended by later executive orders.

Its purpose was to assure effective co-ordination of federal relations with state and local governments engaged in the fur-

therance of war programs; to provide for necessary co-operation with state and local governments with respect to measures for adequate protection of the civilian population in war emergencies; and to facilitate participation by all persons in war programs. There were state defense councils responsible for 11,400 local defense councils which enrolled approximately 11,000,000 volunteers.

The agency carried out its functions through four operating divisions: federal-state co-operation, protection services, protective property and industrial protection.

**Division of Federal-State Co-operation.**—Through state defense councils, the division aided and encouraged community organization for civilian war services, but the several federal agencies retained full responsibility for providing technical advice and guidance in their respective states. Most usual were programs of health, housing, manpower, recreation, welfare and child care, agriculture, consumer interests, nutrition, salvage, transportation and war savings. Volunteers serving in civilian war services programs were members of the United States Citizens Service corps. Boys and girls under 16 years of age volunteering their services under the supervision of adult group leaders were enrolled in the Junior Citizens Service corps.

**Protection Services Division.**—This division developed comprehensive programs for training and organizing volunteers to safeguard the civilian population by such means as blackouts, camouflage, civilian evacuation, protective construction and other defense against air attacks. Also it developed programs of rescue of endangered persons, demolition of damaged structures and clearance of necessary thoroughfares, repair of disrupted utilities, auxiliary fire and police services, and many other measures to combat war-related emergencies and disasters.

**Protective Property Division.**—This division administered the protective property and equipment purchased by the federal government for loan through the Office of Civilian Defense to states and communities in accordance with the provisions of the act approved Jan. 27, 1942 (56 Stat. 19; 50 U.S.C. App. 741), which authorized an appropriation of \$100,000,000 for this purpose.

**Industrial Protection Division.**—This division provided assistance to industrial plants regarding protection against war-time industrial hazards such as fire and accidents and against enemy action such as sabotage.

The director of the Office of Civilian Defense, until its termination, was the chairman of the defense board, William N. Haskell. (See also MUNICIPAL GOVERNMENT.)

(W. N. HA.)

**Great Britain.**—With the end of the European war, the year 1945 saw also, of course, the end of air attacks against the civil population of Great Britain, the last enemy air-borne missile, a flying bomb, falling on March 27. When all air attacks ceased on this date London and S.E. England had been under more or less continuous bombardment by mechanical weapons for nine months.

The tale of the final series of attacks is one of flying bombs and rockets. When the 1944 account was written the first rockets had fallen, but no mention of the fact was permitted. Actually rocket attacks began on Sept. 8, 1944, and ceased on March 27, 1945.

When the 12 weeks of heavy attacks by land-launched flying bombs had ceased at the beginning of Sept. 1944, the enemy resorted to attacks by the same weapon launched from aircraft, and these continued until the end of March 1945. The air-launched flying bombs were supplemented and largely replaced at the beginning of the year by longer range flying bombs launched from land sites in the Netherlands. The scale of attack



was, however, very greatly reduced compared with the main assault and the attacks had little more than a nuisance value. A high proportion were destroyed where they could do no harm. London remained the main target, save for one excursion directed against the Liverpool-Manchester area by flying bombs launched from aircraft. It met with little success except to remind the north country that it was not immune from attack.

The rockets continued throughout this period and presented to civil defense services much the same problem as the flying bombs except that no warning was possible. The daily scale of attack was much less than the flying bomb at its maximum and the attacks were scattered in the main. Rockets had a greater penetrative effect than flying bombs and therefore caused damage, at times, to water, gas, electricity and other public services. But the civil defense services were able to deal successfully with them.

As victory neared the risk of air attack dwindled until it could be safely said that the threat had disappeared. The civil defense services were accordingly officially suspended on May 2 and the process of winding up the organization began. The national fire service, having a peacetime function, was not suspended, but its numbers were reduced. Further activities of all kinds seemed likely to keep a considerable part of the W.V.S. employed for a long time. A farewell parade was held by the king with the queen and Princess Elizabeth in Hyde Park on June 10 when the king took the salute at a march past, after an inspection of the parade, and himself addressed the parade before it dismissed. At the close of the year it was announced that the home guard would be finally disbanded on Dec. 31. This force had totalled, at the end of Aug. 1944, 1,727,098 men and 30,696 women auxiliaries in Great Britain, excluding Northern Ireland. (E. J. H.)

Use of the atom bomb affected the government's attitude to the future of British civilian defense services, and in moving the second reading of the Civil Defense (Suspension of Powers) bill in the house of commons on Nov. 5, the home secretary, J. Chuter Ede, drew attention to the fact that the original technique of civil defense was out of date. The government had directed that careful study should be made of the effects of the latest form of air attacks, and civil defense was to be reviewed to see what modifications were required to adapt it to future needs.

The bill suspended certain obligations on local authorities regarding civil defense schemes and also suspended a number of provisions of the Civil Defense act. It left operative provisions of the act of existing or continuing importance. Should the time come to revive certain provisions, orders in council could be made. When it was possible to devise a new technique it was intended to begin in a quiet and orderly manner rebuilding civil defense within the framework of legislation already sanctioned. Should radical alteration of the system be necessary new proposals would be submitted to parliament. (See also GREAT BRITAIN AND NORTHERN IRELAND, UNITED KINGDOM OF; LONDON.)

**Civilian Production Administration:** see PRIORITIES AND ALLOCATIONS; WAR PRODUCTION BOARD.

**Civil Liberties.** The year 1945 represented further advances in the field of civil liberties. There were only a score of cases involving federal action touching on freedom of speech during World War II as compared with indictments of more than 2,000 persons in similar cases during World War I. Furthermore, substantial advances were made in the field of racial discrimination. The U.S. supreme court unanimously struck down as unconstitutional the detention of loyal

U.S. citizens in the U.S.-Japanese test cases. In New York state, the passage of the Fair Employment Practice act marked a new approach to diminishing religious and racial discrimination in the fields of employment. Similar legislation was passed in other states and was pending in the congress. All of the services finally admitted Negroes to the armed forces. The U.S. supreme court, moreover, voided contracts between railroads and unions in which firemen were excluded from collective bargaining.

The U.S. supreme court upheld the New York statute prohibiting racial discrimination in the admission to unions.

Organized bigotries against Catholics and Jews continued, although there was a growing movement in favour of making public the income of all such organized groups, most of whom claimed tax exemption. Further, in the field of opinion as distinguished from overt acts, the U.S. supreme court voided the deportation order against Harry Bridges, alleged communist labour leader.

In the field of letters, the exclusion by the postmaster of *Esquire* magazine from second class mailing privileges was reversed in the court of appeals of the District of Columbia, and was before the U.S. supreme court for review. The post office claimed the right to so exclude magazines on the ground that cheap postage is to be allowed only to periodicals serving the public good.

Massachusetts continued its record of book banning—the only state still banning books—and the decision of the lower court banning *Strange Fruit* by Lillian Smith, a novel of distinction, was sustained in the highest court.

Mayor LaGuardia's persistent practice of eight years of censoring the theatre of New York city was evidenced during 1945 by his use of the licensing power exercised on the closing of *Trio* which LaGuardia thought treated with an objectionable theme, to wit: lesbianism.

A decision of the U.S. supreme court required the Associated Press to amend its practice which, up to that time, prohibited competing newspapers in the same area from vetoing applicants from membership to the Associated Press. The U.S. supreme court, pursuant to decisions laid down in motion picture and radio cases, continued to insist on appraising, vis-a-vis monopoly statutes, movies, radio and press as deserving higher standards of free enterprise than would apply to potatoes or other commodities. The case pending against eight motion picture giants which were alleged to dominate the production and distribution of motion pictures in the United States was to be tried during 1946.

With the close of the war an accelerated interest developed in the United States with respect to international freedom of thought. There was imbedded in the U.S. folkway the concept that world peace depends primarily on the free flow of movies, radio and the printed word—free of governmental or private economic restrictions of the market places of thought. Whereas the United States became substantially free from governmental restraint of thought, many of the other nations of the world were moving in the totalitarian direction and were imposing restrictions in the form of movie quota-laws, currency controls and additional taxation to prevent the free exchange of ideas. Various commissions from the United States toured the world in order to appraise this situation, with particular reference to the restrictions on the right of reporters, camera men and broadcasters freely to roam other nations. The Henry R. Luce Commission on Freedom of the Press finished its hearings and was to make its report in 1946. (See also ALIENS; ANTI-SEMITISM; BIRTH CONTROL; EDUCATION; LAW; LYNCHING; NEGROES [AMERICAN]; NEWSPAPERS AND MAGAZINES; RADIO.)

(M. L. E.)

**Civil Service, U.S.** Repercussions of world events in 1945 were felt with compelling force in government civil service, particularly at the national level. Whereas the beginning of the year found governmental machinery geared to an all-out war effort, within a few months victories in Europe and the Pacific brought swift cessation to many war-related government activities. By the latter part of 1945, the transition from war to peace was in full swing, with demobilization of the great army of wartime civil servants well under way.

The magnitude of this transition is illustrated in the federal civil service employment figures for the U.S. during the year. As the year began, civilian employees of the federal government numbered 2,859,737. This total increased somewhat in subsequent months, until at the end of March it reached the peak for the year, 2,920,410 employees. By the end of August, a reversal of the trend brought the number of employees back below the total recorded at the beginning of the year, and by the end of December, federal employment figures stood at 2,405,000, a net decrease of 500,000 employees from the high point of the year.

Most of the cutbacks in federal personnel were in the war and navy departments and in other wartime agencies. Because of this large-scale personnel reduction, the United States civil service commission announced an indefinite suspension in the acceptance of applications for employment from the general public except from war veterans, and devoted its major efforts toward accomplishing the reduction in force in an orderly, equitable manner.

The gradual decline in state and local government employment in the U.S., a trend dating back to the beginning of World War II, was in considerable measure offset by the return of large numbers of former employees following their release from the armed forces. Unlike the conditions confronting the federal government, the end of the war brought no need for demobilizing civilian employees in the states and cities, and many of these latter jurisdictions began taking steps to replenish their depleted personnel.

As the end of the war approached, the work week of federal employees was cut from 48 to 40 hours, bringing with it substantial reductions in pay through the curtailment of overtime hours at premium rates. To offset this decrease in income, legislation was adopted which raised the base pay rates of federal employees by amounts ranging from 20% in the lower levels to 10% and less in the highest paying positions. At the same time, the bulk of the federal service was placed on a five-day work week.

The year marked the passage of new civil service laws in two states, Oregon and Nebraska, the latter being limited to certain categories of clerical employees. Enactment of these laws increased the number of states having civil service laws to 22. In two additional states, Missouri and Georgia, newly adopted state constitutions called for the future enactment of civil service laws for state employees.

Civil service legislation in other localities during 1945 was largely concerned with rights and benefits for war veterans. Measures expanding already existing preference to veterans in public employment were adopted in the states of Illinois and New York, the latter by constitutional amendment. The cities of Detroit, Mich., and St. Louis, Mo., were among those adopting new veterans' preference policies, the St. Louis preference measure being limited to five years after the war. (J. J. Dn.)

**Clark, Mark Wayne** (1896- ), U.S. army officer, was born May 1 at Madison Barracks, N.Y., where his father, Col. Charles C. Clark, was then stationed. A graduate of West Point in 1917, he saw service on the

western front in World War I and was wounded in June 1918. He was graduated from the Command and General Staff school, 1935, and the Army War college, 1937. In Aug. 1942, he arrived in England to take over command of U.S. ground forces in the European theatre of operations, and in Nov. 1942, he was second in command of the U.S. forces that landed in North Africa. Three weeks before the invasion, General Clark and a group of U.S. officers were secretly landed on a coastal point in French North Africa. They established contact with French officers eager to co-operate with the United States and secured an agreement from these officers not to resist the Allied landings. He was awarded the distinguished service medal and the congressional medal of honour and promoted to a lieutenant general for this mission.

It was in North Africa that Lt. Gen. Clark gathered and trained the U.S. 5th army which he commanded in the invasion of Italy. In Nov. 1944 Lt. Gen. Clark was made commander in chief of the Allied 15th army group in Italy, succeeding British General Alexander, who was promoted to field marshal in supreme command of the entire Mediterranean theatre. Clark was nominated to the temporary rank of full general, March 13, 1945. The following month his armies launched the final assault against German troops in Italy, and on May 2 the German forces in northern Italy and in some sections of Austria laid down their arms to Clark's forces. He was designated (June 28) commander of U.S. occupation forces for Austria.

**Clark, Thomas Campbell** (1899- ), U.S. lawyer and attorney-general, was born Sept. 23 in Dallas, Tex. He was graduated with an A.B. degree from the University of Texas (1921) and practised law. He was civil district attorney of Dallas county, 1927-32. In 1937, Clark was made special assistant to the attorney-general of the U.S. He was shifted to the department's antitrust division (1938), was later named co-ordinator of alien enemy control in the Western Defense command, and was given charge of the War Frauds unit in the antitrust division in May 1942. Clark became assistant attorney-general of the antitrust division (March 1943) and carried on an active battle against cartels, which he described as "private economic super-governments." In Aug. 1943, he headed the justice department's criminal division with his authority extending to the War Frauds unit. President Truman named Clark to succeed Francis Biddle as U.S. attorney-general, May 23, 1945. Clark assumed office June 30. He ordered prompt prosecution of black market cases (July 29) and a drive to round up income tax evaders. On Sept. 17, he recommended that congress act to reorganize and subdivide the Aluminum Company of America, warning that failure to do so would require government subsidization of Alcoa competitors to restore free competition in the aluminum industry.

**Clarke, John Hessin** (1857-1945), U.S. jurist, was born Sept. 18, in Lisbon, O. He was graduated from Western Reserve university in 1877 with an A.B. degree and was admitted to the Ohio bar the following year. He practised law in his home town, moved on to Youngstown and Cleveland and in 1914 received an appointment as U.S. district judge for the northern district of Ohio. Early in his law career he joined Mayor Tom Johnson of Cleveland and Newton D. Baker in fighting the railway monopolies. In 1916, President Wilson named him associate justice of the supreme court to succeed Charles Evans Hughes. Outspoken and vigorous in his pursuit for world peace, Clarke provoked cries of "idealist" and "visionary" from his critics. Breaking a traditional precedent of the court, whose members refrain from

public speeches, he publicly urged in 1921 the cancellation of war debts. In 1922, he resigned from the bench and devoted his talents and energy toward rallying public opinion behind a world peace movement, adherence to the League of Nations and the outlawry of war. He was president of the League of Nations Non-Partisan Association of the U.S., 1922-30. Clarke died in San Diego, Calif., March 22.

**Clay, Lucius DuBignon** (1897- ), U.S. army officer, was born April 23 in Marietta, Ga. He was graduated from the U.S. Military academy in 1918, and during the latter days of World War I was an instructor at an officers' training school. Clay taught military science and tactics at Alabama Polytechnic institute (1921), and was assigned as an instructor at West Point (1924). During the following years, Clay was associated with a number of army construction and engineering projects in the United States and abroad. A month after the U.S. entry into World War II, Gen. Clay went to South America to locate defense airports there. On his return, he was made deputy chief of staff for requirements and resources in the Army Service of Supply (March 1942), and he was promoted to temporary rank of major general (Dec. 1942). Clay brushed aside antiquated war department methods and, as the war in Europe drew to a close, he opposed implementation of reconversion plans on the ground that the army had to keep its military supplies at peak requirements until the Germans actually and finally surrendered. In the fall of 1944, Gen. Clay was sent to Cherbourg where he straightened out kinks obstructing the smooth flow of war supplies through that vital Allied port. In Dec. 1944, he was transferred to the Office of War Mobilization and Reconversion as deputy director for war programs and administration. On March 29, 1945, President Roosevelt appointed Gen. Clay deputy to Gen. Dwight Eisenhower in charge of civil affairs in occupied Germany, and Clay was named a lieutenant general the following month. In addition to being Eisenhower's deputy, Clay was also head of the U.S. group of the Control Council for Germany and deputy military governor of the U.S. zone of occupation. Gen. Clay stated (May 26) that the Germans would have to become dependent on their agriculture for their food requirements. He later revised his views on German self-sufficiency in foodstuffs, declaring (Nov. 5) that as there were no "substantial amounts" of food in Germany, the U.S. army authorities would ask the war department for 300,000 tons of food to supply civilians in the U.S. occupation zones.

**Clays.** Shipments of kaolin in the United States declined from 929,437 short tons in 1943 to 873,056 tons in 1944, accompanied by a lesser decrease in value. Although the common name for this type of clay is china clay, only 10% of the 1944 output was used in pottery, against 19% in refractories and 59% in paper. Sales of ball clay rose from 147,795 tons in 1943 to 155,667 tons in 1944, mostly used in pottery. Consumption of fire clay also declined in 1944, to 6,344,383 tons, against 7,798,233 tons in 1943. Of these totals the tonnages sold or shipped as raw clay were 4,701,144 tons in 1943 and 3,804,404 tons in 1944. The remainder was burned into clay products at the point of production. Miscellaneous clays, used mostly in cement and heavy clay products, declined from 11,215,276 tons in 1943 to 9,080,717 tons in 1944. (See also BENTONITE; FULLER'S EARTH.) (G. A. Ro.)

**Clendening, Logan** (1884-1945), U.S. physician and writer, was born May 25 in Kansas City, Mo. He studied at the Universities of Michigan, Ann Arbor, Mich., and Kansas, Lawrence, Kan., receiving his M.D.

from the latter institution in 1907. He began the practice of medicine in Kansas City in 1909, and in the following year joined the faculty of the University of Kansas, becoming professor of clinical medicine in 1928. His *Diet and Health* column, syndicated to more than 400 newspapers, reached millions of readers daily. He wrote *The Human Body* (1927), *The Care and Feeding of Adults* (1931) and *Source Book of Medical History* (1942). Ill for some time, Dr. Clendening was found dead at his Kansas City home, Jan. 31; police believed he had taken his life.

**Cleveland.** Sixth largest city in the United States, Cleveland, O., had a population of 878,336 by the federal census of 1940. Area 73.74 sq.mi.

Thomas A. Burke, Jr., a Democrat, was elected mayor of Cleveland at the Nov. 6, 1945, election, defeating his Republican opponent, Councilman Ray C. Miller, by 65,854 votes. Burke, who was previously city law director, became mayor Jan. 8, 1945, when his predecessor, Frank J. Lausche, took office as governor of Ohio. Mayor Burke's first elected term began Nov. 14, 1945. The city's budget for 1945 was \$19,000,000, the largest in its history.

Mayor Burke appointed Lee C. Howley, member of the Cleveland board of education and assistant U.S. attorney, as city law director. The city council established a community relations board for handling interracial problems and the mayor reorganized the Cleveland port and harbour commission. Police Chief George Matowitz was suspended by Mayor Burke but was completely exonerated of the suspension charges by the civil service commission.

Other events in 1945 included the following: Guy R. Lucas was appointed postmaster of Cleveland. The Cleveland board of education elected Mrs. Norma F. Wulff president and approved a budget of \$15,657,331. A campaign was launched to raise \$9,500,000 for construction of four new hospitals and expansion of 13 others. On the death of Archbishop Joseph Schrembs of the Cleveland Catholic diocese the Most Rev. Edward Hoban became sixth bishop of Cleveland. Construction began on 13 new buildings to increase capacity of the army's Crile General hospital. A sesquicentennial commission was appointed to arrange for the celebration of the 150th anniversary of the founding of the city throughout 1946.

The value of products made by Cleveland industry in 1945 was close to \$3,000,000,000 or more than twice the average peacetime production. The Cleveland area produced 3,905,174 tons of ingot steel during the year. Seventy-three new manufacturing plants with a combined pay roll of \$2,647,400 were established in the city. War materials made in the Cleveland ordnance district during World War II amounted to approximately \$5,000,000,000. Deposits of the Cleveland Trust Co., the city's largest bank, passed the \$1,000,000,000 mark. The city's tax rate was \$2.98 per \$100 value and the assessed valuation of land and buildings in the city was \$957,651,270.

(P. By.)

**Climate:** see METEOROLOGY.

**Clothing Industry.** The year 1945 was a year of hard work within the clothing industry in the United States. End of the war meant termination of millions of dollars in government contracts; only relatively few manufacturers received new contracts. War contract termination went smoothly due to excellent planning by the army quartermaster corps and the navy bureau of supplies and accounts. All factors jockeyed for position in the postwar era.

Unlike most industries there was little labour trouble—wages



were high, with a 30% increase granted the regular clothing workers in the latter part of the year; this presaged higher consumer prices in 1946.

War-born shortages plagued the industry as never before; black market operations, from mill to consumer, were not infrequent. Manufacturers complained bitterly against ceiling prices applied to them by government control that were based on prices and costs of 1943. The textile situation was difficult all 1945—most difficult at the year's end. Consumers felt the tight situation in the scarcity of all apparel. Numerous efforts to circumvent government pricing policies were reflected in the popularity of "boxer" type undershorts and a great influx of "mill end" fabrics. In a determined drive to lower the upward spiral of clothing prices the Office of Price Administration (OPA) used textile distribution as a lever, thus channelling woollen goods into the low-priced field. The result was that at year's end manufacturers were in many instances refusing to make deliveries. Returning war veterans could not find civilian clothing.

Cotton goods were even scarcer than woollens. Labour shortages, high taxes and mechanical difficulties discouraged cotton mills. Work clothing, shirts, pajamas and underwear were sold from under, not over, the counter in many retail stores. Lining, pocketing and other trimmings shortages hindered production. Finally, in December, the Reconstruction Finance corporation (RFC) offered 5,500,000 yd. of war surplus nylon and rayon lining to the trade. Styles were generally unchanged; indicated was a probable change in the historic dress of U.S. sailors.

Caught in the whirlwind of reconversion the industry nevertheless planned ahead. All over the world clothing manufacturers longed for U.S. machines and methods—and were determined to get both. France and England were definitely turning from the custom tailor, and were going in for mass-produced, machine-made, good quality clothes. Machinery manufacturers, hampered by reconversion, shortages and strikes, managed to introduce new high-speed cloth laying, automatic folding and non-fusing cloth-cutting machines. Research continued.

Few new fibres, finishes and coatings appeared on the civilian market. Synthetics made progress and sewing-machine companies were busily engaged in research on an electronic machine to fuse plastics, including nylon. New methods of making fabrics by lamination, knitting and weaving were introduced. A novelty item was the use of deboned chicken feathers in weaving.

World-wide, mankind shivered in the cold. Japanese, German and Italian mills and factories were decimated. The Allies suffered too; in Britain clothing stocks reached record lows.

FILMS.—*Clothing* (Encyclopædia Britannica Films Inc.). (S. L. S.)

**Cloves:** see SPICES.

**Coal.** World Production.—During World War II world data were too restricted to permit any reliable estimates of world output, but conditions improved sufficiently that most of the gaps were filled in the world production table for the important producers. However, no data up to the close of 1945 were received from Germany.

After 1939 coal production in the United States increased by more than half, but this was not representative of other producers. The countries for which production figures were available for both 1939 and 1943 showed an increase of 216,000,000 short tons, but of this total increase 205,000,000 was made in the United States, leaving only a meagre share for the rest of the world that could easily be wiped out entirely when full data became known.

With the war ended, one of the most important problems facing the coal industry was the restoration of the industry to a

Table i.—*Coal Production of the World*  
(Millions of short tons—all grades)

	1938	1939	1940	1941	1942	1943	1944
Canada . . . . .	14.30	15.69	17.57	18.23	18.86	17.86	17.01
United States . . . .	394.63	446.34	512.25	570.51	643.02	650.82	683.70
Belgium . . . . .	32.61	32.90	28.23	28.50	27.43	26.12	?
Czechoslovakia . . .	33.64	?	?	?	?	?	?
France . . . . .	52.43	56.22	45	47	47	45	30
Germany . . . . .	420.51	473.99	?	?	?	?	?
Netherlands . . . .	15.06	14.40	13.6	14.3	14.0	13.9	?
Poland . . . . .	42.01	?	?	?	?	?	?
United Kingdom . . .	254.26	259.10	251.21	231.11	228.07	217.83	207.73
U.S.S.R. . . . .	146.48	150	181.44	175	100	145	?
China . . . . .	4.70	5.03	6.31	6.61	6.23	6.61	6.02
India . . . . .	31.74	31.10	28.66	33.00	32.97	28.66	?
South Africa . . . .	17.95	18.62	18.94	20.21	22.50	22.66	?
Australasia . . . . .	19.70	21.86	20.74	23.99	25.22	22.81	?
Total . . . . .	1,619.3	1,806.7	?	?	?	?	?

peacetime basis. In the United States this was a minor matter, as it involved only the scaling of the output to current demand; so far as the producing facilities were concerned, it made no difference whether the output was shipped to a munitions plant or an automobile plant, and the producing facilities themselves needed no reconversion, as did a manufacturing plant. In Europe, however, the situation was greatly different, and the problem was not reconversion, but rehabilitation both with respect to the physical plant and the labour supply. The disorganization that followed the German surrender left the coal industry of most of the occupied countries in even worse shape than it was during the occupation. In some of these countries the prospective fuel supply for the winter was so scanty that the populace was facing not only the hardship of a winter with little or no heat, but also starvation through lack of sufficient fuel to process the limited food supplies that were available.

**United States.**—Coal output in the United States increased from 650,820,689 short tons in 1943 to 683,701,000 tons in 1944, an increase of 5.1%, to which anthracite and bituminous contributed about equally. The salient data of the industry during the war years is listed in Table II.

Table II.—*United States Coal Production*  
(Thousands of short tons)

	Bituminous	Anthracite	Total	Consumption	Men Employed
1939 . . . . .	394,855	51,487	446,342	376,296	422,000
1940 . . . . .	460,772	51,485	512,256	431,331	439,075
1941 . . . . .	514,149	56,368	570,517	492,445	456,981
1942 . . . . .	582,693	60,328	643,021	540,629	461,991
1943 . . . . .	590,177	60,644	650,821	594,517	416,007
1944 . . . . .	620,000	63,701	683,701	590,694	383,000
1945 (est.) . . . . .	573,840	54,610	630,450	?	?

The weekly production rate for bituminous coal dropped below that for the corresponding weeks of the previous year in Nov. 1944 and kept low through the first three quarters of 1945. There was a similar lag in anthracite, with an almost complete stoppage during most of May 1945, and the year's total dropped accordingly.

In the latter part of Sept. 1945 sporadic strikes began in the bituminous mines, cutting production in half by mid-October. While there seemed to be little if any hope for an early settlement of the differences, the strike was suddenly called off "in the public interest" on Oct. 18, the strikers returning to work on the following Monday. It was estimated that at least 20,000,000 tons of production had been lost by the strike, at a time when coal was badly needed both at home and abroad. Stocks of coal had been cut to a low level by war demand, and the U.S. was in a poor position to face a prolonged strike, even had other conditions been normal. Instead, the winter supply for domestic heating had been curtailed by rationing, coal was needed for export to Europe, and on top of everything else, the reconversion program was just getting under way. All things considered, the situation was serious from a consumer's standpoint, a fact which had doubtless been considered as an asset by the labour leaders responsible for the strike. The sudden calling off of the strike was

never properly explained.

Even a superficial analysis of the situation revealed that the timing of the strike was a poor policy from a labour viewpoint. It is true that conditions were such as to give labour a strong position to enforce its demands, but the long-term viewpoint was not promising. It is quite possible that a prolonged

Table III.—United States Production of Coal, by States  
(Millions of short tons)

	1939	1940	1941	1942	1943	1944
Alabama . . . . .	12.0	15.3	15.5	19.3	17.2	19.0
Colorado . . . . .	5.9	6.6	6.9	8.1	8.3	8.1
Illinois . . . . .	46.8	50.6	54.7	65.1	72.6	77.0
Indiana . . . . .	16.9	18.9	22.5	25.4	25.1	28.1
Kentucky . . . . .	42.6	49.1	53.7	62.2	63.2	68.2
Ohio . . . . .	20.3	22.8	29.3	32.8	32.3	33.9
Pennsylvania . . . . .	92.2	116.6	130.2	144.1	141.0	148.8
Tennessee . . . . .	5.6	6.0	7.0	8.2	7.2	7.4
Utah . . . . .	3.3	3.6	4.1	5.5	6.7	7.1
Virginia . . . . .	13.5	15.3	18.4	20.1	20.2	19.9
West Virginia . . . . .	108.4	126.4	140.3	155.9	158.8	163.8
Wyoming . . . . .	5.4	5.8	6.6	8.1	9.2	9.7
Others . . . . .	21.7	23.7	24.8	27.9	28.3	29.0
Total Bituminous . . . . .	394.9	460.8	514.1	582.7	590.2	620.0
Anthracite . . . . .	51.5	51.5	56.4	60.3	60.6	63.7
Grand Total . . . . .	446.3	512.3	570.5	643.0	650.8	683.7

shortage of coal just at the time reconversion was under way could have enabled the competing fuels, oil and gas, to have made such inroads on future coal demand as to offset any immediate advantage that labour could have gained from a successful settlement of the strike on the terms demanded. (See also FUEL BRIQUETTES.) (G. A. Ro.)

**Great Britain.**—Coal production in Great Britain decreased from 222,789,500 short tons in 1943 to 215,875,200 tons in 1944, of which 206,190,200 tons was from underground mines and 9,685,000 tons from open pits. Underground output decreased, while open pit output increased. The number of mines in operation dropped from 1,782 in 1943 to 1,720 in 1944, but the number of men employed rose from 707,800 to 710,200. Output per man-year was 307.8 short tons in 1943, at a cost of 25s. 2d. per ton. In 1944 output per man dropped to 290.3 tons, while costs rose to 28s. The surplus for export was relatively small, as home consumption was estimated at 207,648,000 tons.

Production losses from all causes except absenteeism totalled 15,817,200 tons, distributed as follows: authorized holidays 9,512,800 tons; disputes 3,361,900 tons; accidents, breakdowns and repairs 1,796,300 tons; transportation difficulties 658,400 tons; other reasons 487,800 tons. Losses due to absenteeism were not reported, but 41% of the total was voluntary and 59% involuntary.

Throughout 1945 the coal position continued to deteriorate and Great Britain, in spite of economies amounting to hardship in the case of the householder using coal for cooking and heating, was threatened with a coal famine in the spring of 1946. The output per person employed in the industry continued to fall during the year; there was a small but insignificant increase in the number of persons employed and stocks were depleted. It was officially stated by government speakers that unless an extra 8,000,000 tons were produced during the autumn a serious crisis would arise. As this represented a 12½% increase in output without a corresponding increase in labour, the prospect was gloomy.

Output had been steadily declining after 1941 and had started on the downward trend before the government took what was virtually control of the coal mines in 1942. Many remedies had been prescribed to overcome the decline without any real success. With the advent to power of a Labour government the most drastic remedy of all was to be applied, namely, nationalization of the whole industry. It is interesting to note that responsible Labour speakers were already warning the miners that nationalization would not mean less labour for the workers, but probably more to enable them to implement their promises to produce extra coal when the mines were nationalized.

On Dec. 19 the minister of fuel and power presented to the house of commons a Coal Industry Nationalization bill. Its purpose was to nationalize the coal industry in Great Britain, including not only the working, getting and supplying of coal but certain allied activities, in particular, colliery coke ovens and other ancillary plants.

A national coal board consisting of nine persons was to be established to have the exclusive right, with very minor exceptions, to mine and get coal, to secure the efficient development of the industry and to make supplies of coal available in quantities and at prices which seemed best calculated to further the public interest. The existing colliery owners were to be compensated by an issue of government stock, the global amount of which was to be decided by an arbitration tribunal. This global amount would be divided among districts by a central valuation board and the district allocations by district valuation boards. The national coal board was to be authorized to borrow up to £150,000,000 during the first five years of its life to satisfy capital expenditure necessary to rejuvenate the industry. The bill also would empower the national board to assume the functions previously exercised by the Coal Owners' association, the coal commission and the Miners' Welfare committee.

Two interesting plans for reviving the industry were published during 1945. The first, the Foot plan, was devised by the newly appointed chairman of the Mining association (the owners) and received official acceptance from the majority of the owners. Preliminary steps were being taken to implement it when the general election intervened. The second, the Reid report, was prepared by a panel of mining engineers convened by the minister of fuel and power. This report, probably the most outspoken document ever written for publication by members of the mining industry, analyzed the causes of the existing low output per person employed, compared the British industry unfavourably with that of certain continental countries and the U.S., and made suggestions involving drastic changes in British methods. In addition to these reports the publication of statistical digests was resumed.

The purchase of all unwrought coal was completed by the coal commission for £65,000,000.

Extremely useful surveys of the coal reserves in each region, which were completed by regional committees, contain information of great value to the future planning of a nationalized industry. It appeared that in the future each variety of coal would be used for the purpose for which it was most suited and not sold regardless of the use to which it was to be put.

Opencast coal mining, largely through the use of U.S. machinery, in 1945 was expected to produce about 9,000,000 tons of coal; but it was considered reasonably certain that this method of winning coal would be discontinued as soon as possible. The cost of getting is too high for the method to be economically profitable in Britain. (J. A. S. R.)

**Austria.**—Prewar consumption of coal was 7,700,000 tons a year, half of which was imported. With the output in 1945 only one-quarter normal and imports scarce, conditions were serious. In the immediate postwar days Hungary was the only source of imports, but supplies were expected from Poland somewhat later.

**Belgium.**—In Sept. 1945 production had improved to 69,000 short tons daily, about two-thirds normal.

**Canada.**—Coal output decreased from 17,859,057 short tons in 1943 to 17,010,117 tons in 1944, of which 11,767,523 tons was bituminous, 728,364 tons was sub-bituminous, and 4,514,230 tons was lignite. Declines in output were chiefly in Nova Scotia and Saskatchewan. There was a small increase in demand with imports up and exports down to a minor degree. Net imports were 27,742,553 tons in 1943, rising to 27,916,685 tons in 1944.

The preliminary estimate of 1945 production was 16,692,465

tons, a reduction of 2% from 1944. There was a sharp decline in imports, which were 17,693,256 tons through September.

**Czechoslovakia.**—Due to labour shortage, production was only 490,000 short tons in Aug. 1945, against monthly requirements of 880,000 tons.

**France.**—Under a decree dated Dec. 13, 1944, the state assumed the administration of the coal mines in the departments of Nord and Pas-de-Calais, and it was expected that the other important producing areas would be added later. Production was improving, but was still below normal requirements. Output late in Sept. 1945 was 835,000 tons weekly, or about 10% below the minimum requirements.

**Netherlands.**—Output in July 1945 was 17,600 short tons daily, as compared with a minimum requirement of 28,600 tons, a prewar output of 49,500 tons and one of 37,400 tons under German occupation.

**Poland.**—An agreement was completed under which Polish coal would be supplied for the Rumanian railroad system. No production figures were seen, but apparently the resumption of normal operation was making fairly good progress.

**FILMS.**—*Distributing Heat Energy; Fuels and Heat* (Encyclopædia Britannica Films Inc.). (G. A. Ro.)

**Coast and Geodetic Survey, U.S.** The operations of the United States Coast and Geodetic survey, which at the opening of the year 1945 were proceeding under plans for providing complete surveys of the outermost Aleutian Islands and adjacent waters, navigational charts of all coastal waters and aeronautical maps of the land areas of the United States, continued throughout the year. The need which had existed for these products of the bureau continued, as was indicated by the number of navigational charts compiled and printed. There were 3,500,000 marine and 6,000,000 aeronautical charts issued. Twelve survey ships were engaged in the Aleutians, in the waters of the Pacific northwest and along the Atlantic shore line from the Virginia capes to the islands off the Maine coast. A survey expedition provided essentially vital information to naval activities on the Arctic coast eastward of Point Barrow.

The direction and intensity of the terrestrial magnetic field were observed continuously at five permanent observatories located at strategic magnetic points in the United States, the West Indies, Alaska and the Hawaiian Islands. Changes in variation and in other magnetic elements were also noted at various places by field observers. Isogonic charts were published for army and navy fliers over world routes.

The survey operated five major seismographs and continued its co-operative program of assistance and compilation of results for 11 universities and 7 private seismic stations. In the earthquake region of the western United States, 60 strong motion instruments were maintained and studies of vibration in buildings and foundations advanced the work in progress in engineering seismology.

The work in geodesy reflected the shift from World War II requirements to preparation for postwar development, especially in the consideration of multiple water uses in some of the main river valleys. For the purpose of investigation by other federal agencies for flood control, power, reclamation and recreation, geodetic control surveys, which included triangulation, base measurements, astronomic observations and precise levelling, were carried out in the tributary stream valleys of the Columbia and Missouri river basins. Control surveys were provided for topographic mapping in several states. A breakdown of the main cross-country triangulation arcs was performed to provide additional area coverage at the request of several city and state engineers for engineering and planning projects.

An expansion of previous co-operative projects in surveying and mapping within the American Republics was effected to the material benefit of these countries by an exchange of experts and technical personnel and by further scientific field observations and discussions.

Publications were issued on "Practical Air Navigation," "General Theory of Equivalent Projections," "U.S. Earthquakes," "State Coordinate Systems," "Prediction of Tides of the World" and "Coast Pilots of the United States." (L. O. C.)

**Coast Guard, U.S.** With the capitulation of both Germany and Japan to the Allied powers during the year 1945, the U.S. coast guard turned to applying the scientific developments of the war years to one of the service's main peacetime missions, that of saving and protecting life and property on the sea and navigable waters of the U.S.

Aids to navigation used for war purposes were removed during the last part of the year, and lightships, not used during World War II, once more took up their positions. The number of new aids counterbalanced the aids removed, so the coast guard continued to maintain more than 36,000 aids to navigation (lightships, lighthouses, buoys, day marks, fog signals and radio beacons). Developments put to greater use upon the war's conclusion were Anrac control stations and Racon stations. Anrac—with its name derived from the beginnings of a descriptive phrase, Aids to Navigation RADio Controlled—is a radio device to light and extinguish electric lights and operate fog signals; Racon (RADar beaCON) gives distance and bearing, of an aeroplane or ship within 120 miles from such a beacon. By the middle of 1945 the coast guard had installed and was operating 45 Racon stations on the Atlantic and Pacific coasts and in Hawaii and Alaska. One of the navigation improvements of the war years was the Loran radio transmitting station (LONG Range Aid Navigation), used to obtain longitude and latitude positions. Concurrent with the landing of Allied forces on Iwo Jima and Okinawa, the coast guard mobile construction units installed Loran, providing lines of position over the Japanese mainland and contributing to the success of U.S. bombers. By midyear the coast guard was operating 64 fixed and 17 mobile Loran stations.

The important part played by aeroplanes during World War II and the improvements made in aircraft portended increased air travel and gave impetus to a movement for a better life-saving organization, which combined radio, air and sea power. Established in 1944, the air-sea rescue agency, which guides this life-saving organization, has the commandant of the coast guard as its head, assisted by a board of representatives from the army and navy. In support of air-sea rescue aircraft, a vessel organization of 98 coast guard manned vessels was assigned on June 30, 1945, representing a considerable increase.

The coast guard's nine air stations in the continental U.S. began a greater concentration on rescue activities upon the conclusion of the war, and in Greenland, Labrador, Iceland and the Canadian Arctic a coast guard-manned squadron (navy patrol bombing squadron 6) continued ice observation and assistance operations. During the war this squadron, as well as the nine air stations, carried out antisubmarine patrol and convoy escort duties.

The coast guard continued the administration of marine inspection and navigation laws, a function assigned to it in 1942, and during the fiscal year ending June 30, 1945, certificated for service 1,627 new vessels constructed during that period. These vessels were examined during construction for compliance with specifications, matériel inspections were made at factories and examinations continued after the ships were in use. Annual inspections were completed on 9,720 vessels during the fiscal year,



an increase of about 16% over the previous year.

Following the defeat of Germany, the coast guard reduced forces doing port security and beach patrol work, and with the surrender of Japan these operations were further curtailed, but fire protection, prevention of oil pollution, anchorage and traffic control of vessels and other protective measures were not discontinued. There were 5,978 instances in which coast guard units were dispatched to assist vessels and persons in distress during the fiscal year, and in such operations 4,630 persons were rescued from peril. During three floods inundating the Ohio and Mississippi valleys during the spring of 1945, coast guard task forces, augmented by planes and a helicopter, effected the rescue of more than 10,000 persons, evacuated thousands of head of cattle and transported food, medical supplies, mail and household effects. Icebreaking operations to keep the Great Lakes and North Atlantic ports open to commerce were carried out as usual during the ice season.

Although slated for return to the U.S. treasury department, the coast guard continued to function even after hostilities had ceased under the navy department, to which it had been assigned for emergency service on Nov. 1, 1941. The coast guard's military duties during 1945 continued along the same lines as earlier in the war and included working with naval units as convoy escorts, antisubmarine patrol, protection of U.S. ports, manning of troop transports, performing landing operations and maintaining Racon, HF/DF (High Frequency Direction Finder) and Loran stations. Along with these missions, the coast guard was responsible for its regular peacetime duties. In addition to the 1,677 coast guard craft in active service on June 30, 1945, about 300 U.S. navy and 250 U.S. army vessels were being manned by some 55,000 coast guardsmen. Two of the largest task forces operating with coast guard personnel were the Greenland patrol and North Atlantic oceanic weather observation service. Besides patrolling the Greenland coast to prevent German attempts to establish weather bases, breaking ice to keep channels open and assisting in convoy operations, the Greenland patrol made reports to aid safe passage of shipping during the ice menace season. The weather patrol made reports contributing to the safety of air traffic and of troop and munition movements.

On Sept. 1, 1945, the personnel strength of the coast guard, exclusive of the temporary reserve but including the women's reserve (SPARS), was 170,480. Also attached were more than 600 medical and dental officers and nurses detailed from the public health service. The authorized force of civilian employees on June 30, 1945, was 6,827. The postwar program called for a military strength of 34,500, so after the end of hostilities disenrolment or demobilization of various groups augmenting the regular coast guard proceeded with increasing rapidity.

The vessel organization on June 30, 1945, consisted of 1,677 craft, ranging in size from 327-ft. cutters down to 36-ft. motorboats. During the fiscal year construction was completed on one 290-ft. icebreaker, two 269-ft. icebreakers, four 255-ft. cruising cutters, twelve 180-ft. tender-class cutters and numerous small vessels.

**Coast Guard Academy, U.S.**—The United States Coast Guard academy at New London, Conn., founded in 1876, is an institution of higher learning for the training of commissioned officers for the coast guard. Its present home, overlooking the Thames river, was constructed in 1932, with additions made just prior to World War II. The red brick, Georgian colonial buildings centre around the administration building, Hamilton hall, named after Alexander Hamilton, first secretary of the treasury and founder of the coast guard in 1790.

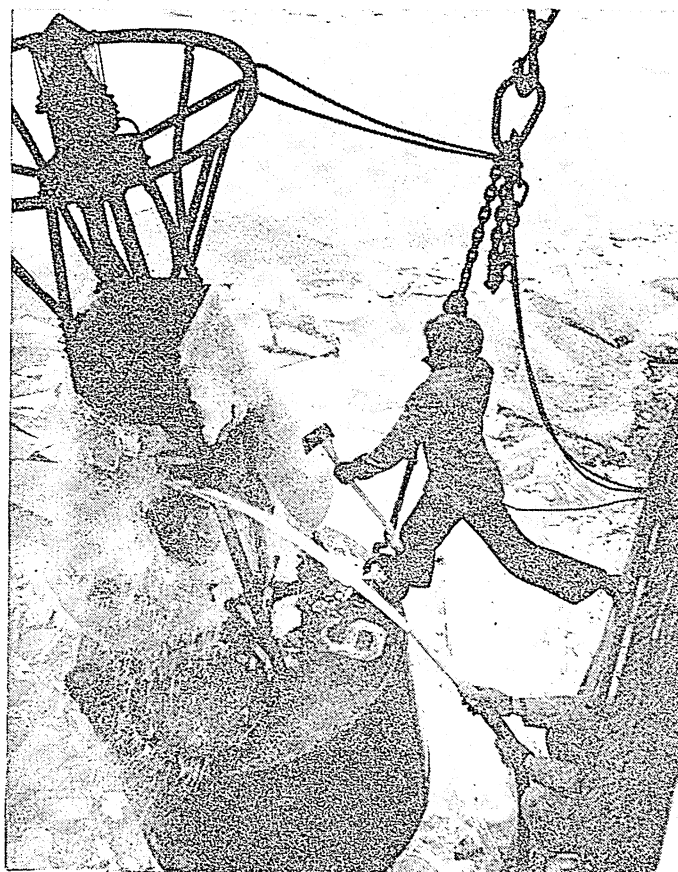
To enlarge the wartime officer complement the academy gave a four-month indoctrination course for reserve officers and

adopted an accelerated three-year curriculum for the regular cadets, but discontinued the reserve program before the close of the war and put the regular course of study back on a four-year basis in July 1944. The cadet corps in peacetime totalled between 200 and 300, about 150 entering each year, but in 1945 the future enrolment was expected to be around 500. Entrance is restricted to unmarried men between 17 and 22 years of age, and appointments are obtained through competitive examinations. When the annual tests in mathematics, English and general adaptability were given in designated U.S. cities in May 1945, 375 of the 2,265 candidates received passing marks. The academy confers upon its graduates the bachelor of science degree and a commission as ensign in the United States coast guard. During the fiscal year ending June 30, 1945, 97 cadets were graduated. (R. R. W.)

**Women's Reserve, U.S. Coast Guard Reserve.**—The training program of the women's reserve of the U.S. coast guard was much curtailed in 1944 when the reserve reached its required complement, and within one month after the end of World War II in 1945 all enlistments and training were discontinued. Popularly known as SPARS, the members of the women's reserve numbered 9,764 on Dec. 9, 1944, 9,780 on June 30, 1945, and 8,468 (808 officers and 7,660 enlisted women) on Nov. 13, 1945; demobilization was to be completed by June 30, 1946. This would represent a life of nearly four years for the organization, which was established on Nov. 23, 1942.

The type of duty performed by SPARS in 1945 continued along the same lines as in former years, with women reservists serving as yeomen, communicators, instructors, clerks, radio operators, pharmacist's mates, storekeepers, hospital apprentices, ship's cooks, office and barracks administrators. Volunteers continued to be sent to Hawaii and Alaska, but the majority were on duty in the continental U.S. at coast guard headquarters in Washington, D.C., district coast guard offices, air stations, cap-

A U.S. COAST GUARDSMAN hacks away at the ice encrusting a buoy as a crewmember pelts it with a stream of boiling water. Tenders patrol navigation channels to keep them open and safe for traffic





INVASION SUPPLIES pouring onto a freshly won beachhead at Iwo Jima a few hours after advance landings by U.S. marines, Feb. 1945. Landing craft were manned by the U.S. coast guard

tain of the port offices, communications centres, separation centres, training stations and merchant marine hearing units.

SPARS receive ratings and ranks up to captain, inclusive, corresponding to those held by men in the service and at the same pay, and are entitled to the benefits of the Servicemen's Readjustment act. (D. C. SN.)

**Cobalt.** Though no figures were published on cobalt production in the United States in 1944, it was reported to have increased, although demand lessened and shipments declined. All told, 2,445 short tons of cobalt content were treated by refiners and processors, of which 89% went to metal and 11% into salts and driers. Belgian Congo is the main source of supply for imports which dropped from 2,467 tons of metal content in 1943 to 2,015 tons in 1944. Conditions improved in 1945, with 2,526 tons of metal content in imports and 2,334 tons treated by refiners and processors in the first three quarters of the year.

The metal content of the ore output of Belgian Congo was 2,178 short tons in 1943 and 1,868 tons in 1944. In Canada output dropped from 397 tons in 1940 to 18 tons in 1944. Rhodesia is the only other country with an appreciable output, but for this and a dozen other minor producers no figures were published. (G. A. Ro.)

**Cochin-China:** see FRENCH COLONIAL EMPIRE.

**Cocoa** (CACAO). The production of cocoa in Brazil and West Africa was restricted by shipping shortage during World War II and trade had not revived by the end of 1945. Prices were not adjusted to stimulate trade but the strong demand was expected to attract larger imports to the United States in 1946. Stocks were low but supplies available in the producing areas were said to be large. Imports of cocoa and cocoa beans averaged about 600,000,000 lb. in 1935-39, dropped to 239,600,000 lb. in 1942 and recovered to 682,308,000 lb. in 1944. The total for 1945 was expected to be equal that of 1944. (J. C. Ms.)

**Coco-Nuts** (COPRA). The end of the war in the Pacific opened the trade in copra, coco-nut oil and their products. Shipping had not improved sufficiently, however, to bring in any considerable amount of these products from the orient in 1945. South and Central America supplied most of the United States imports. Mexico had a production of 40,000 tons in 1945 and the British West Indies had an output of about 12,000 tons. United States imports of copra dropped to 189,620,000 lb. in 1944 from a former total of about three times this quantity or about 530,000,000 lb. Tropical America had increased its trade in fresh coco-nuts to the United States to 43,000,000 nuts in 1943. (J. C. Ms.)

**Coffee.** The consumption of coffee increased during World War II and by 1944 total imports reached 19,713,000 bags of 132 lb. each, compared with 14,777,000 bags imported

in 1939. United States per capita consumption increased from 13.7 lb. of green coffee in 1934-38 to 18 lb. in 1944 including the armed forces. Nearly all of the coffee used in the U.S. during World War II came from South America due to shipping shortages. World coffee production declined steadily during the war from an average of 38,600,000 bags 1935-40 to 24,464,000 bags in the year 1944-45. The principal decline was in Brazil where production dropped from the prewar average of 23,000,000 bags for 1935-40 to 9,500,000 bags in 1944-45. Available supplies from Java and India were greatly reduced. At the same time there was an increased output in Africa from 2,340,000 bags to 3,090,000 bags. The price of raw green coffee was established by the Office of Price Administration following Dec. 1941 and continued in effect through 1945. Prices of all grades increased during the war to the ceilings.

Under the Brazilian government control a tax was placed on new plantings and an export tax was applied to buy surplus coffee to be destroyed to support the market. From 1931 to 1943 the government bought a part of each grower's crop for destruction. From 1931 to July 31, 1944, a total of more than 78,000,000 bags was destroyed. After 1942 destruction was limited to coffee unfit for consumption or of low quality. The climate was unfavourable to coffee production, especially in Brazil but production was expected to increase in the near future and large surpluses and lower prices follow. New industrial uses were developed that might help to solve the coffee surplus problem. World production was more than equal to consumption needs, however, and there was abundant opportunity to expand the coffee-crop area. Brazil alone had areas that could be used to expand its production more than 20 times. Coffee production was not limited by natural conditions but by the world's capacity to use it at a price which was profitable to growers. (See also BRAZIL; GUATEMALA; PRICE ADMINISTRATION, OFFICE OF.) (J. C. Ms.)

**Coinage.** The United States mint, an adjunct of the treasury department, was established by act of congress April 2, 1792, and was located in Philadelphia, Pa. The service as constituted in 1945 consisted of mints in Philadelphia, Denver, Colo. and San Francisco, Calif.; the U.S. depository (for gold) at Fort Knox, Ky., and the U.S. depository (for silver) at West Point, N.Y., and U.S. assay offices at New York city and Seattle, Wash. The administrative offices are in Washington, D.C., from where the entire service is administered by the director of the mint.

Not only do the mints make all coins for the U.S., but they also produce large amounts for many foreign governments lacking minting facilities of their own. The mint service is charged with safeguarding of the government's huge values in gold and silver, running into billions of dollars. All medals for the navy, coast guard and marines are made in the mint at Philadelphia, and many for the army; also historic medals and special medals authorized by congress.

From the opening of the mint in 1792 through the calendar year 1945, 31,000,000,000 coins (in round numbers) were produced; of this amount, 26,500,000,000 were domestic and 4,500,000,000 were manufactured for foreign governments.

During the calendar year 1945, 3,862,980,299 coins were made, of which 2,060,695,501 were for U.S. domestic use, and 1,802,284,798 were for other countries. Domestic coinage by denominations follows:

	Pieces
Half dollars .....	51,624,800
Quarter dollars .....	103,717,601
Dimes .....	241,295,000
Five-cent pieces .....	215,505,100
One-cent pieces .....	1,448,553,000

Coinage of the wartime five-cent piece, of silver, copper and

manganese, was discontinued at the end of 1945, and the mint was authorized to return to the former alloy of 25% nickel and 75% copper.

The design of the dime was also changed at the end of the year, the "winged liberty head" coin being superseded by the new Roosevelt dime issued early in 1946. However, the liberty head dime was to continue in circulation. (N. T. R.)

**Coke.** The salient data on the production of by-product and beehive coke in the United States during the war years are given in the following table.

Coke Production in U.S., 1940-45

	(In thousands of short tons)				
	1940	1941	1942	1943	1944
Production .....	57,072	65,187	70,569	71,676	74,038
By-product .....	54,014	58,482	62,295	63,743	67,065
Beehive .....	3,058	6,704	8,274	7,933	6,973
Breeze made .....	4,165	4,555	4,752	4,941	5,116
Coal charged .....	81,386	93,138	100,850	102,460	105,296
Consumption, total .....	57,026	64,944	70,107	71,407	72,971
By iron furnaces .....	41,839	49,470	54,695	56,701	57,072

As is shown by the above figures, the chief cause of the greater demand for coke was the need for more iron and steel. Following a consistent increase in the earlier years, production began to lag early in 1945, but did not drop heavily even after the close of World War II. During the first 10 months of 1945 output totalled 56,075,742 tons (51,643,763 tons of by-product and 4,431,979 tons of beehive), against 62,004,700 tons in the same period of 1944.

In Canada production of coke rose from 3,548,700 short tons in 1943 to 4,001,560 tons in 1944 and declined to 2,956,000 tons in the first three quarters of 1945, against 3,011,000 tons in the same period of 1944. Coke production in Germany (including the Saar) was reported at 59,000,000 short tons in the fiscal year ending March 31, 1944, against 51,000,000 tons in the corresponding period in 1940. (G. A. Ro.)

**Cold, Common.** An analysis of colds in workers in several large industrial plants showed that there is a definite pattern to the frequency of colds with the highest peak in December and a lesser peak in October. July is the month of lowest incidence. Sudden drops in temperature are followed by an increase in number and severity of colds, which is greater among office workers than factory workers and also greater among women than among men. With increasing age the frequency of colds has a tendency to decrease but the severity to increase. Fewer colds are found in air-conditioned plants; the number of colds is highest in draughty places. More colds start on Monday than any other day of the week. Both the incidence and severity of colds are least among those whose work requires walking about most of the time. Another study of 1,600 girls of college age showed that a sharp increase in the number of new colds per day occurs during periods of falling temperature accompanied by heavy rain. These increases are most definite in girls who have had four or more colds for the year. There is a slightly increased tendency to acquire a cold in the small group accustomed to the use of cigarettes, but most of the smoking is done in smoking rooms which encourages crowding and hence the possible spread of the colds by droplet infection.

It has been stated that ascorbic acid (vitamin C) has some value in the prevention of colds. One extensive study of this subject came from Sweden; conscripts in the north of Sweden were given tablets, half of them receiving strong doses of vitamin C and the other half inactive tablets. No difference could be found in the frequency or duration of colds, degrees of fever or other signs of the common cold. The other studies on this subject have been equivocal. Several of the sulfonamide prep-



arations have been employed in an attempt to cut down the number of colds and other respiratory infections. In one study of 128 children, half of whom were given sulfadiazine by mouth continuously, a difference between the group receiving the drug and that not receiving the drug could not be shown. Attempts have been made to disinfect the air, especially of public places so that the common cold should not be so readily transmitted. Glycol vapours were employed in a home for convalescent patients with the result that the total rate of incidence of upper respiratory infections among patients whose air supply was disinfected by glycol vapour decreased greatly.

The treatment of the common cold has not made much progress. It is the consensus that neither the sulfonamides nor penicillin are of value in ordinary colds or influenza. There are persons who tend to develop complications from even the simplest cold and some of these can be helped by the use of the sulfa preparations or penicillin. The use of aerosol penicillin, in which penicillin is given by inhalation, appears promising as a means of combating some of the complications of the common cold.

**BIBLIOGRAPHY.**—T. N. Harris and Joseph Stokes, Jr., "Summary of a 3-Year Study of the Clinical Applications of the Disinfection of Air by Glycol Vapors," *Am. J. Med. Sc.*, 209:152-156 (Feb. 1945); Joseph H. Kler, "An Analysis of Colds in Industry," *Arch. Otolaryng.*, 41:395-407 (June 1945); Morris Siegel, "Studies on the Control of Acute Infections of the Respiratory Tract," *Am. J. Dis. Child.*, 70:89-92 (Aug. 1945); Russell L. Cecil, "Chemotherapy in Acute Upper Respiratory Infections," *Bull. N.Y. Acad. Med.*, 21:263-277 (May 1945).  
(E. P. J.)

**Colleges and Universities:** see UNIVERSITIES AND COLLEGES.

**Colombia.** A republic situated in northwestern South America at the juncture of the Isthmus of Panama with the continent. It is the only South American country with a littoral on both the Caribbean and the Pacific. Area: 438,825 sq.mi.; pop. (off. est. 1945) 10,701,816. Sixty-eight per cent of the population is classified as mixed blood, 20% as white, 7% as Indian, and 5% as Negro. Most of the inhabitants live in the highlands and mountain valleys of the interior. The capital is Bogotá, with a pop. est. in 1942 at 395,300. Other cities (1938 census) are Medellín (143,952), Barranquilla (150,395), Cali (88,366), Manizales (51,025), Cartagena (72,267), Ibagué (27,448), Cúcuta (37,323), Bucaramanga (41,714), Pasto (27,564), Santa Marta (25,113), Popayán (18,292). Language: Spanish; religion, Roman Catholic. Presidents in 1945: Alfonso López Pumarejo and Alberto Lleras Camargo.

**History.**—After having his proffered resignation refused on several occasions in the two preceding years, President López finally succeeded in leaving his office effective Aug. 7, 1945. Former Foreign Minister Alberto Lleras Camargo, also a member of the Liberal party, succeeded to the post through election by the senate as presidential designate on July 22. It was decided that he would only fill out the term of his predecessor; late in August he asked congress to reject a proposal to extend his time in office a full four years.

Much political attention was directed throughout the year to the coming national election, which was scheduled for May 1946. Several candidates appeared for the nomination of the majority Liberal party, the most important being Gabriel Turbay, former ambassador to the United States; Dario Echandía, former foreign minister and on occasion acting president; and ex-labour minister Jorge Eliecer Gaitan. The Liberal party met in convention on July 22, and Turbay received a majority endorsement. Followers of Echandía withdrew from the convention and challenged its legality, but on Aug. 4 Echandía declared he was no longer a candidate. The ever-present danger

of a split in the party continued, however, since in September backers of Jorge Eliecer Gaitan launched his candidacy as an independent. In December the Confederation of Colombian Workers resolved to seek the withdrawal of all candidates in order to facilitate the selection of one who would further liberal and democratic unity.

The year was marked by a number of cabinet reorganizations. In late March an attempt was made to work out a coalition ministry by naming three Conservatives to vacant portfolios, but the nominees refused to assume these posts. President Lleras Camargo presented a plan for executive reorganization in early September, recommending the elimination of the ministries of communication and of mines and petroleum, and the creation of six new administrative departments. When his cabinet was completed shortly afterward, two Conservatives accepted portfolios to make it the first bi-partisan cabinet after 1934.

Congressional elections held in March returned the Liberal majority of about 2-to-1 over the opposing Conservatives; the Social Democrat (formerly Communist) party increased the number of its seats from one to five. The Liberal Party also retained a heavy majority in the departmental and municipal elections in the fall.

Congress met in special session in January to consider social welfare and labour legislation, a proposed 5-year agricultural plan, and revision of existing petroleum legislation. With the exception of the latter item these measures in general were approved. President López approved the agricultural plan in April. A senate resolution of Feb. 16, 1945, clarified technicalities in regard to the Colombian war status against the axis powers. A second special session of the legislature set for early May was postponed until June 4 and again until June 25, so that it could take up measures proposed at the San Francisco conference. A state of siege carried over from 1944 was lifted Feb. 22; local disturbances in June caused it to be reimposed for a month in Bogotá only. In March some excitement was caused when the government announced that a supply of bombs had been discovered in certain churches of the capital.

The ending of World War II in August resulted in the elimination of censorship controls and the Office of Price Control was also abolished. Assets of 19 firms owned by axis nationals were expropriated in the same month and the chamber of deputies approved a bill authorizing use of such funds to meet war indemnity and reparations requirements. The United Nations charter was approved in October. There was much adverse comment by Colombian coffee-growers in the latter half of the year upon the refusal of the United States to abandon the OPA ceiling set on coffee, the Colombians backing the general Latin American claim that the ceiling had been set when costs were far lower. A minimum price was finally set in Colombia that was above the United States maximum with the result that sales practically ceased. As the war drew to a close, and shipping conditions eased, purchases of foreign exchange boomed. The balance of international payments was adverse to Colombia for the first six months of 1945, and by July the government had found it advisable to set up a new system of import control. In later months the balance changed, but on Oct. 31 it was favourable only slightly in excess of \$8,000,000 where it had been \$48,000,000 in 1944 on the same date.

Figures released by the United States government disclosed that Colombia had received lend-lease military goods during the period March 1, 1941-July 1, 1945, amounting to \$5,285,000 in value.

**Education.**—In 1941 there were 19,901 primary schools with an enrolment of 685,317, and 776 intermediate schools with an

enrolment of 58,980. Eight universities served 3,713 students. In the budget for 1946 prepared in Aug. 1945, 13,058,000 pesos were allocated to education.

**Finance.**—The monetary unit of Colombia is the peso, with an official value in Sept. 1945 of 56.98 cents U.S. The 1946 budget proposed in the summer totalled 174,000,000 pesos; the 1945 budget, originally approved at 172,000,000 pesos, had been increased by Sept. 30 to 202,000,000 pesos. Revenues for the first nine months of 1945 were reported at about 95,000,000 pesos (for the same period in 1944: approx. 65,000,000). The fiscal deficit on Sept. 30 was estimated at about 16,500,000 pesos. Gold bullion holdings by the Bank of the Republic on June 30 amounted to 178,000,000 pesos; bank notes in circulation on that date were valued at 179,000,000 pesos. The total national debt on Aug. 31 amounted to 360,379,113 pesos at official exchange rates; 209,810,550 pesos was internal debt and 150,568,563 was owed externally.

**Trade.**—Imports for 1944 amounted to 353,177 metric tons in quantity, exports to 2,988,499 metric tons. In 1943 they had amounted to 228,804 tons and 1,912,145 tons, respectively. Import licences granted up to Oct. 31, 1945, totalled \$214,000,000 (for same period, 1944: \$172,000,000). Export licences for the same period totalled \$98,000,000. Coffee exports for the quota year Oct. 1, 1944, to Sept. 30, 1945, amounted to 5,185,517 sacks of 132 lb. each, an excess over the preceding year of 358,000 sacks. Petroleum exports for 1944 amounted to 18,561,000 bbl. (1943: 10,617,000 bbl.).

**Communication.**—Railway mileage was estimated at 2,046 mi. in 1945; there were some 7,700 mi. of improved highway and 35,000 mi. of unimproved. Heavy expenditures on both railroad and highway construction were planned for the following few years, with the appropriation for 1945 amounting to 7,120,000 pesos. In 1943 motor trucks, automobiles, and buses registered numbered 32,042. Some seven air lines served the country in 1945; Avianca Airways was nationalized in September. A nationally owned navigation company started operations on the country's rivers early in 1945.

**Agriculture.**—The basic industry of Colombia is agriculture, with coffee the main crop. Refined sugar production for the first half of 1945 amounted to 43,692 short tons, about the same as in 1944. Wheat production for 1944 was estimated at approximately 100,000 metric tons; barley, 13,175 tons; rice, 121,000 tons; yucca, 1,054,000 tons; plantains, 714,000 tons; corn, 650,000 tons; potatoes, 418,000 tons. During the first half of 1945, 712,888 kilograms of cinchona were exported. There were estimated to be 12,334,000 cattle in the country.

The 5-year agricultural plan approved in April 1945 called for an expenditure of from 7,000,000 to 9,000,000 pesos annually to increase quantity and quality of crops by various means.

**Mineral Production.**—Petroleum output in 1944 was estimated at 22,648,000 bbl. (1943: 13,396,000 bbl.). Gold production amounted to 251,238 troy oz. for the first five months of 1945 (for the same period in 1943: 250,644 troy oz.). Platinum production for 1944 amounted to 34,304 troy oz. (1943: 34,564 troy oz.). Cement output was 273,694 metric tons; salt, 133,453 metric tons.

**BIBLIOGRAPHY.**—J. M. Henao and G. Arrubla, *A History of Colombia* (transl. by J. F. Rippey, 1938); *Foreign Commerce Weekly*; *Revista del Banco de la República*.

**FILMS.**—*Colombia and Venezuela* (Encyclopædia Britannica Films Inc.). (D. Rd.)

**Colorado.** A Rocky mountain state of the United States, in the west-central part; mean elevation above sea level, 6,800 ft. Admitted to the union in 1876 as the 38th state and known as the "Centennial state." Area 104,247 sq.mi., including 280 sq.mi. of water surface. Pop. (1940) 1,123,296; 52.6%

urban, 47.4% rural; 93.6% native, 6.4% foreign-born; white 98.5%; Negro 1.1%; other .4%; 102.6 males per 100 females. The 1940 census reported 2,734 Japanese, the largest in number of all races other than whites and Negroes. On July 1, 1944, the bureau of census estimated the civilian population at 1,147,259. In Oct. 1944 Japanese population enumerated 7,986 and later estimates 9,486. Approximately 900 Japanese had returned to the Pacific coast after the close of World War II. Capital and largest city, Denver (1940 census, 322,412; 1945 estimate, 392,412); other cities: Pueblo (52,162); Colorado Springs (36,789); Greeley (15,995).

**History.**—John C. Vivian (R.) was governor in 1945. Other officers were: lieutenant governor, William E. Higby (R.); secretary of state, Walter F. Morrison (R.); auditor of state, Leon F. Lavington (R.); treasurer, Homer F. Bedford (D.); attorney general, Lawrence Hinkley (R.); superintendent of public instruction, Inez Johnson Lewis (D.). The 35th general assembly repealed the state service tax and enacted a local government budget law, an occupational disease law, created a state institutional board and a fund of \$100,000 for industrial research development. A special session was called on Nov. 19 and adjourned Dec. 3. Legislation was passed authorizing the state planning commission to rehabilitate three of the state institutions, two charitable and one correctional; creating a state aeronautics commission; and appropriating highway money to meet federal aid.

**Education.**—The school census for 1943-44 was 296,901; number of elementary schools 1,986, enrolment 138,012; number of high schools 327, enrolment 44,594; number of teachers including superintendents, principals and supervisors 8,710; average salaries \$1,597.52; total expenditures \$24,622,806.81, including capital outlay and debt service. War emergency certificates issued, approximately 2,000.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—Public welfare disbursements in 1944 amounted to \$27,085,789.85; pensions, 40,787 persons over 60, \$20,236,244.35; dependent children 9,041, \$1,472,763.85; blind 503, \$239,684.97; administration \$1,073,091.16. Federal share of the above programs totalled \$10,851,944.06. General assistance was \$3,726,345.41. Additional expenditures included tuberculosis assistance, \$199,492.49, to approximately 287 patients; miscellaneous services including child care, burials, distribution of surplus commodities, etc., \$138,167.62. For the fiscal period 1944-45 the four correctional institutions enumerated 1,512 inmates with disbursements totalling \$1,083,072.59. The six charitable institutions enumerated 5,520 inmates with disbursements totalling \$2,602,091.24.

**Communications.**—The state highway system in 1945, including 3,891 mi. of federal aid primary and 1,982 mi. of federal aid secondary roads, totalled 12,399 mi.; city streets 3,491 mi.; county roads 36,176 mi.; other local roads 26,423 mi.; national forests 788 mi.; toll 8 mi.; total 79,285 mi. There were 24 railroads operating with 3,883 mi. of main line track; 56 designated airports and landing fields, and 4 army air fields; 273,879 telephones in use.

**Banking and Finance.**—As of Dec. 31, 1944, there were 77 national banks and 63 state banks. Total deposits, \$843,090,223.96; total assets, \$889,517,127.67. The 23 federal and 29 state savings, building and loan associations showed total assets of \$46,586,716 as of Jan. 1, 1945. The state's finances continued to be in excellent condition due to increased revenue and strict economy in governmental operation. The state property tax was reduced from 3.64 mills in 1944 to 3.5 mills in 1945. Surplus in the state treasury as of Dec. 1, 1945, was \$12,385,000. The special session of the legislature appropriated from this fund \$3,500,000 for highway purposes, \$37,500 for a division of

aeronautics, \$990,000 for the rehabilitation of the Industrial School for Boys and two institutions for mental defectives, \$22,365 for the expenses of the legislature. The state institutional building fund was in excess of \$3,585,321 for postwar building. State budget, 1945-46, \$111,786,000 which includes federal aid. General obligation debt, \$1,180,000, highway anticipation warrants, \$15,435. Indebtedness of counties, school districts and municipalities, \$61,814,921.

**Agriculture.**—The year 1945, which marked the fourth year in which the Colorado agricultural industry operated under war conditions and in relation to war demands, was one of outstanding production. Acreage of all principal crops harvested in 1945 totalled 5,948,000 as compared with 5,900,000 ac. harvested in 1944. The wheat production was the largest in the history of the state.

Table I.—Leading Agricultural Products of Colorado

Crop	Unit	1945	
		1945 (est.)	Value
Wheat . . . . .	bu.	34,627,000	\$48,105,000
Corn . . . . .	"	16,588,000	19,408,000
Barley . . . . .	"	19,551,000	18,182,000
Oats . . . . .	"	7,245,000	4,637,000
Dry beans . . . . .	100 lb. bags	1,909,000	9,977,000
Sugar beets . . . . .	tons	1,836,000	...
Timothy hay . . . . .	tons	1,818,000	27,452,000
Potatoes . . . . .	bu.	19,110,000	21,976,000
All sorghums (grain) . . . . .	"	2,759,000	3,173,000
Peaches . . . . .	"	2,372,000	5,100,000
Apples . . . . .	"	1,275,000	3,634,000

The number of each species of livestock on Colorado farms and ranches was smaller on Jan. 1, 1945, than on Jan. 1, 1944. The aggregate value of all species combined totalled \$162,109,000 on Jan. 1, 1945, compared with \$176,597,000 on Jan. 1, 1944. The decline was largely due to the limited supply of feed grains and relatively high feed prices in relation to livestock prices.

**Manufacturing.**—Total value of products manufactured in 1939 was \$221,642,666 (census). Estimated value of succeeding years was: 1940, \$240,000,000; 1941, \$310,000,000; 1942, \$380,000,000; 1943, \$410,000,000; 1944, \$410,000,000; 1945, \$400,000,000. Persons employed in manufacturing in 1939 totalled 27,893 (census). Total estimated, including small firms was 33,344. Estimated monthly average of manufacturing employment in succeeding years was 1940, 33,493; 1941, 40,493; 1942, 58,642; 1943, 67,233; 1944, 55,150; 1945, 55,665. The wartime peak was in Oct. 1943, with 72,298.

**Mineral Production.**—Production of all minerals in 1944, exclusive of vanadium and tungsten, showed a decided drop. The vanadium and tungsten production was held confidential by

Table II.—Principal Mineral Products of Colorado  
1944 and 1943

Mineral	Value 1944	Value 1943
Gold . . . . .	\$ 3,900,925	\$ 4,814,530
Coal . . . . .	28,791,000	27,511,918
Silver . . . . .	1,599,168	1,894,501
Zinc . . . . .	9,109,740	9,524,304
Copper . . . . .	282,960	267,280
Petroleum . . . . .	3,380,000	2,620,000
Lead . . . . .	2,831,680	2,704,800
Molybdenum . . . . .	...	27,705,730
Fluorspar . . . . .	1,604,043	1,164,868

the federal government. The decrease in the value of mineral production was due to the shortage of labour in Colorado.

(A. Rt.)

**Colour Photography:** see MOTION PICTURES; PHOTOGRAPHY.

**Columbia, District of:** see WASHINGTON, D.C.

**Columbia University.** An institution of higher learning in New York city. The budget appropriation for 1944-45 was \$11,346,766.48. On Oct. 1, 1945, Dr. Nicholas Murray Butler, president from 1901, retired and

his duties were taken over by Acting President Frank D. Fackenthal. With the close of World War II came the revelation of Columbia's part in the production of the atomic bomb, the closing of the U.S. naval reserve midshipmen's school on the campus, the restoration to academic uses of various university buildings taken over by the government for dormitories and research and the return of numerous faculty members from government and military service. Applications for admission in 1945 were more numerous than at any previous time in Columbia's history. A Russian institute was established, and plans were perfected for an FM broadcasting station on the campus. (For statistics of enrolment, faculty members, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (M. H. T.)

**Columbium.** Production of columbium ores in the United States dropped from 5,771 lb. in 1943 to 3,208 lb. in 1944, while imports increased from 1,191 short tons to 1,842 tons, mainly from Nigeria. Increased supplies and decreased demand permitted relaxation of controls. The principal use is as an addition to stainless steels for improved corrosion resistance for parts to withstand high temperatures in aeroplane engines and rockets. (G. A. Ro.)

**Combined Chiefs of Staff, The.** The establishment of the combined chiefs of staff by the governments of the United States and Great Britain was announced on Feb. 6, 1942. The four United States members were known as the "Joint United States Chiefs of Staff" and consisted of the chief of staff to the commander in chief of the army and navy; the chief of staff, U.S. army; the chief of naval operations; and the commanding general, army air forces. The four British members were known as "Representatives of the British Chiefs of Staff." They consisted of the head of the British joint staff mission in Washington and representatives of the first lord of the admiralty, the chief of the imperial general staff and the chief of the air staff.

Supporting committees were established to combine and co-ordinate all the factors of military intelligence, transportation, munitions, staff planning, meteorology and communications. A combined secretariat was set up to perform the necessary secretarial work for the combined chiefs of staff.

The combined chiefs of staff were charged under the direction of the president of the United States and the prime minister of Great Britain with collaborating in the formation and execution of policies and plans concerning the strategical conduct of the war, the broad program of war requirements and allotment of munitions resources, and the requirements for overseas transportation for the fighting forces of the United Nations.

(A. J. Md.)

**Combined War Boards, British-U.S.:** see BRITISH-U.S. WAR BOARDS.

**Comets:** see ASTRONOMY.

**Commerce:** see BUSINESS REVIEW; INTERNATIONAL TRADE.

**Commerce, U.S. Department of:** see GOVERNMENT DEPARTMENTS AND BUREAUS.

**Commerce Commission, Interstate:** see INTERSTATE COMMERCE COMMISSION.

## Commission on a Just and Durable Peace.

The Commission on a Just and Durable Peace instituted by the Federal Council of the Churches of Christ in America continued its work on the churches' strategy for world order. In Jan. 1945, the commission convened at Cleveland a National Study conference which brought together nearly 500 leaders of 34



## 226 COMMITTEE FOR ECONOMIC DEVELOPMENT—COMMUNISM

communions. The conference analyzed moral, political and economic problems of the peace, and agreed upon nine specific recommendations for the improvement of the Dumbarton Oaks proposals, stating, "Christians must keep ultimate goals in view, but they have equal responsibility to work out attainable steps towards those goals and to support them."

The Cleveland recommendations were brought before the churches, the general public and the government. Copies of the statement were widely distributed for study and discussion. On Sunday, April 22, special prayers of intercession were offered in churches across the United States for the success of the San Francisco conference. During the conference, officers of the commission served as consultants for the federal council to the U.S. delegation, to reinforce the Cleveland recommendations and to inform the churches on conference developments. The United Nations charter adopted at San Francisco was judged by the commission to embody many of the recommended improvements. Prompt ratification of the charter was urged and Christians were called upon "to help create an invincible determination to use fully the procedures provided by the charter."

In line with this policy, the commission at its annual meeting in November set forth a general strategy for the postwar period, entitled, "Christian Action on Four Fronts for Peace." The four areas of emphasis for a continuing educational program were the Inner front, the Church front, the Peace Treaty front and the United Nations front. (Rt. M. F.)

### Committee for Economic Development.

This committee of U.S. businessmen was organized in 1942, as a private, nonpolitical, nonprofit organization, with the single purpose of encouraging realistic postwar planning. As such, its activities were guided by the recognition that planning toward a high level of postwar productive employment involved two major approaches: first, the making of bold positive plans by individual business employers to reconvert and expand after the war and thus provide new productive jobs; and second, the initiation of a program of research and recommendations designed to bring about a favourable national economic "climate" in which all individual postwar plans would have a chance to succeed.

The Committee for Economic Development, or C.E.D., functioned in 1945 under a board of 27 trustees. Paul G. Hoffman, president of the Studebaker corporation, was chairman and William Benton, vice-president of the University of Chicago, was vice-chairman.

The C.E.D. functions in terms of two major divisions:

The Field Development division, under the chairmanship of Walter Fuller, president of the Curtis Publishing company, is concerned with the first phase of encouraging planning as described above. This is done through the organization of community committees for economic development. At the end of 1945 there were approximately 3,000 communities covered by such committees throughout the United States, of which about 70,000 businessmen were members.

Meanwhile, the Research division was engaged on nearly 20 major studies of problems affecting national economic and business conditions. These were conducted by a research committee of businessmen, headed by Ralph E. Flanders, president of the Jones and Lamson Machine company. This committee was counselled by a research advisory board of economists and social scientists under the chairmanship of Dr. Sumner H. Slichter, Lamont professor of economics at Harvard.

During 1945 four of these studies were completed and published under the titles of: *Demobilization of Wartime Economic Controls*, by J. M. Clark, professor of economics, Columbia

university, New York city; *Providing for Unemployed Workers During the Postwar Transition Period*, by Richard A. Lester, associate professor of economics, Duke university, Durham, N. C.; *International Trade and Domestic Employment*, by Calvin B. Hoover, dean of the graduate school of arts and sciences, Duke university, Durham, N. C.; *Agriculture in an Unstable Economy*, by Theodore W. Schultz, professor of agricultural economics, University of Chicago, Chicago, Ill.

After each of the above research projects was completed and all other available facts on the subjects were examined, the research committee issued statements of national policy setting forth the committee's conclusions and recommendations for public action on these same problems. In addition, an over-all policy statement, dealing with economic and social accomplishments of the research program as a whole, was issued under the title, *Towards More Jobs and More Freedom*.

By the end of the Japanese war, the C.E.D. program had been in operation nearly three years. Results achieved, both in terms of encouraging individual businessmen to plan for bold postwar expansion and in terms of progress in the study of economic problems confronting the country as it entered the reconversion period, were ample, in the opinion of C.E.D.'s trustees, to justify their original belief that private enterprise would and could meet its postwar responsibilities and opportunities. In this regard, the C.E.D. trustees' report for 1945 underscored the fact that by acting boldly on their advance planning, U.S. businessmen could achieve records of high level productive employment never before reached in peacetime.

C.E.D. goals for such an expansion were stated as: a 30% to 45% expansion of business activity; and the creation of 7,000,000 to 10,000,000 new peacetime jobs over and above 1940 levels.

The national office of the C.E.D. is located at 285 Madison Ave., New York city. Its activities are supported by contributions from businessmen throughout the country. (P. G. H.)

**Commodity Prices:** see BUSINESS REVIEW; PRICES.

**Commons, Members of House of:** see PARLIAMENT, HOUSES OF.

**Commonwealth Fund, The:** see SOCIETIES AND ASSOCIATIONS.

**Communications Commission, Federal:** see FEDERAL COMMUNICATIONS COMMISSION.

**Communism,** or revolutionary Marxism, is a system of government evolved under the leadership of Lenin and Stalin in the soviet union, the former Russian empire. Originally intended as the starting point for a socialist world revolution, the movement after 1934 took a different development in Russia. It presents an amalgam of Lenin's communism with the historical traditions and aspirations of the Russian empire. Communism has proved the new form in which these aspirations have organized the masses of the empire to active participation. In that respect the former antireligious policy with its "godless" propaganda and its transformation of churches into antireligious museums combatting the "opium for the people," was changed to a policy of active co-operation of the Orthodox Church with the Russian state.

At the beginning of Feb. 1945 Alexei, former metropolitan of Novgorod and Leningrad, was crowned Russian patriarch. Under his leadership the church collaborated closely with the Russian government and with the government Council for Orthodox Church Affairs whose chairman was George Karpov, a high communist official. All churches were ordered to offer prayers "for the health and well-being of the God-sent leader of the peoples of our Christ-loving nation." All Orthodox churches



ARGENTINE COMMUNISTS at a huge rally in Buenos Aires during 1945, following removal of the ban outlawing the party

everywhere were to be united under the leadership of Moscow. The patriarch himself, at whose coronation the patriarchs of Alexandria, Antioch and Georgia participated, visited the near east—Damascus, Jerusalem and Alexandria—to renew the ties which had existed in the time of tsarist Russia. Orthodox churches which had split away from the Moscow patriarchate abroad were warned to re-enter. The metropolitan council of the Russian Orthodox Church in the U.S. refused to accept the conditions laid down by the patriarch for reunion, because they suggested “the high handed methods of an autocratic bureaucracy.” The Russian Orthodox Church in the U.S. was to continue as the U.S. church and therefore was obliged to reject the patriarch’s demand to express loyalty to the soviet government.

In conformity with the Pan-Slav propaganda of the Russian government, the Czechoslovak Roman Catholic Church conference at Wlehrad where St. Cyril and St. Methodius laboured in the 9th century to christianize the Slavs, looked toward ultimate union with the Russian Orthodox Church. The keynote address called on all Catholic theologians of Slav descent to join “the general eastward orientation of the country.”

In spite of the emphasis on the Russian past, which had been found most helpful during World War II, the Communist party in Russia called at the end of the war for a new devotion to the Marxist-Leninist doctrine. During the war the party which in 1940 counted about 3,500,000 members had grown to a membership of 5,800,000 by April 1945. Most of these new members came from the Red army not sufficiently prepared in Marxist theory, and the old party members had by necessity during the war neglected indoctrination. The war had at the same time resulted in a growing contact with the outside world and its ideas which made the development of “deviations” or “heresies” within the party possible.

This shift to a new emphasis on party ideology made itself felt also in the Communist party of the U.S. The April 1945 issue of *Cahiers de Communisme*, the official organ of the French Communist party, published an article by the party secretary, Jacques Duclos, against the “rightist” deviation of the U.S. communists under the leadership of Earl Browder. Browder, after Tehran, abandoned class war and came out for collaboration with progressive capitalism, forming a broad national unity in the U.S. The 7,600-word article with its bitter attacks upon Browder and the policy of the U.S. communists which was accused of having “swerved dangerously from the victorious Marxist-Leninist doctrine,” was reprinted in *The Daily Worker* by Browder, its editor, and became immediately the guiding principle of communist policy in the U.S., which made a sharp and abrupt turn back to class war. The Communist party was reconstructed, Browder was stripped of his authority and re-

placed by William Z. Foster as the new leader of the party. A special convention at the end of July endorsed unanimously the new leftward trend. The April issue of *Cahiers de Communisme* had declared: “Today as in the past the ultimate goal of the Communists is the same.”

The events of 1945 did not establish clearly whether communism was spreading outside Russia in Europe, though in many European countries communists formed part of the government coalitions and held important positions in the cabinets. While the governments of Rumania, Bulgaria and Yugoslavia were communist-controlled and no opposition to the governments in power was allowed, everywhere else where the freedom of the polls was secured, the communists could nowhere gain more than a fourth of the votes (France and Finland) and in many countries made a surprisingly weak showing (Great Britain, Austria and Hungary).

In Asia, however, the year 1945 seemed to see a growth of communist influence everywhere. Communist elements played an important role in the nationalist and agrarian movements in the Philippine Islands, in Indonesia, in Indo-China and in Burma. In China the powerful Communist party which controlled from Yenan large parts of China and maintained its own army, opposed the Chinese government which was led by Generalissimo Chiang Kai-shek and which was recognized by the United States, soviet Russia and all the other United Nations and was a charter member of the United Nations organization. The Chinese government objected to the existence of an armed faction in the country which threatened the nation with a civil war. Toward the end of 1945 Russian support cleared the way for the advance of Russian government troops into Manchuria, the control of which represented the most important bone of contention between the Chinese government and the Chinese communists after the liberation of the country from Japan.

An important advance in communist influence in the international labour movement was achieved with the formation of the new world trade union organization, called World Federation of Trade Unions, in Paris in the fall of 1945. The International Federation of Trade Unions, which had been founded in 1901 and reconstituted in 1919 with the seat in Amsterdam and which did not admit communist and Russian trade unions, was dissolved. Its place was taken by the new organization in which the Russian trade unions participated and where many other national trade unions showed a strong communist influence. President of the new organization was Sir Walter Citrine (Great Britain) while its general secretary was Louis Saillant, a French trade-unionist with communist leanings. Of the U.S. trade unions, the American Federation of Labor refused to join the new body, while the Congress of Industrial Organizations under Sidney Hillman took a very active part in its organization. (See

also DEMOCRACY; FASCISM; SOCIALISM; WORLD FEDERATION OF TRADE UNIONS.)

**BIBLIOGRAPHY.**—J. T. MacCurdy, *Germany, Russia and the Future* (1945); Edgar Snow, *The Pattern of Soviet Power* (1945); Arthur Koestler, *The Yogi and the Commissar* (1945); Edgar Snow, "China to Lin Yutang," *The Nation* (Feb. 17, 1945); Lin Yutang, "China and Its Critics," *The Nation* (March 24, 1945); N. S. Timasheff, "Four Phases of Russian Internationalism," *Thought* (March 1945); See also *New Times*, a semi-monthly published in Moscow. (H. Ko.)

**Community Chest** is the name given to a local organization of citizens and social welfare agencies; also known as "community fund," or "welfare fund."

During World War II, the great majority of community chests extended their scope to become "community and war chests," as described above. Community Chests and Councils, Inc., the national association of chests and councils, was active in planning and directing this development and in helping to establish the National War Fund, Inc., a wartime campaign headquarters organization for all united campaigns for war relief services. This service extended to community and war chest campaigns as well as communities where no community chests existed. Community Chests and Councils, Inc., assisted in the organization and operation of the National War fund, through temporary loans of staff, participation in policy-forming and committee work, and co-operative publications and activities. Community Chests and Councils, Inc., instituted quota and budget procedures for national war relief agencies included in the National War fund and in 1943 transferred these functions to the latter organization.

Community Chests and Councils, Inc., was organized in Feb. 1918 as a national clearinghouse of ideas and services for community chests and councils of social agencies. Of the 1,142 community war chests and councils of social agencies in operation by the end of 1945 (820 chests and 322 councils), 784 chests and 303 councils were in continental United States, 4 chests and 2 councils in Hawaii, 29 chests and 17 councils in Canada, 2 chests in South Africa, and 1 chest in the Virgin Islands. Almost all large cities in the U.S. (except New York city which has a limited joint financing organization) had community chests or similar plans. More than 20,000,000 contributions, totalling \$221,272,950 were given to community and war chests to be used during 1945 for voluntary social work in their communities and for National War fund agencies.

Officers of Community Chests and Councils, Inc., for 1945 were: honorary president, Gerard Swope, New York city; president, E. A. Roberts, Philadelphia, Pa.; vice-presidents, J. B. Adoue, Jr., Dallas, Tex., H. L. R. Emmet, Erie, Pa., Mrs. DeForest Van Slyck, New York city, Harry P. Wareham, Rochester, N.Y.; treasurer, Milton H. Glover, Hartford, Conn.; secretary, Robert P. Lane, New York city. Ralph H. Blanchard was executive director. The address of the association was 155 East 44 St., New York 17, N.Y. (See also RELIEF.) (B. A.)

**Community Trusts.** The accumulation of \$67,041,684 in charitable trust funds was reported by 76 community foundations in the United States and Canada at the beginning of 1945. Their resources were \$45,000,000 in 1935 and \$13,500,000 in 1925. The New York Community trust administers 62 funds totalling \$15,871,000 and the Chicago Community trust stands at \$11,498,000, followed by the Cleveland foundation, \$8,624,000, and the Winnipeg foundation, \$3,561,000.

Philanthropic outpayments by these agencies in 1944 rose to \$1,918,000 from \$1,739,000 in 1943. The largest disbursements were in New York, \$558,746; Cleveland, \$279,000; Chicago, \$268,000; and Boston, \$256,000.

The largest receipts of funds by community trusts in 1944

occurred in New York, \$4,650,000; Los Angeles, \$723,000; Chicago, \$675,000; and Hartford, \$500,000.

Newly created community foundations became operative in Columbus, O., Spartanburg, S.C., and Champaign, Ill. The first appropriations of income were made during 1944 in Salem, Ore., and Duluth, Minn., while an initial gift of principal came in that year to the Syracuse (N.Y.) foundation.

Community trusts ordinarily place investment responsibility in trustee banks designated by contributors and lodge distributional power in a citizens' committee authorized, also by the donors, to adapt its disbursement policies to the evolving requirements of current social needs. This procedure is designed to avoid obsolescence and keep funds effectively employed through changing circumstances. (R. Hs.)

**Composers, Authors and Publishers, American Society of:** see SOCIETIES AND ASSOCIATIONS.

**Confectionery:** see CANDY.

**Conferences:** see BERLIN CONFERENCE; INTER-AMERICAN CONFERENCE ON PROBLEMS OF WAR AND PEACE; MOSCOW CONFERENCE OF FOREIGN MINISTERS; UNITED NATIONS CONFERENCE ON INTERNATIONAL ORGANIZATION; UNITED NATIONS MONETARY AND FINANCIAL PROGRAM; YALTA CONFERENCE.

**Congo, Belgian:** see BELGIAN COLONIAL EMPIRE.

**Congregational Christian Churches.** The Congregational Christian Church of the United States represents a union (1931) of the Congregational Church, established 1620, and the Christian Churches, founded after the American Revolution. The churches numbered 5,875 in 1945, organized in 51 conferences, with a membership of 1,113,930. They are community institutions with no restrictions of race, creed or station, and each church elects its own minister and officers and writes its own covenant. During 1945, total contributions received for home expenses were \$17,467,525; for benevolences, \$3,350,910; 2,015 churches were rebuilt or repaired at a cost of \$3,122,188; total property value was \$116,755,319. National headquarters: 287 Fourth Ave., New York 10, N.Y. (See also CHURCH MEMBERSHIP.)

**Congress, United States.** The 79th U.S. congress met for its second session Jan. 14, 1946. It comprised the following members (as of Jan. 7, 1946):

#### United States Senate

Presiding Officer: Kenneth McKellar of Tennessee<sup>1</sup>  
Majority Leader: Alben W. Barkley, of Kentucky  
Minority Leader: Wallace H. White, Jr., of Maine

State	Name	Party	Term Expires	Residence
Ala.	Bankhead, John H., 2nd. . . . .	Dem.	1949	Jasper
	Hill, Lister. . . . .	Dem.	1951	Montgomery
Ariz.	McFarland, Ernest W. . . . .	Dem.	1947	Florence
	Hayden, Carl. . . . .	Dem.	1951	Phoenix
Ark.	Fulbright, J. W. . . . .	Dem.	1951	Fayetteville
	McClellan, John L. . . . .	Dem.	1949	Camden
Calif.	Knowland, William F. <sup>2</sup> . . . . .	Rep.	1947	Oakland
	Downey, Sheridan. . . . .	Dem.	1951	Laguna Beach
Colo.	Millikin, Eugene D. . . . .	Rep.	1951	Denver
	Johnson, Edwin C. . . . .	Dem.	1949	Craig
Conn.	McMahon, Brien. . . . .	Dem.	1951	Norwalk
	Hart, Thomas C. <sup>3</sup> . . . . .	Rep.	1947	Sharon
Del.	Tunnell, James M. . . . .	Dem.	1947	Georgetown
	Buck, C. Douglass. . . . .	Rep.	1949	Wilmington
Fla.	Pepper, Claude. . . . .	Dem.	1951	Tallahassee
	Andrews, Charles O. . . . .	Dem.	1947	Orlando

<sup>1</sup>As president of the Senate pro tempore, he became the regular presiding officer on April 13, 1945, in the absence of a vice-president until 1949.

<sup>2</sup>Appointed Aug. 14, 1945, to fill vacancy caused by the death of Hiram W. Johnson, Aug. 6, 1945.

<sup>3</sup>Appointed Feb. 8, 1945, to fill vacancy caused by the death of Francis Maloney, Jan. 16, 1945.



State	Name	Party	Term Expires	Residence
Ga.	George, Walter F. . . . .	Dem.	1951	Vienna
	Russell, Richard B. . . . .	Dem.	1949	Winder
Ida.	Gossett, Charles C. <sup>4</sup> . . . . .	Dem.	1949	Nampa
	Taylor, Glen H. . . . .	Dem.	1951	Pocatello
Ill.	Brooks, C. Wayland . . . . .	Rep.	1949	Chicago
	Lucas, Scott W. . . . .	Dem.	1951	Havana
Ind.	Capehart, Homer E. . . . .	Rep.	1951	Washington
	Willis, Raymond E. . . . .	Rep.	1947	Angola
Iowa	Wilson, George A. . . . .	Rep.	1949	Des Moines
	Hickenlooper, Bourke B. . . . .	Rep.	1951	Cedar Rapids
Kan.	Capper, Arthur . . . . .	Rep.	1949	Topeka
	Reed, Clyde M. . . . .	Rep.	1951	Parsons
Ky.	Barkley, Alben W. . . . .	Dem.	1951	Paducah
	Stanfill, William A. <sup>5</sup> . . . . .	Rep.	1949	Hazard
La.	Overton, John H. . . . .	Dem.	1951	Alexandria
	Ellender, Allen J. . . . .	Dem.	1949	Hauma
Me.	Brewster, Owen . . . . .	Rep.	1947	Dexter
	White, Wallace H. Jr. . . . .	Rep.	1949	Auburn
Md.	Tydings, Millard E. . . . .	Dem.	1951	Havre de Grace
	Radcliffe, George L. . . . .	Dem.	1947	Baltimore
Mass.	Walsh, David I. . . . .	Dem.	1947	Clinton
	Saltonstall, Leverett . . . . .	Rep.	1949	Boston
Mich.	Vandenberg, Arthur H. . . . .	Rep.	1947	Grand Rapids
	Ferguson, Homer . . . . .	Rep.	1949	Detroit
Minn.	Shipstead, Henrik . . . . .	Rep.	1947	Carlos
	Ball, Joseph H. . . . .	Rep.	1949	St. Paul
Miss.	Eastland, James O. . . . .	Dem.	1949	Ruleville
	Bilbo, Theodore G. . . . .	Dem.	1947	Poplarville
Mo.	Donnell, Forrest C. . . . .	Rep.	1951	Webster Groves
	Briggs, Frank P. <sup>6</sup> . . . . .	Dem.	1947	Macon
Mont.	Wheeler, Burton K. . . . .	Dem.	1947	Butte
	Murray, James E. . . . .	Dem.	1949	Butte
Neb.	Wherry, Kenneth S. . . . .	Rep.	1949	Pawnee City
	Buller, Hugh A. . . . .	Rep.	1947	Omaha
Nev.	Carville, E. P. <sup>7</sup> . . . . .	Dem.	1947	Reno
	McCarran, Patrick A. . . . .	Dem.	1951	Reno
N.H.	Tobey, Charles W. . . . .	Rep.	1951	Temple
	Bridges, H. Styles . . . . .	Rep.	1949	Concord
N.J.	Hawkes, Albert W. . . . .	Rep.	1949	Montclair
	Smith, H. Alexander . . . . .	Rep.	1947	Princeton
N.M.	Hatch, Carl A. . . . .	Dem.	1949	Clovis
	Chavez, Dennis . . . . .	Dem.	1947	Albuquerque
N.Y.	Mead, James M. . . . .	Dem.	1947	Buffalo
	Wagner, Robert F. . . . .	Dem.	1951	New York city
N.C.	Bailey, Josiah W. . . . .	Dem.	1949	Raleigh
	Hoey, Clyde R. . . . .	Dem.	1951	Shelby
N.D.	Langer, William . . . . .	Rep.	1947	Bismarck
	Young, Milton R. <sup>8</sup> . . . . .	Rep.	1951	Berlin
Ohio	Taft, Robert A. . . . .	Rep.	1951	Cincinnati
	Huffman, James W. <sup>9</sup> . . . . .	Dem.	1947	Columbus
Okla.	Thomas, Elmer . . . . .	Dem.	1951	Medicine Park
	Moore, E. H. . . . .	Rep.	1949	Tulsa
Ore.	Cordon, Guy . . . . .	Rep.	1949	Roseburg
	Morse, Wayne L. . . . .	Rep.	1951	Eugene
Pa.	Myers, Francis J. . . . .	Dem.	1951	Philadelphia
	Guffey, Joseph F. . . . .	Dem.	1947	Pittsburgh
R.I.	Gerry, Peter G. . . . .	Dem.	1947	Providence
	Green, Theodore F. . . . .	Dem.	1949	Providence
S.C.	Johnston, Olin D. . . . .	Dem.	1951	Spartanburg
	Maybank, Burnet R. . . . .	Dem.	1949	Charleston
S.D.	Bushfield, Harlan J. . . . .	Rep.	1949	Miller
	Gurney, Chan . . . . .	Rep.	1951	Yankton
Tenn.	McKellar, Kenneth . . . . .	Dem.	1947	Memphis
	Stewart, Tom . . . . .	Dem.	1949	Winchester
Tex.	O'Daniel, W. Lee . . . . .	Dem.	1949	Ft. Worth
	Connally, Tom . . . . .	Dem.	1947	Marlin
Utah	Murdock, Abe . . . . .	Dem.	1947	Beaver
	Thomas, Elbert D. . . . .	Dem.	1951	Salt Lake City
Vt.	Austin, Warren R. . . . .	Rep.	1947	Burlington
	Aiken, George D. . . . .	Rep.	1951	Putney
Va.	Glass, Carter . . . . .	Dem.	1949	Lynchburg
	Byrd, Harry F. . . . .	Dem.	1947	Berryville
Wash.	Mitchell, Hugh B. <sup>10</sup> . . . . .	Dem.	1947	Everett
	Magnuson, Warren G. . . . .	Dem.	1951	Port Blakely
W.Va.	Revercomb, Chapman . . . . .	Rep.	1949	Charleston
	Kilgore, Harley M. . . . .	Dem.	1947	Beckley
Wis.	LaFollette, Robert M., Jr. . . . .	Pro.	1947	Madison
	Wiley, Alexander . . . . .	Rep.	1951	Chippewa Falls
Wyo.	O'Mahoney, Joseph C. . . . .	Dem.	1947	Cheyenne
	Robertson, Edward V. . . . .	Rep.	1949	Cody

## United States House of Representatives (\*served in 78th Congress)

Speaker: Sam Rayburn, of Texas

Majority Leader: John W. McCormack, of Massachusetts

Minority Leader: Joseph W. Martin, Jr., of Massachusetts

State	Dist.	Name	Party	Residence
Ala.	1	*Boykin, Frank W. . . . .	Dem.	Mobile
	2	*Grant, George M. . . . .	Dem.	Troy
	3	*Andrews, George W. . . . .	Dem.	Union Springs
	4	*Hobbs, Sam . . . . .	Dem.	Selma
	5	Rains, Albert . . . . .	Dem.	Gadsden
	6	*Jarman, Pete . . . . .	Dem.	Livingston
	7	*Manasco, Carter . . . . .	Dem.	Jasper
	8	*Sparkman, John J. . . . .	Dem.	Huntsville
	9	Patrick, Luther . . . . .	Dem.	Birmingham
Ariz.		*Harless, Richard F. . . . .	Dem.	Phoenix
		*Murdock, John R. . . . .	Dem.	Tempe
Ark.	1	*Gathings, E. C. . . . .	Dem.	West Memphis
	2	*Mills, Wilbur D. . . . .	Dem.	Kensett
	3	Trimble, James W. . . . .	Dem.	Berryville
	4	*Cravens, Fadjo . . . . .	Dem.	Fort Smith
	5	*Hays, Brooks . . . . .	Dem.	Little Rock
	6	*Norrell, W. F. . . . .	Dem.	Monticello
	7	*Harris, Oren . . . . .	Dem.	El Dorado
Calif.	1	*Lea, Clarence F. . . . .	Dem.	Santa Rosa
	2	*Engle, Clair . . . . .	Dem.	Red Bluff
	3	*Johnson, J. Leroy . . . . .	Rep.	Stockton
	4	Havener, Frank R. . . . .	Dem.	San Francisco
	5	*Welch, Richard J. . . . .	Rep.	San Francisco
	6	Miller, George P. . . . .	Dem.	Alameda
	7	*Tolan, John H. . . . .	Dem.	Oakland
	8	*Anderson, John Z. . . . .	Rep.	San Juan Bautista
	9	*Gearhart, Bertrand W. . . . .	Rep.	Fresno
	10	*Elliott, Alfred J. . . . .	Dem.	Tulare
	11	*Outland, George E. . . . .	Dem.	Santa Barbara
	12	*Voorhis, Jerry . . . . .	Dem.	San Dimas
	13	Healy, Ned R. . . . .	Dem.	Los Angeles
	14	Douglas, Helen Gahagan . . . . .	Dem.	Los Angeles
	15	McDonough, Gordon L. . . . .	Rep.	Los Angeles
	16	Patterson, Ellis E. . . . .	Dem.	Los Angeles
	17	*King, Cecil R. . . . .	Dem.	Los Angeles
	18	Doyle, Clyde . . . . .	Dem.	Long Beach
	19	*Holifield, Chet . . . . .	Dem.	Montebello
	20	*Hinshaw, Carl . . . . .	Rep.	Pasadena
	21	*Sheppard, Harry R. . . . .	Dem.	Yucaipa
	22	*Phillips, John . . . . .	Rep.	Banning
	23	*Izac, Edouard V. M. . . . .	Dem.	San Diego
Colo.	1	*Gillespie, Dean M. . . . .	Rep.	Denver
	2	*Hill, William S. . . . .	Rep.	Fort Collins
	3	*Chenoweth, J. Edgar . . . . .	Rep.	Trinidad
	4	*Rockwell, Robert F. . . . .	Rep.	Paonia
Conn.		Ryder, Joseph F. . . . .	Dem.	Hartford
	1	Kopplemann, Herman P. . . . .	Dem.	Hartford
	2	Woodhouse, Chase Going . . . . .	Dem.	New London
	3	Geelan, James P. . . . .	Dem.	New Haven
	4	*Luce, Clare Boothe . . . . .	Rep.	Greenwich
	5	*Talbot, Joseph E. . . . .	Rep.	Naugatuck
Del.		Traynor, Philip A. . . . .	Dem.	Wilmington
Fla.	1	*Peterson, J. Hardin . . . . .	Dem.	Lakeland
	2	*Price, Emory H. . . . .	Dem.	Jacksonville
	3	*Sikes, Robert L. F. . . . .	Dem.	Crestview
	4	*Cannon, Pat . . . . .	Dem.	Miami
	5	*Hendricks, Joe . . . . .	Dem.	De Land
	6	Rogers, Dwight L. . . . .	Dem.	Fort Lauderdale
Ga.	1	*Peterson, Hugh . . . . .	Dem.	Ailey
	2	*Cox, Edward E. . . . .	Dem.	Camilla
	3	*Pace, Stephen . . . . .	Dem.	Americus
	4	*Camp, Albert S. . . . .	Dem.	Newnan
	5	Vacancy <sup>1</sup> . . . . .		
	6	*Vinson, Carl . . . . .	Dem.	Milledgeville
	7	*Tarver, Malcolm C. . . . .	Dem.	Dalton
	8	*Gibson, John S. . . . .	Dem.	Douglas
	9	Wood, John S. . . . .	Dem.	Canton
	10	*Brown, Paul . . . . .	Dem.	Elberton
Ida.	1	*White, Compton I. . . . .	Dem.	Clark Fork
	2	*Dworshak, Henry C. . . . .	Rep.	Burley
Ill.		Douglas, Emily Taft . . . . .	Dem.	Chicago
	1	*Dawson, William L. . . . .	Dem.	Chicago
	2	*Rowan, William A. . . . .	Dem.	Chicago
	3	Kelly, Edward A. . . . .	Dem.	Chicago
	4	*Gorski, Martin . . . . .	Dem.	Chicago
	5	*Sabath, Adolph J. . . . .	Dem.	Chicago
	6	*O'Brien, Thomas J. . . . .	Dem.	Chicago
	7	Link, William W. . . . .	Dem.	Chicago
	8	*Gordon, Thomas S. . . . .	Dem.	Chicago
	9	Resa, Alexander J. . . . .	Dem.	Chicago
	10	*Church, Ralph E. . . . .	Rep.	Evanston
	11	*Reed, Chauncey W. . . . .	Rep.	West Chicago
	12	*Mason, Noah M. . . . .	Rep.	Oglesby
	13	*Allen, Leo E. . . . .	Rep.	Galena
	14	*Johnson, Anton J. . . . .	Rep.	Macomb
	15	*Chiperfield, Robert B. . . . .	Rep.	Canton
	16	*Dirksen, Everett McK. . . . .	Rep.	Pekin
	17	*Arends, Leslie C. . . . .	Rep.	Melvin
	18	*Sumner, Jessie . . . . .	Rep.	Milford

<sup>4</sup>Appointed Nov. 17, 1945, to fill vacancy caused by the death of John Thomas, Nov. 10, 1945.<sup>5</sup>Appointed Nov. 19, 1945, to fill vacancy caused by the resignation of Albert B. Chandler, Nov. 1, 1945.<sup>6</sup>Appointed Jan. 18, 1945, to fill vacancy caused by the resignation of Harry S. Truman, Jan. 17, 1945.<sup>7</sup>Appointed July 24, 1945, to fill vacancy caused by the death of James G. Scrugham, June 23, 1945.<sup>8</sup>Appointed March 12, 1945, to fill vacancy caused by the death of John Moses, March 3, 1945.<sup>9</sup>Appointed Oct. 8, 1945, to fill vacancy caused by the resignation of Harold H. Burton, Sept. 30, 1945.<sup>10</sup>Appointed Jan. 10, 1945, to fill vacancy caused by the resignation of Mon C. Wallgren, Jan. 9, 1945.<sup>1</sup>Vacancy caused by the resignation of Robert Ramspeck, Dec. 31, 1945.

State	Dist.	Name	Party	Residence	State	Dist.	Name	Party	Residence
Ill.	19	*McMillen, Rolla C.	Rep.	Decatur	Miss.	1	*Rankin, John E.	Dem.	Tupelo
	20	*Simpson, Sid	Rep.	Carrollton		2	*Whitten, Jamie L.	Dem.	Charleston
	21	*Howell, Evan	Rep.	Springfield		3	*Whittington, William M.	Dem.	Greenwood
		Price, Melvin	Dem.	East St. Louis		4	*Abernethy, Thomas G.	Dem.	Okolona
	22	*Vursell, Charles W.	Rep.	Salem		5	*Winstead, Arthur	Dem.	Philadelphia
	23	Clippinger, Roy <sup>2</sup>	Rep.	Carmi		6	*Colmer, William M.	Dem.	Pascagoula
	24	*Bishop, C. W.	Rep.	Cartersville		7	*McGehee, Dan R.	Dem.	Meadville
Ind.	1	*Madden, Ray J.	Dem.	Gary	Mo.	1	*Arnold, Wat	Rep.	Kirksville
	2	*Halleck, Charles A.	Rep.	Rensselaer		2	*Schwabe, Max	Rep.	Columbia
	3	*Grant, Robert A.	Rep.	South Bend		3	*Cole, William C.	Rep.	St. Joseph
	4	*Gillie, George W.	Rep.	Fort Wayne		4	*Bell, C. Jasper	Dem.	Blue Springs
	5	*Harness, Forest A.	Rep.	Kokomo		5	*Slaughter, Roger C.	Dem.	Kansas City
	6	*Johnson, Noble J.	Rep.	Terre Haute		6	*Bennett, Marion T.	Rep.	Springfield
	7	*Landis, Gerald W.	Rep.	Linton		7	*Short, Dewey	Rep.	Galena
	8	*LaFollette, Charles M.	Rep.	Evansville		8	*Carnahan, A. S. J.	Dem.	Ellsinore
	9	*Wilson, Earl	Rep.	Huron		9	*Cannon, Clarence	Dem.	Elsberry
	10	*Springer, Raymond S.	Rep.	Connersville		10	*Zimmerman, Orville	Dem.	Kennett
	11	*Ludlow, Louis	Dem.	Indianapolis		11	Sullivan, John B.	Dem.	St. Louis
Iowa	1	*Martin, Thomas E.	Rep.	Iowa City		12	*Ploeser, Walter C.	Rep.	St. Louis
	2	*Talle, Henry O.	Rep.	Decorah		13	*Cochran, John J.	Dem.	St. Louis
	3	*Gwynne, John W.	Rep.	Waterloo	Mont.	1	*Mansfield, Mike	Dem.	Missoula
	4	*LeCompte, Karl M.	Rep.	Corydon		2	d'Ewart, Wesley A. <sup>3</sup>	Rep.	Wilsall
	5	*Cunningham, Paul	Rep.	Des Moines	Neb.	1	*Curtis, Carl T.	Rep.	Minden
	6	Dalliver, James I.	Rep.	Fort Dodge		2	*Buffett, Howard H.	Rep.	Omaha
	7	*Jensen, Ben F.	Rep.	Exira		3	*Stefan, Karl	Rep.	Norfolk
	8	*Hoeven, Charles B.	Rep.	Alton		4	*Miller, A. L.	Rep.	Kimball
Kan.	1	Cole, Albert M.	Rep.	Holton	Nev.		Bunker, Berkeley L.	Dem.	Las Vegas
	2	*Scrivner, Errett P.	Rep.	Kansas City	N.H.	1	*Morrow, Chester E.	Rep.	Center Ossipee
	3	*Winter, Thomas D.	Rep.	Girard		2	Adams, Sherman	Rep.	Lincoln
	4	*Rees, Edward H.	Rep.	Emporia	N.J.	1	*Wolverton, Charles A.	Rep.	Merchantville
	5	*Hope, Clifford R.	Rep.	Garden City		2	Hand, T. Millet	Rep.	Cape May City
	6	*Carlson, Frank	Rep.	Concordia		3	*Auchincloss, James C.	Rep.	Rumson
Ky.	1	*Gregory, Noble J.	Dem.	Mayfield		4	*Mathews, Frank A., Jr. <sup>1</sup>	Rep.	Trenton
	2	Clements, Earle C.	Dem.	Morganfield		5	*Eaton, Charles A.	Rep.	Watchung
	3	*O'Neal, Emmet	Dem.	Louisville		6	Case, Clifford P.	Rep.	Rahway
	4	Chelf, Frank L.	Dem.	Lebanon		7	*Thomas, J. Parnell	Rep.	Allendale
	5	*Spence, Brent	Dem.	Fort Thomas		8	*Canfield, Gordon	Rep.	Paterson
	6	*Chapman, Virgil	Dem.	Paris		9	*Towe, Harry L.	Rep.	Rutherford
	7	*May, Andrew J.	Dem.	Prestonsburg		10	*Hartley, Fred A., Jr.	Rep.	Kearny
	8	*Bates, Joe B.	Dem.	Greenup		11	*Sundstrom, Frank L.	Rep.	East Orange
	9	*Robison, John M.	Rep.	Barbourville		12	*Kean, Robert W.	Rep.	Livingston
La.	1	*Hébert, F. Edward	Dem.	New Orleans		13	*Norton, Mary T.	Dem.	Jersey City
	2	*Maloney, Paul H.	Dem.	New Orleans		14	*Hart, Edward J.	Dem.	Jersey City
	3	*Domengeaux, James	Dem.	Lafayette	N.M.		Vacancy <sup>5</sup>		
	4	*Brooks, Overton	Dem.	Shreveport			*Fernandez, Antonio M.	Dem.	Santa Fe
	5	*McKenzie, Charles E.	Dem.	Monroe	N.Y.	1	Sharp, Edgar A.	Rep.	Patchogue
	6	*Morrison, James H.	Dem.	Hammond		2	*Hall, Leonard W.	Rep.	Oyster Bay
	7	*Larcade, Henry D., Jr.	Dem.	Opelousas		3	Latham, Henry J.	Rep.	Queens Village
	8	*Allen, A. Leonard	Dem.	Winnfield		4	*Barry, William B.	Dem.	St. Albans
Me.	1	*Hale, Robert	Rep.	Portland		5	Roe, James A.	Dem.	Flushing
	2	*Smith, Margaret Chase	Rep.	Skowhegan		6	Delaney, James J.	Dem.	Long Island City
	3	*Fellows, Frank	Rep.	Bangor		7	*Delaney, John J.	Dem.	Brooklyn
Md.	1	Roe, Dudley G.	Dem.	Sudlersville		8	*Pfeifer, Joseph L.	Dem.	Brooklyn
	2	*Baldwin, H. Streett	Dem.	Hydes		9	*Keogh, Eugene J.	Dem.	Brooklyn
	3	*D'Alesandro, Thomas, Jr.	Dem.	Baltimore		10	*Somers, Andrew L.	Dem.	Brooklyn
	4	Fallon, George H.	Dem.	Baltimore		11	*Heffernan, James J.	Dem.	Brooklyn
	5	*Sasser, Lansdale G.	Dem.	Upper Marlboro		12	*Rooney, John J.	Dem.	Brooklyn
	6	*Beall, J. Glenn	Rep.	Frostburg		13	*O'Toole, Donald L.	Dem.	Brooklyn
Mass.	1	Heseltin, John W.	Rep.	Deerfield		14	Rayfield, Leo F.	Dem.	Brooklyn
	2	*Clason, Charles R.	Rep.	Springfield		15	*Celler, Emanuel	Dem.	Brooklyn
	3	*Philbin, Philip J.	Dem.	Clinton		16	*Buck, Ellsworth B.	Rep.	Staten Island
	4	*Holmes, Pehr G.	Rep.	Worcester		17	*Baldwin, Joseph C.	Rep.	New York city
	5	*Rogers, Edith N.	Rep.	Lowell		18	*Marcantonio, Vito	Am.	
	6	*Bates, George J.	Rep.	Salem				Lab.	New York city
	7	*Lane, Thomas J.	Dem.	Lawrence		19	Vacancy <sup>6</sup>		
	8	*Goodwin, Angier L.	Rep.	Melrose		20	*Bloom, Sol	Dem.	New York city
	9	*Gifford, Charles L.	Rep.	Cotuit		21	*Torrens, James H.	Dem.	New York city
	10	*Herter, Christian A.	Rep.	Boston		22	Powell, Adam C., Jr.	Dem.	New York city
	11	*Curley, James M.	Dem.	Boston		23	*Lynch, Walter A.	Dem.	New York city
	12	*McCormack, John W.	Dem.	Dorchester		24	Rabin, Benjamin J.	Dem.	New York city
	13	*Wigglesworth, Richard B.	Rep.	Milton		25	*Buckley, Charles A.	Dem.	New York city
	14	*Martin, Joseph W., Jr.	Rep.	North Attleboro		26	Quinn, Peter A.	Dem.	New York city
Mich.	1	*Sadowski, George G.	Dem.	Detroit		27	Gwinn, Ralph W.	Rep.	Bronxville
	2	*Michener, Earl C.	Rep.	Adrian		28	*Gamble, Ralph A.	Rep.	Larchmont
	3	*Shafer, Paul W.	Rep.	Battle Creek		29	Bennet, Augustus W.	Rep.	Balmville (Newburgh)
	4	*Hoffman, Clare E.	Rep.	Allegan					
	5	*Jonkman, Bartel J.	Rep.	Grand Rapids		30	*LeFevre, Jay	Rep.	New Paltz
	6	*Blackney, William W.	Rep.	Flint		31	*Kearney, Bernard W.	Rep.	Gloversville
	7	*Wolcott, Jesse P.	Rep.	Port Huron		32	*Byrne, William T.	Dem.	Loudonville
	8	*Crawford, Fred L.	Rep.	Saginaw		33	*Taylor, Dean P.	Rep.	Troy
	9	*Engel, Albert J.	Rep.	Muskegon		34	*Kilburn, Clarence E.	Rep.	Malone
	10	*Woodruff, Roy O.	Rep.	Bay City		35	*Fuller, Hadwen C.	Rep.	Parish
	11	*Bradley, Fred	Rep.	Rogers City		36	*Hancock, Clarence E.	Rep.	Syracuse
	12	Hook, Frank E.	Dem.	Ironwood		37	*Hall, Edwin A.	Rep.	Binghamton
	13	*O'Brien, George D.	Dem.	Detroit		38	*Taber, John	Rep.	Auburn
	14	*Rabaut, Louis C.	Dem.	Grosse Pointe Park		39	*Cole, W. Sterling	Rep.	Bath
	15	*Dingell, John D.	Dem.	Detroit		40	Rogers, George F.	Dem.	Rochester
	16	*Lesinski, John	Dem.	Dearborn		41	*Wadsworth, James W.	Rep.	Geneseo
	17	*Dondero, George A.	Rep.	Royal Oak		42	*Andrews, Walter G.	Rep.	Buffalo
Minn.	1	*Andresen, August H.	Rep.	Red Wing		43	Elsaesser, Edward J.	Rep.	Buffalo
	2	*O'Hara, Joseph P.	Rep.	Glencoe		44	*Butler, John C.	Rep.	Buffalo
	3	Gallagher, William J.	Dem.	Minneapolis		45	*Reed, Daniel A.	Rep.	Dunkirk
	4	Starkey, Frank T.	Dem.	St. Paul	N.C.	1	*Bonner, Herbert C.	Dem.	Washington
	5	*Judd, Walter H.	Rep.	Minneapolis		2	*Kerr, John H.	Dem.	Warrenton
	6	*Knutson, Harold	Rep.	Manhattan Beach					
	7	*Andersen, H. Carl	Rep.	Tyler					
	8	*Pittenger, William A.	Rep.	Duluth					
	9	*Hagen, Harold C.	Rep.	Crookston					

<sup>2</sup>Elected Nov. 6, 1945, to fill vacancy caused by the death of James V. Heidinger March 22, 1945.

<sup>3</sup>Elected June 5, 1945, to fill vacancy caused by the death of James F. O'Connor, Jan. 15, 1945.

<sup>4</sup>Elected Nov. 6, 1945, to fill vacancy caused by the resignation of D. Lane Powers, Aug. 30, 1945.

<sup>5</sup>Vacancy caused by the resignation of Clinton P. Anderson, June 30, 1945.

<sup>6</sup>Vacancy caused by the resignation of Samuel Dickstein, Dec. 30, 1945.

# CONGRESS OF INDUSTRIAL ORGANIZATIONS

231

State	Dist.	Name	Party	Residence	State	Dist.	Name	Party	Residence
N.C.	3	*Barden, Graham A.	Dem.	New Bern	Tenn.	6	*Priest, J. Percy	Dem.	Nashville
	4	*Cooley, Harold D.	Dem.	Nashville		7	*Courtney, Wirt	Dem.	Franklin
	5	*Folger, John H.	Dem.	Mount Airy		8	*Murray, Tom	Dem.	Jackson
	6	*Durham, Carl T.	Dem.	Chapel Hill		9	*Cooper, Jere	Dem.	Dyersburg
	7	*Clark, J. Bayard	Dem.	Fayetteville		10	*Davis, Clifford	Dem.	Memphis
	8	*Burgin, William O.	Dem.	Lexington	Tex.	1	*Patman, Wright	Dem.	Texarkana
	9	*Doughton, Robert L.	Dem.	Laurel Springs		2	Combs, J. M.	Dem.	Beaumont
	10	Vacancy <sup>7</sup>				3	*Beckworth, Lindley	Dem.	Gilmer
	11	*Bulwinkle, Alfred L.	Dem.	Gastonia		4	*Rayburn, Sam	Dem.	Bonham
	12	*Weaver, Zebulon	Dem.	Asheville		5	*Sumners, Hatton W.	Dem.	Dallas
N.D.		*Lemke, William	Rep.	Fargo		6	*Johnson, Luther A.	Dem.	Corsicana
		Robertson, Charles R.	Rep.	Bismarck		7	Pickett, Tom	Dem.	Palestine
Ohio		*Bender, George H.	Rep.	Cleveland Heights		8	*Thomas, Albert	Dem.	Houston
	1	*Elston, Charles H.	Rep.	Cincinnati		9	*Mansfield, Joseph J.	Dem.	Columbus
	2	*Hess, William E.	Rep.	Cincinnati		10	*Johnson, Lyndon B.	Dem.	Johnson City
	3	Gardner, Edward J.	Dem.	Hamilton		11	*Poage, William R.	Dem.	Waco
	4	*Jones, Robert F.	Rep.	Lima		12	*Lanham, Fritz G.	Dem.	Fort Worth
	5	*Clevenger, Cliff	Rep.	Bryan		13	*Gossett, Ed	Dem.	Wichita Falls
	6	*McCowan, Edward O.	Rep.	Wheelerburg		14	Lyle, John E.	Dem.	Corpus Christi
	7	*Brown, Clarence J.	Rep.	Blanchester		15	*West, Milton H.	Dem.	Brownsville
	8	*Smith, Frederick C.	Rep.	Marion		16	*Thomason, R. Ewing	Dem.	El Paso
	9	*Ramey, Homer A.	Rep.	Toledo		17	*Russell, Sam M.	Dem.	Shenerville
	10	*Jenkins, Thomas A.	Rep.	Ironton		18	*Worley, Eugene	Dem.	Stamrock
	11	*Brehm, Walter E.	Rep.	Logan		19	*Mahon, George H.	Dem.	Colorado City
	12	*Vorys, John M.	Rep.	Columbus		20	*Kilday, Paul J.	Dem.	San Antonio
	13	*Weichel, Alvin F.	Rep.	Sandusky		21	*Fisher, O. C.	Dem.	San Angelo
	14	Huber, Walter B.	Dem.	Akron	Utah	1	*Granger, Walter K.	Dem.	Cedar City
	15	*Griffiths, P. W.	Rep.	Marietta		2	*Robinson, J. Will	Dem.	Provo
	16	Thom, William R.	Dem.	Canton	Vt.		*Plumley, Charles A.	Rep.	Northfield
	17	*McGregor, J. Harry	Rep.	West Lafayette	Va.	1	*Bland, Schuyler O.	Dem.	Newport News
	18	*Lewis, Earl R.	Rep.	St. Clairsville		2	*Daughton, Ralph H.	Dem.	Norfolk
	19	*Kirwan, Michael J.	Dem.	Youngstown		3	Gary, J. Vaughn <sup>10</sup>	Dem.	Richmond
	20	*Feighan, Michael A.	Dem.	Cleveland		4	*Drewry, Patrick H.	Dem.	Petersburg
	21	*Crosner, Robert	Dem.	Cleveland		5	*Burch, Thomas G.	Dem.	Martinsville
	22	*Bolton, Frances P.	Rep.	Lyndhurst		6	Vacancy <sup>11</sup>		
Okla.	1	Schwab, George B.	Rep.	Tulsa		7	*Robertson, A. Willis	Dem.	Lexington
	2	*Stigler, William G.	Dem.	Stigler		8	*Smith, Howard W.	Dem.	Alexandria
	3	*Stewart, Paul	Dem.	Antlers		9	*Flannagan, John W., Jr.	Dem.	Bristol
	4	*Boren, Lyle H.	Dem.	Seminole	Wash.	1	De Lacy, Hugh	Dem.	Seattle
	5	*Monroney, A. S. Mike	Dem.	Oklahoma City		2	*Jackson, Henry M.	Dem.	Everett
	6	*Johnson, Jed	Dem.	Anadarko		3	Savage, Charles R.	Dem.	Shelton
	7	*Wickersham, Victor	Dem.	Mangum		4	*Holmes, Hal	Rep.	Ellensburg
	8	*Rizley, Ross	Rep.	Guyton		5	*Horan, Walter F.	Rep.	Wenatchee
Ore.	1	Vacancy <sup>8</sup>				6	*Coffee, John M.	Dem.	Tacoma
	2	*Stockman, Lowell	Rep.	Pendleton	W.Va.	1	Neely, Matthew M.	Dem.	Fairmont
	3	*Angell, Homer D.	Rep.	Portland		2	*Randolph, Jennings	Dem.	Elkins
	4	*Ellsworth, Harris	Rep.	Roseburg		3	Bailey, Cleveland M.	Dem.	Clarksburg
Pa.	1	Barrett, William A.	Dem.	Philadelphia		4	*Ellis, Hubert S.	Rep.	Huntington
	2	Granahan, William T.	Dem.	Philadelphia		5	*Kee, John	Dem.	Bluefield
	3	*Bradley, Michael J.	Dem.	Philadelphia		6	Hedrick, E. H.	Dem.	Beckley
	4	*Sheridan, John E.	Dem.	Philadelphia	Wis.	1	*Smith, Lawrence H.	Rep.	Racine
	5	Green, William J., Jr.	Dem.	Philadelphia		2	Henry, Robert K.	Rep.	Jefferson
	6	McGlinchey, Herbert J.	Dem.	Philadelphia		3	*Stevenson, William H.	Rep.	LaCross
	7	*Wolfenden, James	Rep.	Upper Darby		4	*Wasielewski, Thad F.	Dem.	Milwaukee
	8	*Gerlach, Charles L.	Rep.	Allentown		5	Biemiller, Andrew J.	Dem.	Milwaukee
	9	*Kinzer, J. Roland	Rep.	Lancaster		6	*Keefe, Frank B.	Rep.	Oshkosh
	10	*Murphy, John W.	Dem.	Dunmore		7	*Murray, Reid F.	Rep.	Ogdensburg
	11	Flood, Daniel J.	Dem.	Wilkes-Barre		8	Byrnes, John W.	Rep.	Green Bay
	12	*Fenton, Ivor D.	Rep.	Mahanoy City		9	*Hull, Merlin	Pro.	Black River Falls
	13	*Hoch, Daniel K.	Dem.	Reading		10	*O'Konski, Alvin E.	Rep.	Mercer
	14	*Gillette, Wilson D.	Rep.	Towanda	Wyo.		*Barrett, Frank A.	Rep.	Lusk
	15	Rich, Robert F.	Rep.	Woodrich					
	16	*McConnell, Samuel K., Jr.	Rep.	Penn Wayne					
	17	*Simpson, Richard M.	Rep.	Huntingdon					
	18	*Kunkel, John C.	Rep.	Harrisburg					
	19	*Gavin, Leon H.	Rep.	Oil City					
	20	*Walter, Francis E.	Dem.	Easton					
	21	*Gross, Chester H.	Rep.	Manchester					
	22	*Brumbaugh, D. Emmert	Rep.	Claysburg					
	23	*Snyder, J. Buell	Dem.	Perryopolis					
	24	Morgan, Thomas E.	Dem.	Fredericktown					
	25	*Graham, Louis E.	Rep.	Beaver					
	26	*Tibbott, Harve	Rep.	Ebensburg					
	27	*Kelley, Augustine B.	Dem.	Greensburg					
	28	*Rodgers, Robert L.	Rep.	Erie					
	29	Campbell, Howard E.	Rep.	Pittsburgh					
	30	Corbett, Robert J.	Rep.	Bellevue					
	31	Fulton, James G.	Rep.	Dormont (Pittsburgh)					
	32	*Eberharter, Herman P.	Dem.	Pittsburgh					
	33	Vacancy <sup>9</sup>							
R.I.	1	*Forand, Aime J.	Dem.	Cumberland					
	2	*Fogarty, John E.	Dem.	Harmony					
S.C.	1	*Rivers, L. Mendel	Dem.	North Charleston					
	2	Riley, John J.	Dem.	Sumter					
	3	*Hare, Butler B.	Dem.	Saluda					
	4	*Bryson, Joseph R.	Dem.	Greenville					
	5	*Richards, James P.	Dem.	Lancaster					
	6	*McMillan, John L.	Dem.	Florence					
S.D.	1	*Mundt, Karl E.	Rep.	Madison					
	2	*Case, Francis	Rep.	Custer					
Tenn.	1	*Reece, B. Carroll	Rep.	Johnson City					
	2	*Jennings, John, Jr.	Rep.	Knoxville					
	3	*Kefauver, Estes	Dem.	Chattanooga					
	4	*Gore, Albert	Dem.	Carthage					
	5	Earthman, Harold H.	Dem.	Murfreesboro					

<sup>7</sup>Vacancy caused by the death of Joe W. Ervin, Dec. 25, 1945.

<sup>8</sup>Vacancy caused by the death of James W. Mott, Nov. 12, 1945.

<sup>9</sup>Vacancy caused by the resignation of Samuel A. Weiss, Jan. 7, 1946.

<sup>10</sup>Elected March 6, 1945, to fill vacancy caused by the resignation of Dave E. Satterfield, Jr., Feb. 15, 1945.

<sup>11</sup>Vacancy caused by the resignation of Clifton A. Woodrum, Dec. 31, 1945.

## Congress of Industrial Organizations.

In 1945 there were 6,000,000 members of the C.I.O. Thousands of C.I.O. members contributed their share to the creation of the bomb releasing atomic energy. Other hundreds of thousands produced the other materials needed in the war effort.

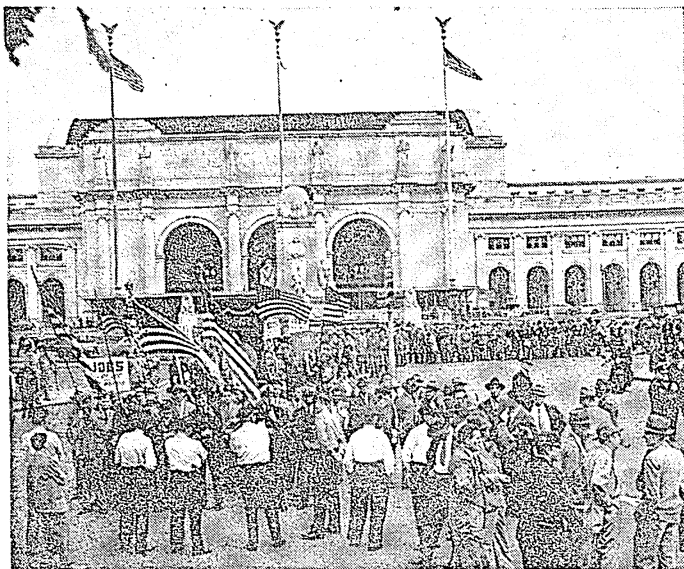
With the end of war production, millions of workers were thrown out of work. Sixty million peacetime jobs became the goal set for continuing national prosperity. Federal legislation supported by the C.I.O. to help bring about a decent standard of living for all groups included the Murray-Wagner Full Employment bill; an amendment to the Fair Labor Standards act, to establish a minimum wage of 65 cents an hour; the Kilgore-Forand Unemployment Compensation bill, to raise unemployment benefits; the Wagner-Murray-Dingell Social Security bill.

Higher wage rates throughout industry, and guaranteed annual wage plans wherever possible, were additional parts of the program to ensure full employment and production.

Fifty thousand dollars was contributed to Georgetown University Medical school in memory of Franklin D. Roosevelt.

The C.I.O. took an active part in founding the World Fed-





C.I.O. DELEGATES from N.Y. arriving at Washington, D.C., to support the Kilgore bill coming up for congressional vote. Recommended by Pres. Truman, the bill provided maximum unemployment benefits of \$25 weekly for 26 weeks

eration of Trade Unions, representing 70,000,000 working people everywhere, which came into being after successive conferences in London, Washington, San Francisco and Paris in order to unite the trade union movements of the world.

The circulation of the "Facts for Action" series of publications issued by the Department of Education and Research increased tremendously over previous years. This included pamphlets on re-employment, substandard wages, guaranteed annual wages, and special issues of the monthly *Economic Outlook*, on reconversion, women in industry, farmer-labour co-operation.

National headquarters were at 718 Jackson place, N.W. Washington 6, D.C. National officers were Philip Murray, president; James B. Carey, secretary-treasurer.

(See also AMERICAN FEDERATION OF LABOR; LABOUR UNIONS; STRIKES AND LOCK-OUTS; UNITED STATES.) (P. MY.)

**Connecticut.** Popularly known as the "Nutmeg state," the "Land of Steady Habits" or the "Constitution state," Connecticut, one of the 13 original states, is next to the smallest of the New England states, its area being 5,009 sq.mi. including 110 water. The population (1940 census), was 1,709,242, and even increased slightly more than 2% during World War II, according to the census bureau. This unusual gain was made despite an enrolment of approximately 200,000 or 33% of the male working force in the state, serving in the armed forces. The capital and largest city is Hartford (166,267) followed by New Haven (160,605), Bridgeport (147,121), Waterbury (99,314), New Britain (68,685), and Stamford (47,938), all 1940 census figures.

**History.**—The political division of the general assembly which met Jan. 3, 1945, and adjourned June 6 resulted in a stormy session. The Republican governor and house were opposed by a Democratic senate. However, by compromise and otherwise, both sides managed to enact legislation to which they were pledged. The senate failed to approve several of the governor's appointments and only at the end of the year were those snarls being untangled by the state supreme court. Some of the measures enacted were: increase of the Soldiers', Sailors', and Marines' fund from \$2,500,000 to \$15,000,000, by increasing the cigarette tax from 2 cents to 3 cents per package; appropriation of \$750,000 for an armory at Bridgeport; appropriation of \$2,000,000 for state school building grants to towns, with a limit of \$50,000 in any one grant;

reduction from 52 to 48 hours in the maximum work week for women in certain industries; directing the Public Welfare council to make a study of juvenile delinquency; establishment of a three-man board to administer a labour relations act, advocated by organized labour for many years, guaranteeing the rights of collective bargaining to all Connecticut workers engaged in intrastate industries.

The elective state officers were: governor, Raymond E. Baldwin (Rep.); lieutenant governor, Wilbert Snow (Dem.); secretary of state, Charles J. Prestia (Dem.); treasurer, William T. Carroll (Dem.); comptroller, John M. Dowe (Dem.); attorney general, William C. Hadden (Rep.); United States senators, Thomas C. Hart (Rep.), term expires 1947; Brien McMahon (Dem.), term expires 1951.

**Education.**—In 1944-45, there were 791 public elementary schools with 5,111 teachers and 165,551 pupils; 36 junior high schools with 735 teachers and 17,726 pupils; 91 public high schools with 2,619 teachers and 60,225 pupils. The state also maintained 12 trade schools and 2 state-aided trade schools which had a total day and evening enrolment of 7,366 students and 214 teachers. There were 4 teachers colleges with 1,269 students and faculties of 123. At the state university there were 2,813 students and 294 on the faculty. The local expenditure for education was \$34,694,300, a large increase over the year before.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—Total relief cases in June 1945 were 39,581 compared with 40,076 the previous June, but the cost in 1945 was \$1,250,688 as against \$1,207,440 the year before. The number of those receiving relief in the various categories were: general local relief 7,305; old-age assistance 13,878; in state institutions 6,224; county wards 3,345; state wards 1,708; the blind 180; all were reductions from 1944. However, aid was given to 7,140 dependent children, 636 more than the previous year.

**Communication.**—Total motor vehicle registration from March 1 to Dec. 20, 1945, was 533,116 as against 518,109 for the same period in 1944. Operators' licences issued during the same time were 625,102 compared with 589,242. These figures include free licences to 88,316 veterans in 1945 and to 47,788 in 1944. Contracts for new highway construction were let and work started. The construction of another toll bridge across the Connecticut river at Old Lyme was started at an estimated cost of not more than \$6,000,000.

There were 11 broadcasting stations in the state, one with 50,000 watts power. Three railway companies had 875 miles of track, one street railway company had 468 mi.; there were 177 telephone outlets, 47 bus companies, and 114 taxicab companies.

**Banking and Finance.**—The bank commissioner reported that as of Sept. 30, 1945, the assets of the 72 mutual savings banks were \$1,220,685,267; of the 63 state banks and trust companies, \$760,052,838. As of June 30, the assets of the 51 national banks were \$844,865,000. The 33 building and loan associations had assets of \$39,649,264. These figures were all large gains over 1944. The state treasurer gave the following summary of the state's finances as of the fiscal year ending June 30: cash balance July 1, 1944, \$35,181,054.57; cash receipts \$126,365,424.69; disbursements \$126,114,907.39; cash balance June 30, 1945, \$35,431,571.87.

The total bonded debt was \$23,600,000, of which \$13,200,000 was to be paid out of the bond retirement fund, which amounted to \$13,523,952, and \$10,400,000 self-liquidating bonds such as were issued to build toll bridges and dormitories at the state university. The Post-War Purposes fund was increased during 1945 by \$8,493,320, and amounted to \$12,925,736. The un-

employment compensation fund deposited with the United States treasury was \$169,300,652. The amount withdrawn during the year was \$1,575,000.

**Agriculture.**—Due to the failure of the tobacco crop, the agricultural (including livestock) income for 1944 was \$102,737,000, as compared with \$105,144,000 in 1943. The total for livestock and livestock products was \$67,221,000, practically the same as in 1943.

Leading Agricultural Products of Connecticut, 1944 and 1943

Crop	1944	1943
Tobacco . . . . .	\$5,489,000	\$18,033,000
Potatoes . . . . .	7,276,000	2,690,000
Truck crops . . . . .	5,749,000	6,094,000
Apples . . . . .	3,202,000	1,899,000

**Manufacturing.**—Cancellations of war contracts were very heavy after V-J day, since practically all plants were engaged in war work. The index of business activity which had reached a high of 227.2 in April 1943 dropped to 118.4 in Oct. 1945, as compared with 163.2 in Oct. 1944. Preliminary figures for November showed a slight recovery. Reconversion was anticipated in many industries (notably the typewriter industry) and was progressing rapidly. With a few exceptions, management and labour had settled their differences amicably.

**Mineral Production.**—With the cessation of hostilities, production of strategic minerals almost ceased. Stone and clay products continued to be of considerable importance.

(J. Br.)

**Conscientious Objectors:** see FRIENDS, RELIGIOUS SOCIETY OF; PACIFISM.

**Conscription:** see SELECTIVE SERVICE, U.S.

**Conservation, Soil:** see SOIL EROSION AND SOIL CONSERVATION.

## Conservative Party, Great Britain.

For the Conservative party, the general election immediately after the victory in Europe but before the end of World War II in Aug. 1945, meant the loss of the dominant position it had held in British politics after 1931. Of 554 Conservative candidates only 189 were elected to the enlarged house of commons of 640 members. Nine Conservative ministers of cabinet rank and 18 undersecretaries were defeated. So were the chairman (Ralph Assheton) and the vice-chairman (Col. H. Mitchell) of the party organization. Some of the ministers and Mr. Assheton were soon returned to the house in by-elections, arising from the changeover of government, and Winston Churchill, transferred to the opposition bench, was freed with remaining colleagues for the reorganization of party activity in the house and country. One of the first acts for the creation of a "united and virile opposition" was the setting up of a Conservative committee to keep liaison between the front and back benches. Mr. Churchill was chairman and other members, in addition to Mr. Assheton and the chief Conservative whip (James Stuart), were the chairmen of party committees dealing respectively with defense, service affairs, including demobilization and resettlement, civil aviation, social services and education, trade and industry; foreign affairs; imperial affairs, agriculture; home affairs and welfare; and town and country planning.

The first party conference held after 1943, and only the second during the war years when Conservatives suspended party operations, took place on March 14 and 15, 1945. At this meeting Churchill made his first entirely party speech after his election as leader in 1940. Officers elected at this conference were Sir George (later Lord) Courthope, as president of the National Union of Conservative associations; R. A. Butler,

M.P., chairman of the central council; Major R. G. Proby; Mrs. Hornyold-Strickland and Sir Herbert Williams, vice-chairmen; and Lord Derby and Lord Mildmay of Flete, trustees. Sir Robert Topping, who had been general director of the Conservative central office after 1927, was succeeded by Lieutenant Colonel Stephen H. Pierssené. G. E. Christ was press relations officer. The vice-chairman of the party organization was J. P. L. Thomas, M.P.

In a 12-point policy for peace, issued by the central office in May, essentially Conservative points were: insistence on the fullest opportunity for individual enterprise; the removal of wartime controls when their necessity ceased; development of export trade and agriculture; and a "determined policy for full employment with a rising standard of living." Conservative opposition was also reaffirmed to any repeal of the Trades Dispute Act of 1927.

The Tory Reform committee of younger Conservatives set up in 1943 had in 1945 Hugh Molson, M.P., as chairman and Major Everard Gates, M.P., as secretary. On Oct. 5, 200 Conservative candidates defeated at the election held a private conference convened by Ralph Assheton. At this a large number of Conservative suggestions were conveyed to Winston Churchill. On Nov. 28 Churchill rallied the party in an address to the central council of the organization at which it was resolved to reconstitute the postwar problems central committee and furnish it with all necessary secretariat for research. The outcome was the first debate on a censure motion against the government on Dec. 5 and 6 (see also PARLIAMENT). (L. Du.)

**Consumer Credit.** The gradual expansion of consumer credit in the U.S. which began early in 1944 continued throughout the year 1945. By the close of 1945 the total outstanding amount of consumer credit approximated \$6,300,000,000. This figure is to be compared with outstandings of roughly \$10,000,000,000 in Aug. 1941, which was the all-time peak, and with the low point of \$4,700,000,000 reached early in 1944 as the result of the discontinuance of production of goods customarily purchased on instalment credit terms and of restrictions imposed upon loans and credit sales by the federal reserve board through Regulation W.

All types of consumer credit shared in the expansion from the low point of 1944, although some types expanded more substantially than others. The principal increases occurred in charge account balances, in credits for services and in instalment loan balances. Among the agencies making instalment loans, commercial banks had by far the greatest increase in loan balances, with regulated small loan companies and industrial banking companies enjoying smaller rises in their outstandings. Insured loans for repair and remodernization of homes also expanded substantially. The outstanding amount of instalment sales credit, however, remained close to previous low levels.

The gradual expansion of consumer credit during 1945 was fully to be expected in view of the rise of incomes and prices, during a major part of the year, the relaxation of restrictions on production and consumption of certain consumers' goods, and the failure of the federal reserve board to tighten the restrictions of Regulation W. The substantial increases in repair and remodernization loans and in other instalment loans were due in part to the removal of restrictions on home remodernization and repair loans and the relaxation of restrictions on other loans which were not used to purchase consumers' durable goods. The negligible expansion of instalment sales credit reflected the delays in restoring large-scale production of automobiles, refrigerators, washing machines, radios, pianos and other consumers' durable goods which are commonly sold on time-payment terms.

After the cessation of hostilities in Europe, numerous competitive plans were developed to take advantage of the expansion of instalment financing that was anticipated when the assembly lines would begin to turn out large quantities of consumers' durable goods. The National Association of Insurance Agents, in the interest of capturing for its members a large share of insurance underwriting on new automobiles, offered a scheme that makes the local insurance agent a party to direct financing arrangements between the individual automobile purchaser and a bank. The Morris Plan Corporation of America organized a subsidiary, the American Instalment Credit corporation, to work with selected banks in purchasing automobile dealers' receivables. A group of large banks engaged in instalment financing sponsored the National Sales Finance plan, designed to establish a banking network to finance instalment sales contracts growing out of household appliance sales. While these new plans concerned banks primarily, the sales finance companies, which had formerly handled the bulk of the instalment financing business, were also planning the expansion of their services. It seemed clear that a period of intense competition in instalment sales financing lay immediately ahead.

The controversy over the continuation of federal government regulation of consumer credit became more heated during the year 1945. The Retail Credit Institute of America, whose membership is composed predominantly of merchants specializing in credit sales of furniture, clothing, jewellery and household appliances, petitioned President Truman to discontinue Regulation W. On the other hand, many prominent merchants, bankers and economists urged continuation of the federal reserve board's consumer credit regulations until a balance between demand and supply could be approximated in the consumers' durable goods field. Some business men and government officials urged that authority to regulate the terms of consumer credit contracts be extended by legislation as an instrument for maintaining peacetime economic stability. In Canada, also, there was a strong movement, supported by social agencies and part of the business community to continue the wartime regulation of consumer credit through dominion or provincial legislation.

In California, the state legislature enacted an instalment sales act which requires the seller to provide the buyer with a copy of the sales contract and of the insurance policy if a charge is made for insurance. The sales contract must state the cash price, the down payment, the charges for insurance or for recording fees, if any, the unpaid balance of the cash price, the time-price differential, the balance payable and the terms of payment. The act also limits the amount of the finance charge.

There were no significant changes during the year in state legislation regulating small loans and pawnbroking. (R. Nr.)

**Contract Bridge.** The end of World War II, and the total lack of change in rules or systems, gave new stimulus to this premier card game, returning experienced players to the bridge table and to the duplicate matches and tournaments that became so popular after contract replaced auction in the late 1920s.

Even the bidding fads such as the "powerhouse no trump" and other short-lived experiments that created confusion in earlier years were notably absent in 1945, with a corresponding country-wide standardization that greatly improved the so-called casual partnerships. The average calibre of skill rose steadily year by year; whereas in 1935 there were only about 1,000 experts in the entire United States, ten years later, in 1945, this number had grown to at least 50,000.

The results of the major tournaments of 1945 were:

**Masters' Individual Championship.**—Won by Charles H. Goren, Philadelphia, Pa.

**Vanderbilt Tournament.**—(National Knockout Team-of-Four champion-

ship): won by Mrs. Helen Sobel, B. J. Becker, New York, N.Y., Charles Goren and Sidney Silodor, Philadelphia, Pa.

**Summer National Tournament.**—**Masters' Pairs:** won by M. A. Lightman, Memphis, Tenn., Robert Appleyard, Forest Hills, N.Y. **Masters' Teams-of-Four:** won by Oswald Jacoby, Dallas, Texas, T. A. Lightner, Sam Fry, Jr., Howard Schenken and Edward Hymes, Jr., New York, N.Y. **Men's Pairs:** won by Lee Hazen and Sylvester Gintell, New York, N.Y. **Women's Pairs:** won by Mrs. Olive A. Peterson and Mrs. B. M. Golder, Philadelphia, Pa. **Mixed Teams-of-Four:** won by Miss Ruth Sherman, Waldemar von Zedtwitz, New York, N.Y., Mrs. W. Wagar, Atlanta, Ga. and John Crawford, Philadelphia, Pa. **President's Cup Pairs:** won by Sigmund Freisinger, Cliffside Park, N.J. and Mrs. Peggy Adams, New York, N.Y. **Non-Masters' Teams-of-Four:** won by Ernst Theimer, E. Orange, N.J., L. A. Doyle, Montclair, N.J., Lee Sagar, E. Orange, N.J. and D. F. Geortner, S. Orange, N.J.

**Winter National Tournament.**—**Open Pairs:** won by Mr. and Mrs. L. J. Jaeger, New York, N.Y. **Open Teams-of-Four:** won by Lee Hazen, Waldemar von Zedtwitz, George Rapee and Sam Stayman, New York, N.Y. **Women's Teams-of-Four:** won by Mrs. Helen Sobel, New York, N.Y. **Mrs. R. C. Young, Bywood, Pa., Mrs. J. E. Folline, Richmond, Va. and Mrs. W. Wagar, Atlanta, Ga. Mixed Pairs:** won by Mrs. W. Wagar, Atlanta, Ga. and John Crawford, Philadelphia, Pa. **Non-Masters' Pairs:** won by C. Jack Bonney, Long Island city, N.Y. and Bernard Lampert, New York, N.Y. (E. CUL.)

**Contract Renegotiation:** see BUSINESS REVIEW.

**Contract Settlement, Office of:** see LAW; WAR MOBILIZATION AND RECONVERSION, OFFICE OF.

**Contract Terminations.** By Nov. 30, 1945, in the United States, 301,000 war contracts had been terminated for the convenience of the government from the beginning of war production. These involved a cancelled commitment value of \$63,500,000,000. On that date, 234,000 terminated contracts with a cancelled commitment value of \$28,700,000,000 had been settled.

The termination of World War II contracts for the convenience of the government started early in the war production program. Before the cessation of hostilities, the main reasons for contract terminations were the changing needs of global war and the rapid technical improvement made in weapons and equipment.

Of the \$63,500,000,000 of cancelled commitments, war department terminations amounted to \$44,900,000,000, navy department \$15,800,000,000 and other agencies \$2,800,000,000. As of Nov. 30, 1945, \$21,400,000,000 of these cancelled commitments had been settled by the war department, \$6,200,000,000 by the navy department and \$1,100,000,000 by other agencies.

As contract terminations grew in volume even early in the war, the need for settlement procedures for such contracts became apparent. At first the contracting agencies of the government, principally the war and navy departments, the Maritime commission, the Treasury department, and the Reconstruction Finance corporation and its subsidiaries, developed their own procedures. However, the need for uniform methods soon made itself felt, and the Joint Contract Termination board, under the Office of War Mobilization and Reconversion, was established by the principal contracting agencies. The basis of unified action to settle terminated contracts was elaborated in the *Report on War and Post-War Adjustment Policies* published by Bernard M. Baruch and John M. Hancock, who had been appointed as the advisory unit for war and postwar adjustment policies of the Office of War Mobilization and Reconversion. This report stressed the need for speed in the settlement of war contracts and for fairness to the contractor and to the government.

Subsequently, action by various congressional committees led to the passage of the Contract Settlement act of 1944, public law 395, 78th congress. The act, which became effective on July 21, 1944, established the Office of Contract Settlement as the policy-making agency to prescribe policies, principles, methods, procedures and standards for the contracting agencies. Subject to the supervision of the Office of Contract Settlement, the contracting agencies are responsible for carrying out the act's objec-



tives. Except for appeals, all contract settlement operations are carried out by the contracting agencies.

Robert H. Hinckley, a vice president of the Sperry corporation, New York, and former assistant secretary of commerce for air, was appointed director of contract settlement and assumed his duties on July 28, 1944.

The Office of Contract Settlement issued 20 regulations dealing with such matters as interim financing, plant clearance, pre-termination agreements, standard settlement proposal forms, retention of records, accounting practices and other subjects. The issuance of these regulations as provided for by the legislation facilitated the prompt settlement of terminated war contracts. The office established an Appeal board. By the end of 1945, 37 cases had been filed with this board.

Contract settlement procedures aided in the rapid reconversion of industry from war to peace. By the end of 1945 substantial progress had been made toward settling the 130,000 contracts involving \$25,000,000,000 in cancelled commitments, terminated at the time of the Japanese surrender or then pending settlement. Industry expressed its satisfaction at the way in which government had handled contract settlement. By the end of 1945 the Office of Contract Settlement had submitted five quarterly reports to congress detailing the status of settlement progress. (See also WAR PRODUCTION, U.S.) (R. H. H.)

**Controlled Materials Plan:** see PRIORITIES AND ALLOCATIONS.

**Convoys:** see SUBMARINE WARFARE.

**Co-operative Movement.** British co-operative societies in many areas in 1945 were busily buying up local shops in order to extend their business; and the movement was also launching out into the acquisition of hotels, theatres, holiday homes and extensive new premises for the Co-operative college, for which a large endowment fund was being raised as part of the centenary celebrations of 1944. The London Co-operative society, the largest in the world, acquired a new central store at Oxford circus. A proposal to amalgamate the English and Scottish Co-operative Wholesale societies failed to secure endorsement in Scotland. Late in 1945 there was much activity in connection with the restoration of the movement in countries freed from nazi occupation. Under the nazis the movement was not suppressed, except in Germany itself, but it was subjected to nazi control. After Europe's liberation it was being reorganized with the aid of the International Co-operative alliance, which in 1945 had an affiliated membership of well over 70,000,000. The alliance held its first postwar conference in London during 1945, and co-operative delegations from Great Britain visited a number of continental countries, including the soviet union, Poland, France and Scandinavia.

A report issued by the International Labour Office surveying the world co-operative movement showed that before World War II there were altogether about 143,000,000 members in co-operative societies of all types, including agricultural, producers', credit and housing societies as well as consumers' stores. Of these, 60,000,000 were in the U.S.S.R., 52,000,000 in the rest of Europe; 15,000,000 in Asia; about the same number in America; 500,000 in Oceania, and about 330,000 in Africa. The British consumers' societies had about 9,000,000 members, and were handling about one-quarter of the total grocery trade of Great Britain, and smaller proportions of many other household supplies. Expansion was checked in wartime by the rationing system, but was likely to be resumed as soon as conditions allowed.

In the general election of 1945 the Co-operative party, fight-

ing in alliance with the Labour party, won 23 seats, as compared with only 9 in the previous parliament. This was in face of a vigorous attack on the co-operative societies, launched by the Conservatives in the course of the election campaign. Three Co-operative M.P.'s held offices in the new Labour government, including A. V. Alexander as first lord of the admiralty and Alfred Barnes as minister of war transport. The Co-operative union continued to be represented, together with the Trades Union congress and the Labour party, on the National Council of Labour, which acts as a general body for making declarations of policy on behalf of the entire working-class movement, but, while acting in parliament through the Labour party, maintains its own separate electoral organization. Among the new peerages conferred by the Labour government in order to strengthen its representation in the house of lords were those conferred on R. A. Palmer, general secretary of the Co-operative union, and president of the International Co-operative alliance, and on R. C. Morrison, Co-operative and Labour M.P. for Tottenham and a leading authority on the utilization of waste products. (G. D. H. C.)

**Coordinator of Inter-American Affairs:** see INTER-AMERICAN AFFAIRS, OFFICE OF.

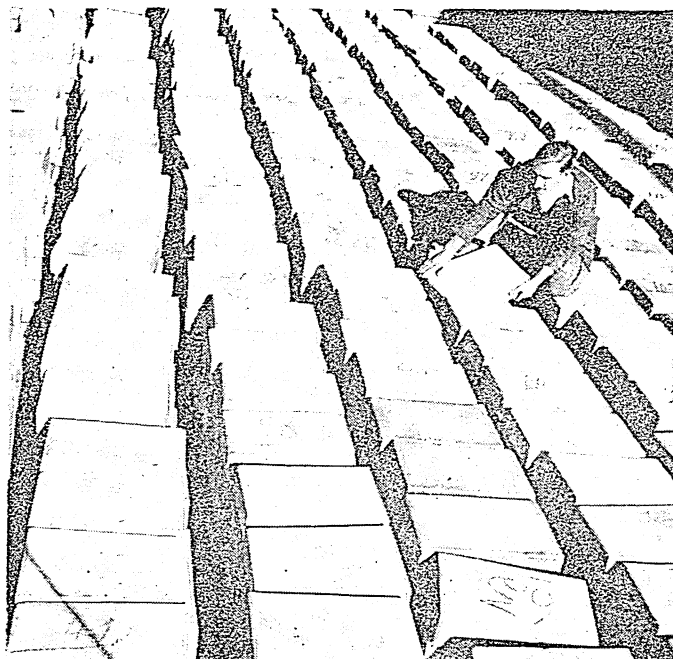
**Copper.** The world production table for copper is that compiled by the U.S. bureau of mines. Data were fairly complete for the war years from most of the major producers.

Table I.—World Production of Copper, 1940-44  
(Thousands of short tons)

	1940	1941	1942	1943	1944
Belgian Congo . . . . .	164.0	178.8	182.9	173.0	180.0
Canada . . . . .	327.8	321.7	301.8	287.6	273.9
Chile . . . . .	388.0	513.1	539.2	561.5	537.5
Mexico . . . . .	41.4	53.7	56.7	54.9	45.5
Peru . . . . .	48.5	40.6	38.9	36.8	35.7
No. Rhodesia . . . . .	293.9	270.7	280.7	276.8	248
U.S.S.R. . . . .	173	?	176	?	?
United States . . . . .	878.1	958.1	1,080.1	1,090.8	972.5
Total . . . . .	2,688	2,903	3,039	3,064	

Reductions in output were the order of the day, with only Belgian Congo as an exception among the major producers, and Australia, South Africa and Cuba among the minor producers. Countries which made 77% of the 1943 output had a 7% decrease in 1944.

Copper cakes ready for shipment at the Chuquicamata mine in Antofagasta, Chile. One of the world's largest deposits of copper, the mine is owned by the Anaconda Copper Mining company



United States.—The salient features of the copper industry in the U.S. are shown in Table II.

Table II.—Data of Copper Industry in the U.S., 1940-44

	(Thousands of short tons)				
	1940	1941	1942	1943	1944
Mine output . . . . .	878.1	958.1	1,080.1	1,090.8	972.5
Smelter output . . . . .	909.1	966.1	1,088.0	1,092.9	1,003.4
Refinery output . . . . .	1,313.6	1,395.3	1,414.6	1,379.3	1,221.2
Domestic ore . . . . .	927.2	975.4	1,064.8	1,082.1	973.9
Foreign ore . . . . .	386.3	419.9	349.8	297.2	247.3
Secondary recovery . . . . .	532.0	726.4	927.8	1,086.0	950.9
From old scrap . . . . .	333.9	412.7	427.1	427.5	456.7
From new scrap . . . . .	198.2	313.7	500.6	658.5	494.2
Imports . . . . .	491.3	735.5	764.4	716.7	787.2
Exports . . . . .	427.7	158.9	210.5	294.5	237.5
Available for use* . . . . .	1,711.1	2,384.6	2,395.6	2,229.0	2,227.6

\*Available for use includes total refinery output, secondary from old scrap, and imports less exports; secondary from new scrap is only a turn-over of metal in process and does not add to the supply available for use.

Table III.—Mine Production of Copper in U.S., 1938-44

	(Thousands of short tons)						
	1938	1939	1940	1941	1942	1943	1944
Alaska . . . . .	14.5	0.1	0.1	-0.1	-0.1	-0.1	-0.1
Arizona . . . . .	210.8	262.1	281.2	328.5	388.4	397.4	368.5
California . . . . .	0.8	4.2	6.4	4.0	1.0	8.5	13.2
Colorado . . . . .	14.2	13.2	12.2	6.5	1.2	1.1	1.3
Idaho . . . . .	2.1	2.5	3.3	3.6	3.9	2.3	1.4
Michigan . . . . .	46.7	44.0	45.2	46.8	47.5	45.5	42.3
Montana . . . . .	77.2	97.8	126.4	128.7	140.5	138.3	117.9
Nevada . . . . .	46.2	66.6	78.5	80.5	83.4	71.6	61.1
New Mexico . . . . .	20.4	46.1	69.8	73.8	79.6	78.8	70.3
Utah . . . . .	108.1	171.9	231.9	270.6	317.7	326.0	301.7
Washington . . . . .	6.0	9.0	9.6	8.7	8.5	7.4	6.6
Others . . . . .	10.8	10.8	13.5	14.2	16.2	15.9	19.1
Total . . . . .	557.8	728.3	878.1	966.1	1,088.0	1,092.9	1,003.4

With the war over and with reconversion to civilian production well under way the civilian needs accumulated during the war years fell on a copper industry that had already used most of its best ores, was facing increased costs of production, and was threatened with the loss of half of the protection afforded by the four-cent excise tax. Taking all things into consideration, the question was not so much how great the postwar demand was going to be, but rather what proportion of it the domestic industry would be able to carry. The decline in mine output during 1945 was high, the total to the end of October being 651,151 tons. This would indicate a year's total at least 30% less than in 1944, and nearly 40% under the 1943 peak. (See also MINERAL AND METAL PRODUCTION AND PRICES; STRATEGIC MINERAL SUPPLIES.) (G. A. Ro.)

**Copra:** see COCO-NUTS.

**Copyright.** During the year 1945 no change occurred in the provisions of the United States copyright law. Various bills to amend the law were introduced in congress but no final action was taken because of more pressing matters. The main proposals were to afford copyright protection to acoustical recordings manufactured within the United States and to investigate the question of effective legal protection for property rights in original thoughts, conceptions, and ideas in art, literature, science, mechanics and the pure and useful arts.

During the fiscal year ending June 30, 1945, 178,848 registrations of claims to copyright were made. Musical compositions reached an all-time high of 57,835 registrations. Other classes showed a gradual return to prewar figures.

The copyright law in force requires, as one of the conditions precedent to the registration of a claim to copyright in any work, the deposit of two copies of American books and one copy of foreign books, for the enrichment of the Library of Congress. During the fiscal year 1945, 272,092 books and other articles were deposited for copyright registration, including 13,924 printed volumes, 55,872 pamphlets and leaflets, 91,526 periodicals, 5,182 dramas, 67,173 pieces of music, 1,709 maps, 1,953 photographs, 19,780 prints, labels and pictorial illustra-

tions, 3,400 motion pictures and 4,750 works of art and drawings. These were all produced in the United States. From abroad there were received 113 books in foreign languages and 655 books in English.

An active interest in judicial decisions construing the Copyright act resulted in the publication of Bulletin 24 in the series entitled *Decisions of the United States Courts Involving Copyright*. The new bulletin covers the period 1941-43 and is for sale by the Superintendent of Documents, Washington 25, D.C. (S. B. Wr.)

**Corn** (Maize). A 3,000,000,000 bu. corn crop was produced in 1945 in the United States for the third successive year. Its harvest was marred somewhat by early frosts reducing the quality of the crop. The U.S. department of agriculture estimated the total 1945 crop at 3,073,996,000 bu. compared with 3,228,361,000 bu. in 1944 and 2,433,060,000 bu. the ten-year average 1934-43. This estimate included corn for all purposes—grain, silage, forage and grazing. The amount harvested for grain was put at 2,680,000,000 bu. or about 87% of the total, compared with 2,910,000,000 bu. for grain in 1944, which was 90% of the total.

The acreage for harvest was estimated at 92,229,000 ac., or 5% less than was planted in 1944 but more than the ten-year average of 91,209,000 ac. of 1934-43. Yields were about the same as the 33.2 bu. yield of 1944 but much above the ten-year average of 26.8 bu. of 1934-43. The increased yield was attributed largely to the use of hybrid-seed corn which was rapidly becoming universally used through the corn belt. Each state developed varieties best suited to its various soil regions which were being tested in each county. In the corn belt it was estimated that about 80% of the seed used was of hybrid types.

The season was generally favourable for the crop in the early summer but rains kept the crop green and growing until severe frosts came which killed much immature corn. This resulted in about 12% of the grain crop being considered "soft" corn. Soft corn is so immature when frost stops growth that it cannot be kept in storage and it must be used at once before it spoils. Special efforts were made by stock men to use this corn so that the losses for feeding value were not great. Some corn is frosted every year in the northern part of the corn belt where farmers are prepared to handle it, but in 1945 the damage spread into Iowa, Missouri and southern Illinois.

The supplies of corn in the 12 principal markets were much higher than the average through 1945 and also above 1944. Farm prices were constantly below those of 1944 and fairly stable throughout the year. The demand for corn for industrial uses continued strong, but the total amount used was only

U.S. Corn Production by States, 1945 and 1944

State	1945 bu.	1944 bu.	State	1945 bu.	1944 bu.
Iowa . . . . .	508,106,000	579,442,000	Louisiana . . . . .	23,140,000	18,870,000
Illinois . . . . .	391,390,000	407,295,000	New York . . . . .	22,968,000	25,655,000
Nebraska . . . . .	258,304,000	329,855,000	Maryland . . . . .	16,872,000	17,150,000
Indiana . . . . .	235,956,000	176,244,000	Colorado . . . . .	16,588,000	16,626,000
Minnesota . . . . .	217,248,000	253,399,000	West Virginia . . . . .	12,996,000	10,426,000
Ohio . . . . .	176,913,000	142,956,000	New Jersey . . . . .	8,010,000	6,755,000
South Dakota . . . . .	118,668,000	140,292,000	Florida . . . . .	6,900,000	7,190,000
Wisconsin . . . . .	109,839,000	116,536,000	Delaware . . . . .	4,224,000	3,645,000
Missouri . . . . .	105,840,000	162,554,000	Vermont . . . . .	2,442,000	2,590,000
Kentucky . . . . .	77,824,000	67,080,000	New Mexico . . . . .	2,400,000	3,510,000
Kansas . . . . .	72,864,000	114,793,000	Connecticut . . . . .	2,150,000	2,080,000
Texas . . . . .	66,832,000	69,622,000	California . . . . .	2,112,000	2,211,000
Tennessee . . . . .	66,204,000	59,950,000	Montana . . . . .	2,010,000	2,940,000
Michigan . . . . .	61,915,000	57,760,000	Massachusetts . . . . .	1,634,000	1,763,000
Pennsylvania . . . . .	59,576,000	53,580,000	Washington . . . . .	1,450,000	1,189,000
North Carolina . . . . .	55,650,000	51,018,000	Wyoming . . . . .	1,442,000	1,428,000
Mississippi . . . . .	50,660,000	42,224,000	Oregon . . . . .	1,384,000	1,484,000
Alabama . . . . .	50,626,000	48,128,000	Idaho . . . . .	1,334,000	1,581,000
Georgia . . . . .	48,678,000	40,802,000	Utah . . . . .	792,000	754,000
Virginia . . . . .	40,359,000	34,272,000	Maine . . . . .	600,000	640,000
Arkansas . . . . .	35,511,000	32,300,000	New Hampshire . . . . .	506,000	640,000
North Dakota . . . . .	26,950,000	36,250,000	Arizona . . . . .	437,000	361,000
Oklahoma . . . . .	26,268,000	32,958,000	Rhode Island . . . . .	320,000	288,000
South Carolina . . . . .	23,414,000	24,160,000	Nevada . . . . .	64,000	64,000

about 280,000,000 bu. out of the 3,000,000,000 bu. crop. Most corn is fed on the farms where it is raised. The stock of corn to be carried over was nearly 100,000,000 bu. larger than 1944 and represented a reversal of the downward trend of the previous World War II years when the large livestock feeding demand had reduced stocks. Regarding grains needed for food and feed an order was issued in August 1945 prohibiting the use of corn in making alcohol. The amount of corn used for alcohol and distilled spirits increased from 18,000,000 bu. in 1938 to a high of 56,000,000 bu. in 1942 after which time such uses were restricted.

Exports of corn were not large during the World War II period, dropping from 43,800,000 bu. in 1939 to 4,800,000 bu. in 1942; 17,000,000 bu. in 1944; and increasing slightly in 1945. (See also VEGETABLES.)

FILMS.—*Corn Farmer* (Encyclopædia Britannica Films Inc.).

(J. C. Ms.)

## Cornell University.

An institution of higher learning, nonsectarian and co-educational, at Ithaca, N.Y., founded in 1865 and incorporated as a land-grant college under the Morrill act of 1862. The university comprises the endowed schools and colleges of arts and sciences, engineering, architecture, law, medicine and nursing, and the state-supported colleges of agriculture, home economics and veterinary medicine. There are also schools of education, nutrition, business and public administration and industrial and labour relations. The divisions of medicine and nursing are in New York city and are operated in conjunction with the New York hospital. Two experiment stations, at Geneva and Farmingdale, N.Y., are operated in connection with the college of agriculture. Degrees for advanced study other than professional are awarded through a graduate school.

In 1945 the school of business and public administration was formally constituted, and the New York State school of industrial and labour relations admitted the first group of entering students. The establishment of a graduate school of aeronautical engineering was announced. The university was designated for the operation of a navy reserve officers training corps unit. (For statistics of faculty, student enrolment, library volumes, endowment, etc., see UNIVERSITIES AND COLLEGES.) (E. E. D.)

## Cornhusking.

For the fourth straight year, competitive cornhusking in the United States was bypassed for concentration upon wartime harvests. The annual event was expected to be continued in 1946. Floyd Wise of Prairie Center, Ill., last won the championship in 1941.

(M. P. W.)

**Corporation Income Tax:** see TAXATION.

**Corundum:** see ABRASIVES.

**Cosmetics:** see SOAP, PERFUMERY AND COSMETICS.

**Cosmic Rays:** see PHYSICS.

## Costa Rica.

A Central American republic, located between Nicaragua and Panamá. Area, 23,000 sq.mi.; pop. (off. est. Dec. 31, 1944) 725,149. Eighty per cent of the population is classified as white; an estimated 3% are Negroes who live mainly on the Caribbean coast. The major portion of the population lives on the Meseta Central, or central plateau. The capital is San José (pop. 77,182 by 1944 est.); other urban centres are Alajuela (10,170), Cartago (12,933), Heredia (10,578), Limón (10,033), Puntarenas (8,547). Language: Spanish. President in 1945: Teodoro Picado Michalski.

**History.**—The year 1945 was a quiet one politically with the only disturbance of consequence at the very beginning, when

on New Year's eve armed groups were reported to have fired at the homes of Pres. Picado and Manuel Mora, leader of the leftist Vanguard Popular party. During subsequent charges and countercharges among political factions, War Minister René Picado, brother of the president, resigned with his duties assumed by the chief executive. In June, leader of the Conservative party and former president León Cortes Castro told the press he would not be a candidate in 1948 because he feared the election would not be free. A proposal to re-establish public balloting in place of the existing secret ballot was defeated in congress by a narrow margin in October.

While there was little action politically beyond factional bickering, 1945 saw great concern over the government's very unfavourable financial situation. In the first half of the year current obligations and salaries of government employees were in arrears in varying degrees. It was announced in August that an advance of \$125,000, based on estimated taxes for the remainder of the year, had been obtained from the United Fruit company to meet current needs, and later a bond issue of 20,000,000 colones was authorized by congress in connection with a fiscal reform plan. Designed to care for the floating debt, it was taken over by local banks. Three basic fiscal reform laws were passed by congress in August; they provided for a bureau of the budget, a general accounting office, and a reorganization of the treasury department. The measures became law the following month. Earlier, in March, an office of economic defense had been created and charged with control of import quotas and prices.

In the field of foreign relations Costa Rica participated in both the Inter-American Conference at Mexico City and the United Nations Conference at San Francisco, and the United Nations charter was ratified in August. Costa Rica agreed to contribute \$400,000 to U.N.R.R.A. over a three-year period. A treaty of amity with China, signed in 1944, became effective in June. The nation showed no great interest in a plan for Central American union discussed in meetings between the presidents of Guatemala and El Salvador, although Pres. Picado indicated he would submit the proposal to popular vote when and if the proper time arrived.

Data released by the United States showed that lend-lease military goods supplied during World War II to Costa Rica amounted in value to \$139,000.

**Education.**—Primary schools in 1941 numbered 761, with an enrolment of 73,217; 49 intermediate schools listed 7,251 students; and the national university had an enrolment of 820. The literacy rate, estimated at 76%, is the highest in Central America.

**Finance.**—The monetary unit is the gold colón, valued at 17.79 cents U.S., but not in ordinary circulation. A preliminary report listed expenditures for 1944 at 67,000,000 colones and revenues at 52,800,000 colones. The 1945 budget as submitted to congress set expenditures at 64,961,943 colones, revenues at 65,000,000 colones. The floating debt in September amounted to about 12,000,000 colones.

**Trade and Communication.**—Foreign trade for the first six months of 1945 was about 14% greater than for the first half of 1944. Imports for this period were valued at \$12,371,268 (1944: \$10,353,947); exports were worth \$7,078,106 (1944: \$6,682,726). In 1942 the nation had about 450 mi. of railroads and 771 mi. of improved highways. A blocked tunnel on the important rail link connecting the capital with the Caribbean coast was finally opened in Aug. 1945. Registration of motor vehicles (Jan. 1, 1945) showed 2,494 passenger automobiles, 1,310 trucks and 437 buses of which only 263 were in operation.

**Agriculture.**—Coffee is the major agricultural crop; exports for the Oct. 1, 1944–Sept. 30, 1945, crop year totalled 359,070



bags of 60 kg. each. Cocoa exports for 1944 amounted to 9,220,795 lb., a substantial decrease from the 12,224,842 lb. exported in 1943. Cotton production for the year ended June 30, 1945, was 102,500 lb. of lint cotton. Vegetable oil-seed meal produced in 1944 amounted to 14,500 quintals. Lumber exports, mainly balsa, in 1944 totalled 1,795 metric tons; by Sept. 1945 balsa output was reported to be declining.

**BIBLIOGRAPHY.**—Dana G. Munro, *The Five Republics of Central America* (1918); *The Inter-American* (Washington); *Foreign Commerce Weekly* (Washington). (D. Rd.)

**Cost of Living:** see BUSINESS REVIEW; PRICE ADMINISTRATION, OFFICE OF; PRICES.

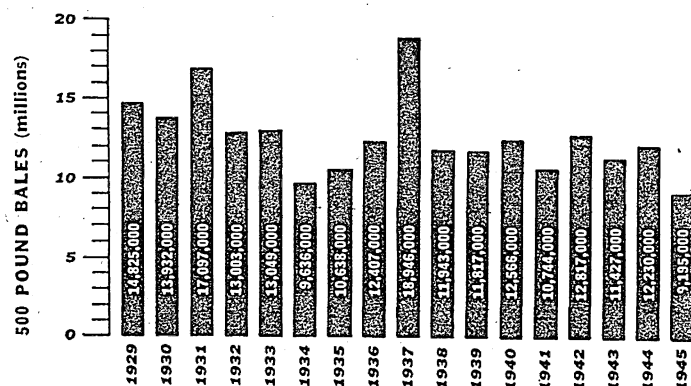
**Cotton.** Cotton Manufacture.—The role of cotton in the world economy became increasingly complicated in 1945. The end of World War II brought no letup in the demand for cotton products, but at the same time there were prospects of difficult times ahead for the fibre.

Possibly at no time during the war years was the scarcity of cotton apparel more evident than at the beginning of the peace. Shelves were bare not only in the United States but throughout the world. The outlook was summarized by an official of the Civilian Production administration late in 1945 as follows: "Possible output of cotton textiles in the United States in 1946 was expected to be less than 9,000,000,000 linear yards, while potential demand, including export, was estimated at 12,000,000,000 yards." Asserting that the "domestic market will absorb all the cotton goods that can be produced, and clamor for more," this government representative indicated that actual needs for export in 1946 were expected to total 4,500,000,000 yards, whereas not more than 1,250,000,000 to 1,500,000,000 yards could be spared for such use.

Consequently, full-time operation of cotton mills appeared to be certain for at least another year, and probably longer. However there were complications in sight. The primary ones were the ever-increasing competition from synthetic fabrics and the threatened competition from low-cost areas. Recognition of the significance of this double threat was manifest in the remarks of speakers at the Cotton-Textile Institute meeting in Dec. 1945, who appealed for intensive research, not only by organizations set up for that purpose, but by every individual manufacturer to the end that high-efficiency and high-cost machinery be made the basis of production. On a direct wage basis, it was pointed out that cotton textiles made in the United States would have scant chance against those made in Europe and the orient. (See also LINEN AND FLAX; RAYON AND OTHER SYNTHETIC FIBRES; TEXTILE INDUSTRY; WOOL.)

(D. G. Wo.)

**United States Production.**—The 1945 cotton crop of the United States was estimated at 9,195,000 bales of 500 lb. each, the smallest crop after 1921. The year's crop was 3,035,000



COTTON CROP in the United States. The figure for 1945 is the department of agriculture's estimate of Dec. 1

bales less than the 12,230,000 bale crop of 1944 and about the same amount below the ten-year average of 12,293,000 bales, 1934-43. Except for 1921 when the heavy boll weevil losses brought the United States crop down to 7,945,000 bales, the 1945 production was the smallest after 1896. The reduced crop of 1945 was primarily because of reduction in acreage to a total of only 17,688,000 ac. compared with 26,000,000 ac. harvested in 1944 and an average of 25,616,000 ac. in 1934-43. The season was generally unfavourable at planting, growing and harvesting times. The weather was considered the worst for cotton growing in 50 years. Abandonment was 2.6%, leaving the acreage for harvest the smallest after 1884. The losses were particularly heavy in Oklahoma and Texas. The high record of cotton acreage was in 1925 when 45,968,000 ac. was grown, more than twice the 1945 area. The average yield was estimated at 249.6 lb. per acre in 1945, 43.9 lb. less than the all-time high record yield of 293.5 lb. in 1944 but 18.6 lb. above the ten-year average of 231 lb. Picking and ginning was delayed by wet weather and was behind the average up to Dec. 1, 1945. The cottonseed production was estimated to be 3,703,000 tons which is 24% below the 4,902,000 ton yield of 1944 and 28% below the ten-year average of 5,175,000 tons.

The crop of American-Egyptian cotton was estimated at 4,300 bales compared with 8,800 bales in 1944 and an average of 34,300 bales during 1934-43. The acreage harvested, almost all in Arizona, New Mexico and Texas, was only 6,200 ac. compared with 14,700 ac. in 1944 and an average of 73,500 ac. 1934-43. Boll weevil damage was serious in some localities due to the vigorous growth because of wet weather.

The total tonnage of fertilizer used on cotton was estimated at 1,477,000 tons, a little less than was used in 1944 compared with the ten-year average of 1,424,000 tons in 1934-43. About 48% of the acreage was fertilized at the average rate of 335 lb. per acre. The cost of picking was high because of the shortage of labour, although mechanical pickers were used wherever available. Few new machines were made in 1945, however. The income per acre of cotton from lint and seed was estimated at an average of \$67.40 per acre in 1945 compared with \$74.67 in 1944 and \$62.03 in 1943. For the fifth successive year the total value of the crop exceeded \$1,000,000,000 which is above the totals for 23 of the preceding 36 years.

U.S. Production of Cotton by States, 1945 and 1944

State	1945 bales	1944 bales	State	1945 bales	1944 bales
Texas . . . . .	1,820,000	2,646,000	California . . . . .	370,000	327,000
Mississippi . . . . .	1,615,000	1,937,000	Oklahoma . . . . .	295,000	634,000
Arkansas . . . . .	1,015,000	1,394,000	Missouri . . . . .	155,000	411,000
Alabama . . . . .	935,000	1,006,000	Arizona . . . . .	125,000	136,000
South Carolina . . . . .	675,000	864,000	New Mexico . . . . .	107,000	116,000
Georgia . . . . .	665,000	810,000	Virginia . . . . .	17,000	29,000
Tennessee . . . . .	495,000	562,000	Florida . . . . .	8,000	13,000
North Carolina . . . . .	430,000	710,000	All Others . . . . .	8,000	15,000
Louisiana . . . . .	395,000	620,000			

**World Cotton Production.**—Preliminary estimates placed the world's total cotton production in 1945-46 at 22,650,000 bales (478 lb. net) or about 7% below the previous crop and 27% below the 1935-39 average. This was expected to be the smallest world crop in 22 years. The increase of more than 1,000,000 bales of foreign production was more than offset by the decrease of 3,035,000 bales in the United States. In India cotton acreage was reduced about 30% in 1944 to grow more food crops, but in 1945 a shift back to cotton was reported. Since the planting extends from March to December, the actual crop of the season 1945-46 was not determined up to Jan. 1, 1946. Egypt reduced the cotton area in favour of food crops and corn to about half prewar area but expected an increase in the 1945-46 crop. In East Africa the crop prospects indicated a crop larger than in 1944-45. The cotton area in Brazil was reported to be about 20% below the previous year. Production in north Brazil



AN AIRBORNE chemical defoliant dropped by skimming planes stripped the cotton plants of leaves in 1945, allowing them more sunlight and freeing the crop of leaf stains, when harvested. It was thought defoliation might pave the way for the mechanical picker

has declined in recent years as the result of drought and labour emigration.

The total world supply of cotton reached the high point after 1938 in 1944 with a total of 50,604,000 bales. The carryover in Aug. 1945 was 26,564,000 bales compared with 25,800,000 a year earlier. This total in 1945 included 11,164,000 bales in the United States and 15,400,000 bales in foreign countries. Although the United States carryover in 1945 was larger than in 1944 the total supply was smaller and included a large proportion of shorter staples and lower grades. Mill consumption of cotton declined steadily from the peak consumption of nearly 12,000,000 bales in 1942. Mill consumption also steadily declined from the peak of 30,600,000 bales in 1936 to 23,860,000 bales in 1944. In Great Britain, manpower was transferred to other industries although the demand for textiles was strong. Neutral countries had restricted supplies of raw cotton due to the Allies' fear that it might reach the enemy countries. The general labour shortage in the United States was the chief cause of restricted consumption since the demand for cotton textiles was strong.

The cotton surplus problem continued to engage the attention of both the government and the cotton trade in 1945. Several conferences were held to work out a plan to be developed following World War II. The government was committed to support the price of cotton at 92½% of parity until two years after the official end of hostilities. The subsidy of four cents per pound for exports was offset somewhat by the rise in price of cotton to 22.38 cents per pound by midseason, compared with 21.4 cents in 1944. This was 106% of parity which made the 92½% loan ineffective. Exports during the 1944-45 season amounted to 2,006,000 bales, the largest after 1939-40, when the total was 6,200,000 bales. Government estimates indicated that about 3,000,000 bales would be exported in the 1945-46 season. Most of U.S. exported cotton went to Great Britain but that country had large purchases in other countries that were likely to reduce its purchases in the U.S. in 1945-46. The competition of new fibres with cotton continued to grow in 1945. Rayon was the most serious contender and was increasing at a rapid rate. Cotton from foreign countries was also offering a threat to U.S. production unless export subsidies could be provided to meet the lower prices of foreign cottons. Experiments to discover new uses for cotton fibre were continued with some promise of practical results. The department of agriculture set a goal for 1946 at 9,800,000 bales, or 20,000,000 ac.

(J. C. Ms.)

**Cottonseed Oil:** see VEGETABLE OILS AND ANIMAL FATS.

**Countries of the World, Areas and Populations of the:** see AREAS AND POPULATIONS OF THE COUNTRIES OF THE WORLD.

**Courts, Civil:** see LAW.

**Courts, Military:** see LAW.

**CPA (Civilian Production Administration):** see PRIORITIES AND ALLOCATIONS; WAR PRODUCTION BOARD.

**Craig, Malin** (1875-1945), U.S. army officer, was born Aug. 5 at St. Joseph, Mo. Graduating from West Point (1898), he was commissioned a second lieutenant and served in Cuba during the Spanish-American War. He later served with U.S. army forces in China and the Philippines. At the start of World War I, Gen. Craig, who had been on the war department staff, was assigned to the west coast where he helped organize the 41st division, of which he became chief of staff. He went overseas (1917) and as chief of staff of the 1st corps he helped plan the Aisne battle (1918) and subsequent operations at Champagne-Marne, Aisne-Marne, St. Mihiel and the Meuse-Argonne. He was then promoted to brigadier general and won decorations from the various Allied governments. He remained in Europe as chief of staff of the U.S. forces at Coblenz until mid-1919. Following his return to the U.S., he held a variety of high army positions at home and abroad, and in 1935 he was appointed by Pres. Roosevelt to the post of chief of staff of the U.S. army, holding that office until his retirement, August 31, 1939, with rank of general. During his tenure, the small U.S. army was increased, at his insistence, by half again its size, and he inaugurated an intensive program of mechanization with emphasis on the streamlining of ancient techniques and equipment. In Sept. 1941 Gen. Craig returned to public service as chief of the personnel board for the secretary of war. He died in Washington, July 25.

**Cranberries:** see FRUIT.

**Craven, Frank** (1880-1945), U.S. actor, was born in Boston, Mass. Both of his parents were actors and they coached the boy in his first rehearsals behind the footlights. He made his debut on the stage at the age of seven at his mother's side. At 16, he was playing in stock shows. His role in *Bought and Paid For* on the New York stage in 1910 won him critical acclaim as an outstanding actor. The play ran for more than a year on Broadway, toured the country and played in London, England. Craven tried his hand as a playwright while in his 30s and wrote several successful productions including *Too Many Cooks*, *Spite Corner*, *New Brooms*, and *That's Gratitude*. He alternated his play and script writing with appearances in motion pictures and on the stage and won

warm affection from his audiences by his casual and homey manner and his shuffling gait. He was described by Brooks Atkinson as "the best pipe and pants-pocket actor in the business." He played in both stage and screen versions of *Our Town* (1938), and made his last appearance on the New York stage in *Mrs. January and Mr. Ex* in 1944. His last two motion pictures were made in early 1945—*The Suspect* and *Colonel Egingham*. Craven died in Beverly Hills, Calif., Sept. 1.

**Credit, Consumer:** see CONSUMER CREDIT.

**Crerar, Henry Duncan Graham** (1888— ), Canadian army officer, was born April 28 in Hamilton, Ont. Educated at Upper Canada college and the Royal Military college, Kingston, he was commissioned a lieutenant in 1910. He served in France during World War I, rising to the rank of lieutenant colonel, and in 1925 he was a general staff officer attached to the British war office. At the outbreak of World War II, he was made a brigadier and later a lieutenant general, but voluntarily stepped down to the rank of major general in order to assume command of a Canadian division in England. Gen. Crerar became a corps commander on April 6, 1942. He commanded the 1st Canadian army corps with the British 8th army in Italy, and on March 21, 1944, he was made commander of the 1st Canadian army in England. On D-day, June 6, 1944, an estimated 10,000 troops of Crerar's army landed in France. After Patton's breakthrough at St. Lô, Crerar's troops pierced the German right flank and reached the Seine. In the late autumn of 1944, Crerar's forces had retaken many coastal ports in northern France and had trapped a German garrison at Dunkirk. On Nov. 20, it was announced that Crerar had been made a full general. On March 22, 1945, Crerar's Canadian 1st army and the British 2nd opened a concerted drive between Arnhem and Düsseldorf. They stormed the Rhine river and then marched northward into the Netherlands and Germany. Crerar's 1st army cut off German escape routes in the Netherlands. The Canadians and British swept northward to Bremen and Hamburg as the war ended.

### Crewe, Robert Offley Ashburton Crewe-Milnes,

1ST MARQUESS OF (1858-1945). British statesman and writer. was born Jan. 12, in London. He held many distinguished political and diplomatic posts during his long career, including those of lord privy seal (1908 and 1912-15), secretary for India (1910-15), ambassador to Paris (1922-28) and war secretary (1931). He resigned his leadership of the Liberal party in the house of lords in late 1944 because of ill health. Lord Crewe, author of several books, was a frequent contributor of English and Greek verse to London newspapers. He died at his country seat in Leatherhead, Surrey, June 20. (See *Encyclopædia Britannica*.)

**Cricket.** Throughout Great Britain in 1945 the desire and the need for entertainment suddenly increased after the conclusion of World War II, and in cricket the demand was well met. In London huge crowds attended the admirable program arranged by the Marylebone cricket club. This included three out of the five "Victory" test matches against the pick of the available Australian cricketers. On several occasions the gates at Lord's had to be closed soon after the start of play. Never was the need more evident of enlarged accommodation and improved amenities on the major cricket grounds.

The Australian test teams were chosen from members of the royal Australian air force and of the army unit stationed at Eastbourne. Captained by A. Lindsay Hassett, who played

against England in the tests of 1938, the Australians showed such skill and characteristic tenacity that, with four test matches played, they led by two matches to one. England, captained throughout by W. R. Hammond, won the fifth match, at Manchester, and so drew level on the whole series. For Australia the outstanding cricketer was K. R. Miller of Victoria, whose batting average in the tests was over 63. He displayed a controlled brilliance that recalled some of the greatest Australian cricketers of the past. But perhaps the most memorable individual performance was that of D. R. Cristofani of New South Wales, the youngest member of the team, who, when the match at Manchester seemed lost to his side, came in at number nine to score 110 not out in under two hours. For England Hammond was often at his own unrivalled best in batting; but no new reputation was made, and, except for R. Pollard of Lancashire, the shortage of bowlers of quality was manifest.

Once more the competitive spirit was seen at its strongest in the league cricket of the north and midlands and many of England's leading cricketers took part in it each Saturday. Among these was G. H. Pope, the Derbyshire professional and all-rounder. As a result of a financial dispute with M.C.C. arising from the second test match, Pope refused to play in the third, at Lord's. This stand on Pope's part was important as indicating the need for equitable scrutiny into the remuneration of professional cricketers.

In September Brigadier R. S. Rait Kerr, secretary to the M.C.C., resumed his duties at Lord's which had been performed during the war by Sir Pelham Warner. (R. C. R.-G.)

**Crime.** With three and one half years of World War II marked by numerous declines in the rates for various crimes, the advent of peace in the summer of 1945 brought with it a pronounced criminal upsurge in the United States, as was to be expected. Comparison of the first half of 1945 with the corresponding period of 1944 shows that all but one of the so-called "reportable offenses" showed an increase over earlier levels. The largest percentage gain was in burglary (12.1%) with aggravated assault close behind (11.3%). Sole exception to the general upswing was negligent manslaughter, which was greatly affected by the war-connected decline in motor vehicle mileage and motor vehicle deaths. Even so, manslaughters by negligence dropped by only 1.6%.

Table I provides a comparison of the numbers of each class of reportable offenses recorded in 392 cities large and small.

Table I.—Crime in 1944 and 1945 in U.S. Cities Over 25,000 Population (Total Population, 51,054,723)

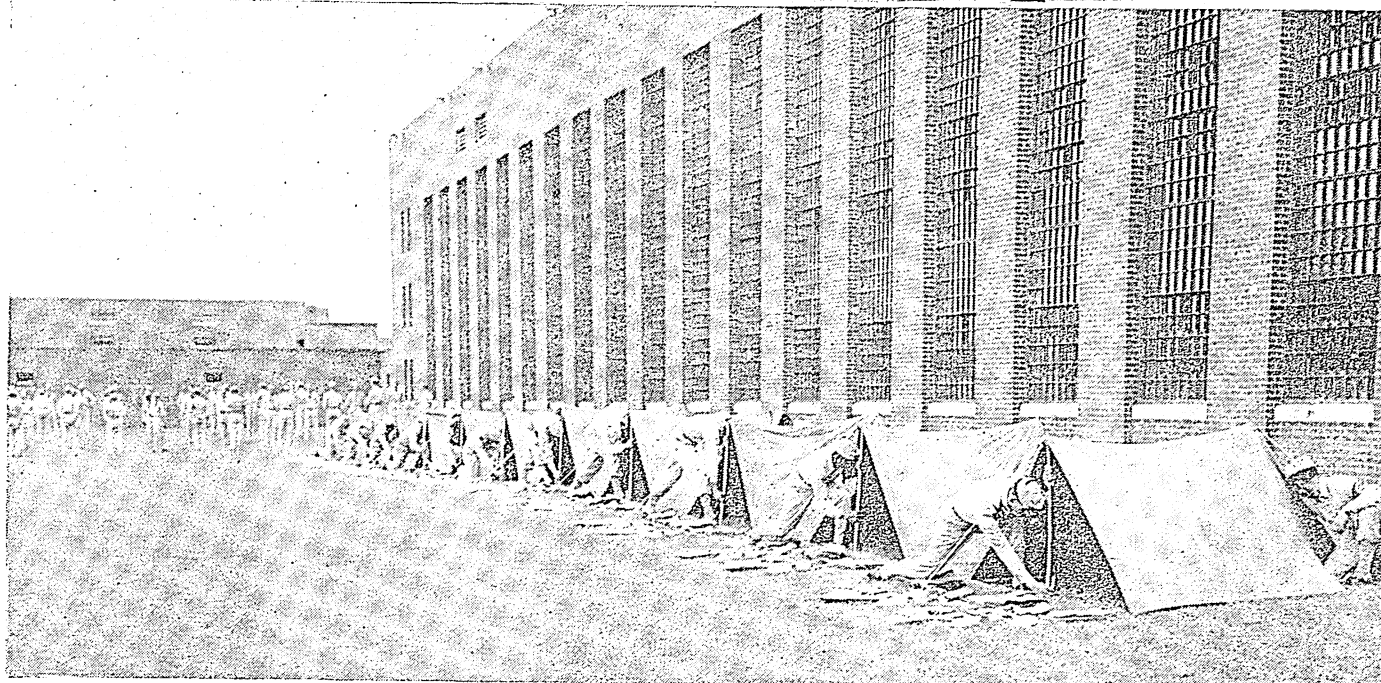
Offense classification	January to June		Per cent change in 1945
	1944	1945	
Murder and non-negligent manslaughter . . . . .	1,313	1,370	+ 4.3
Manslaughter by negligence . . . . .	1,128	1,110	- 1.6
Rape . . . . .	2,918	3,181	+ 9.0
Robbery . . . . .	12,309	13,539	+10.0
Aggravated assault . . . . .	14,809	16,481	+11.3
Burglary . . . . .	73,208	82,143	+12.1
Larceny (except auto theft) . . . . .	181,373	195,647	+ 7.9
Auto theft . . . . .	55,978	58,556	+ 4.6
Totals . . . . .	343,076	372,027	+ 8.4

Rural crime rates rose more rapidly than those in urban areas, with the single exception of larcenies which showed only moderate increases. This general observation is based chiefly upon the data appearing in Table II, and while the areas there included in 1944 and 1945 are not in all respects identical, they represent total populations of 33,500,000 and 35,700,000 respectively.

Regional distribution of crimes continued to show some marked disparities. Table III presents the situation in 2,249 cities of varied size during the first half of 1945.

Most of the variations in Table III are in general accord with the distributions noted in previous years, although the rela-





U.S. DISCIPLINARY barracks at Green Haven, N.Y., an army prison for about 2,000 soldiers sentenced by general court-martial to terms of from one year to life. Shown above are men striking tents prior to honourable return to active duty on Aug. 8, 1945

tively large influx of a floating population, both military and civilian, on the Pacific coast, probably had some influence on the high levels of crime prevailing there.

Certain types of robbery showed such emphatic increases in 1945 as to challenge attention. Thus the instances in which gasoline and oil stations were the object of attack rose by 75.8%, and bank robberies, long a feature of prewar crime in

Table II.—Crime Rates in Rural Areas and in Unincorporated Communities of Less Than 2,500 Population; 1944 and 1945

Offense classification	Crime rates January to June		Per cent change in 1945
	1944	1945	
Murder and non-negligent manslaughter . . .	2.21	2.52	+14.0
Manslaughter by negligence . . . . .	1.39	1.72	+23.7
Rape . . . . .	4.17	5.11	+22.5
Robbery . . . . .	5.70	6.50	+14.0
Aggravated assault . . . . .	11.20	14.50	+29.5
Burglary . . . . .	45.00	51.60	+14.7
Larceny (except auto theft) . . . . .	70.70	74.80	+ 5.8
Auto theft . . . . .	25.70	26.90	+ 4.7
Totals . . . . .	166.00	183.60	+10.6

Table III.—Regional Distribution of Crime Rates; January to June, 1945

(Number per 100,000 inhabitants)

Geographic divisions	Murder and non-negligent manslaughter	Robbery	Aggravated assault	Burglary	Larceny	Auto theft
New England . . . . .	0.72	6.4	6.0	119.6	234.9	75.8
Middle Atlantic . . . . .	1.19	10.0	15.1	99.1	198.4	68.8
East North Central . . . . .	1.87	29.2	23.3	162.5	392.1	82.6
West North Central . . . . .	1.23	13.3	11.9	118.7	318.3	76.5
South Atlantic . . . . .	6.84	26.6	95.8	191.1	499.0	133.5
East South Central . . . . .	7.88	30.7	75.4	216.9	410.5	132.6
West South Central . . . . .	5.55	19.1	45.0	203.1	569.7	139.6
Mountain . . . . .	2.11	25.1	18.8	221.3	654.9	127.5
Pacific . . . . .	2.33	65.8	35.8	304.7	892.8	270.7

the United States, increased by 257%. With respect to the latter, however, the large percentage rise was predicated on a relatively small number of cases; seven bank robberies in the first half of 1944, against 25 during the corresponding half of 1945.

With respect to losses, the average value of stolen property showed an increase in each pertinent crime classification (robbery, burglary, larceny and auto theft). Average increase in 1945 over 1944 was 8.8%. The dollar loss per offense was especially marked with respect to robbery, which recorded a gain of 44.1% (an average of \$147 per robbery in 1945).

In the longer view, it is of more than passing interest to note that during the 14-year period 1931-44, the crimes of murder, manslaughter, robbery, burglary and auto theft declined in number, with the early years of this period witnessing the more

marked declines. On the other hand, there was an ill-defined upward trend in general larcenies, a strong and quite consistently maintained upswing in rape, and a sharp rise in aggravated assault during the war period. Comparison of 1944 levels with those of 1931 shows that robberies and auto thefts were lower by 47.7% and 42.9% respectively, whereas rape was 110.9% more numerous and aggravated assaults were 37.7% increased. These represented the most marked changes among the eight reportable offenses.

Coverage provided by the *Uniform Crime Reports* continued to increase with 5,448 police agencies contributing to the compilations maintained by the Federal Bureau of Investigation. (See also CHILD WELFARE; FEDERAL BUREAU OF INVESTIGATION; KIDNAPPING; LAW; POLICE; SECRET SERVICE, U.S.)

BIBLIOGRAPHY.—*Uniform Crime Reports* (semiannual bulletins) for 1944 and for the first half of 1945, Federal Bureau of Investigation; *Judicial Criminal Statistics, 1943*, U.S. Bureau of the Census (1945); *Prisoners in State and Federal Prisons and Reformatories, 1942*, U.S. Bureau of the Census (1945). (Br. S.)

Great Britain.—In the absence, after 1938, of publication of national criminal and prison statistics for Britain, it remained difficult in 1945 to assess trends of crime. The total volume of crime was certainly larger in 1945 than in 1938. In December the metropolitan police commissioner reported "a serious and disturbing increase in crime" in the London area. He gave these comparative figures of totals for 11 months in 1938 and 1945 respectively: petty thieving, 33,210 and 53,575; burglary (night entry) 255 and 471; housebreaking (day entry) 4,881 and 6,192; shopbreaking, 5,034 and 11,969; assault and robbery, 145 and 299. Cases in which firearms were used were "practically nil." London police made strenuous efforts to round up deserters from the fighting services, said to number 10,000 toward the end of 1945.

Wartime shortages in police personnel resulted in many crimes going unpunished. In one district this ruled for two out of every three offenses. Black market crime was well under control. Scotland Yard, which rarely issues statements, announced in respect of black marketeering that it was "unable to substantiate by any reliable evidence the somewhat lurid descriptions published in some newspapers of supercriminals controlling a vast organization with widespread tentacles."

By prison rules, 1945, the last vestige of special prison punishment known as "hard labour," deprivation of mattress during the first 14 days of a sentence, was removed. Britain had in 1945 neither "penal servitude" nor "hard labour" but simply imprisonment as the one form of legal sentence. It was also

announced that during World War II criminals undergoing sentence were able to take a six-months' course in engineering in order to do direct munition work for the government. At two prisons women were employed on assembling radio equipment as war work. Men from certain prisons were allowed to undertake farm work and timber reclamation. The latest figures of Borstal training of young offenders indicated, in the official view, that "it may be fairly said that out of every ten persons discharged, some seven or eight appear to be restored to good citizenship."

In October, Dartmoor, for 90 years a convict prison and left unused, was converted into a temporary institution for 250 Borstal boys. Protests at its unsuitability drew official explanations to the effect that there was no other accommodation immediately available.

Sybil Campbell, barrister, became Britain's first woman stipendiary on her being appointed to preside over Thames (London) magistrates' court. M. D. Taylor, a prison medical officer, became Britain's first woman governor of a criminal prison on being appointed to govern Holloway prison, London. (See also PRISONS.) (P. B.N.)

**Crimea Conference:** see YALTA CONFERENCE.

**Croatia:** see YUGOSLAVIA.

**Crop Insurance:** see AGRICULTURE.

**Cruisers:** see NAVIES OF THE WORLD.

**Crushed Stone:** see STONE.

**Cryolite.** Imports of natural cryolite from Greenland into the United States dropped from 51,968 short tons in 1943 to 17,562 tons in 1944. Just to what extent artificial cryolite was produced and substituted for the natural mineral was not known, but practically a complete substitution could be made if it were necessary. One plant for making artificial cryolite was known to have been in operation on a reduced scale in 1944, and two other plants, completed in 1943, were not used, since supplies of the natural mineral were maintained. Adequate supplies and stocks, coupled with a heavy reduction in aluminum output permitted the removal of all restrictions on the use of cryolite in Oct. 1944. (G. A. Ro.)

**Cuba.** A West Indian republic, including the island of the same name, the Isle of Pines and other minor islands; total area, 44,217 sq.mi.; pop. (1943 census) 4,778,583. The capital is Habana, with a pop. of 659,883, excluding suburbs. The largest suburb, Marianao, had a pop. of 120,163 in 1943. Other urban centres of importance are Camagüey (80,509), Cárdenas (37,059), Ciego de Avila (23,802), Cienfuegos (52,910), Guantánamo (42,423), Holguín (35,865), Manzanillo (36,295), Matanzas (54,844), Pinar del Río (26,241), Regla (23,037), Santa Clara (53,981), Santiago de Cuba (118,266). President in 1945: Dr. Ramón Grau San Martín.

**History.**—President Grau San Martín retained control of the political scene throughout 1945 in spite of factional opposition in congress and some threat of revolt. In February the decision of the strong Popular Socialist party (formerly the Communist party) to continue to back him allowed the administration to retain a majority in the senate. In December loss of some Republican party support was indicated in the resignation of Minister of State Cuervo Rubio. The most serious of several reported plots against the government occurred in March, led by a former Habana police chief, José Eleuterio Pedraza. Several political assassinations took place during the year. Former President Fulgencio Batista remained away from Cuba on a leisurely trip through other western hemisphere countries, but his public statements on various occasions indicated that he was not through with politics and one statement in August, that

there was no possibility of agreement between himself and President Grau San Martín, gave evidence that he would become a member of the opposition whenever he should decide to return.

Members of President Grau San Martín's cabinet were under political attack on various occasions and rumours of resignations were frequent throughout the year. One resignation was handed in in April; however, the major reorganization of the year took place in October when four posts were affected including both that of state and the prime ministry. In December the president of the senate, Eduardo Suarez Rivas, resigned together with his staff.

Negotiations with the United States over disposal of Cuban sugar crops, upon which Cuban economy depended, were of concern throughout the entire year. The contract covering the 1945 crop had failed of arrangement in 1944, and pending completion it was necessary in January to authorize shipments in advance. It was finally signed at the end of March, with the United States purchasing the bulk of the crop at a price of 3.10 cents per lb., a substantial increase over the 2.65 cents per lb. paid in 1944. The agreement also included 70,000,000 gal. of blackstrap molasses and 20,500,000 gal. of industrial alcohol; in addition the United States guaranteed to protect Cuba against price increases on basic foodstuffs shipped from the United States. Negotiations for sale of the 1946 crop started shortly afterward but in spite of intermittent discussions both in Habana and Washington no agreement could be reached. The major problem was less a question of price than of a guarantee to Cuban producers that the United States would purchase not only the 1946 crop but also that of 1947 and possibly 1948 as well. Legislation in the United States prevented a contract for more than a single year and there was also some opposition to buying in excess of anticipated decreased needs.

In the field of foreign relations, a strong popular movement developed for a rupture of diplomatic relations with the Franco regime of Spain, with student groups and communists taking the lead. Various resolutions were introduced in congress during the year, and in October both houses endorsed the idea. The administration refused to break relations at this time, in all probability because the majority of American nations, including the United States, had not yet done so. During July, when a newly appointed Spanish minister to the United States, Manuel Aznar, arrived in Habana en route to his post, student groups stoned the Spanish embassy and other demonstrations occurred. Popular opinion also favoured recognition of the Spanish republican government-in-exile formed in Mexico in the latter part of the year, but the failure to break with Franco made this impossible. An important step in Cuban commercial relations with Spain was a decree of April 23 releasing frozen Spanish credits.

Cuban representatives participated actively in the discussions of the Inter-American conference at Mexico City and the United Nations conference at San Francisco, and final ratification of the United Nations charter was carried out in October.

President Grau San Martín announced in December that the Cuban contribution to the United Nations Relief and Rehabilitation administration would include 20,000 tons of sugar, \$1,000,000 in cash and certain technical aid.

The year was one of great labour unrest, due in part to the increased cost of living and the frequent shortages which harassed buyers; government price control machinery proved largely ineffective against speculation. Strikes occurred in all phases of the sugar industry and in transportation, and in most cases the government authorized an increase in wages. In November the United States-owned Habana streetcar system was intervened by the government to enforce a 6% wage in-

crease decreed earlier. An administration order that cinemas must include a stage show with each performance, decreed in order to aid the actors' union, resulted in a strike in August by theatre owners; the law was not repealed but in later months was not generally observed. Foreign corporations showed some concern over a trend toward nationalism evidenced in a July decree providing that foreign technicians could be employed only when a Cuban was not available, and then only for a limited period until a national could be trained to do the work.

The serious drought of the early months of the year, said to be the worst in 86 years, added to the hardship of the Cuban masses. In June rioting occurred in connection with meat shortages. Sugar rationing eventually became necessary, and coffee exports were frozen in July. In April arrangements were made with the War Food administration of the United States for the supplying of flour to meet a shortage.

**Education.**—Urban and semiurban primary schools numbered 4,264 in 1942 and had enrolled 445,706 students. Elementary civic-rural schools numbered 1,113; enrolment, 57,050. There were 24 secondary schools with 18,664 students, and 4 arts and crafts schools. Enrolment at the National university in Habana was 13,949. Expenditures for education in 1944 amounted to 30,910,000 pesos.

**Finance.**—The monetary unit of Cuba is the peso, officially pegged at par with the U.S. dollar. Preliminary figures estimated total 1944 revenues at 162,622,836 pesos, and expenditures at 150,793,800 pesos. Since certain extrabudgetary credits were not included in these figures, the surplus indicated was apparent only. Regular budgetary revenue collected during the first ten months of 1945 totalled 127,660,095 pesos (for an equal period in 1944: 114,988,485 pesos). The proposed 1946 budget submitted to congress estimated revenues at 173,382,100 pesos and expenditures at 173,367,575 pesos. The public debt on Jan. 1, 1943, was 118,416,000 pesos. In July Cuba planned purchase of \$50,000,000 worth of gold bullion in the United States bringing its earmarked stock of bullion to a total of 200,000,000 pesos. Money in circulation (Dec. 31, 1944) amounted to 484,372,516 pesos.

**Trade and Communication.**—Foreign trade for the first six months of 1945 was valued at \$365,496,610. Exports were valued at \$255,760,554 (for first half of 1944: \$218,618,343) and imports at \$109,736,056 (for first half of 1944: \$98,856,247). In 1944 total imports were valued at 208,648,434 pesos and exports at 427,058,296; the United States took 89% of all exports and supplied 80.9% of all imports.

Cuba has good transportation connections with other countries both by sea and air. The ending of the European phase of World War II eased shipping conditions and the War Shipping administration lifted all restrictions on general cargo shipments from Cuba to New York in June 1945. British and Swedish cargo vessels also made their first appearance in Habana after the start of the war. The first International Air Transport Operators conference was held in Habana in April and subsequently steps were taken to inaugurate a Cuban civil aeronautics authority.

Railway mileage in 1942 was estimated at 3,850 mi.; there were 2,390 mi. of improved highways and about 2,000 mi. of unimproved. Funds obtained from an Export-Import bank loan were reportedly earmarked for highway construction to the extent of \$9,795,366 on the Central highway, \$3,551,589 on tributary roads and \$710,672 on country roads.

**Agriculture.**—The worst drought in many years curtailed agricultural production in 1945, and a severe though not extensive hurricane in October did damage estimated at \$3,000,000-\$5,000,000. The main Cuban agricultural crop is sugar and sugar derivatives. The 1945 crop, according to preliminary

figures, totalled about 3,924,240 short tons (1944: 4,750,818 short tons). Sugar exports for the first nine months of 1945 amounted to about 3,275,000 long tons; molasses exports for the same period to about 105,703,000 gal. (19,915,000 gal. invert, 85,788,000 gal. blackstrap). Forecast for the 1946 sugar crop placed it at a minimum of 4,500,000 short tons.

The 1943-44 tobacco crop was estimated at about 65,700,000 lb. (1942-43: 41,600,000 lb.), with 1944 exports valued at \$51,744,000, a record (exports for 1943 were worth \$28,051,000). Coffee exports for the 1944-45 quota year totalled 30,369 bags of 132 lb. each, out of an estimated total production of 438,145 bags. The 1944-45 cacao crop amounted to approximately 4,000,000 lb. Vegetables exported during the period Nov. 1944-June 1945 amounted to 13,096,980 lb. as compared with 23,244,898 lb. the previous season. The 1944 pineapple crop totalled 2,430,000 crates (1943: 3,110,000 crates); henequen output was about 27,700,000 lb. (1943: about 26,300,000 lb.); bean production, approximately 80,000,000 lb. some 20% under normal. Honey production of approximately 9,000,000 lb. for the 1944-45 season was under the previous year by 2,000,000 lb. Butter manufacture for 1945 was expected to amount to 3,300,000 lb.; condensed and evaporated milk to about 580,000 cases.

**Minerals.**—Manganese ore shipped to the United States in 1944 amounted to 458,694 short tons; chromium ore to 354,214 short tons. United States government agencies ceased manganese purchases June 30. Oil well drillings in Pinar del Río province were reported as continuing but without success as yet. (See also WEST INDIES.)

**BIBLIOGRAPHY.**—Charles Edward Chapman, *A History of the Cuban Republic* (1927); Russell H. Fitzgibbon, *Cuba and the United States 1900-1935* (1935); *The Inter-American* (Washington); *Foreign Commerce Weekly* (Washington).

**FILMS.**—*The West Indies* (Encyclopædia Britannica Films Inc.). (D. Rd.)

**Curaçao.** An island off the Venezuelan coast, near the mouth of Lake Maracaibo. The same name is applied to the six West Indian islands which form the Netherlands colony of Curaçao. The three islands in the Leeward group, about 40 mi. north of the Venezuelan coast, include Curaçao (210 sq.mi.; est. pop. in 1944, 78,587); Bonaire (95 sq.mi.; pop., 1943 est., 5,725); and Aruba (69 sq.mi.; pop., 1943 est., 35,933). The three small islands in the Windward group, about 500 mi. northeast, with their areas and 1943 estimates of population, include the southern part of St. Martin (17 sq.mi.; pop., 2,337; the remainder of St. Martin belongs to France); St. Eustatius (7 sq.mi.; pop., 1,018); and Saba (5 sq.mi.; pop., 1,229). The only important town is the colonial capital, Willemstad (pop. est., 1943, 33,000) on Curaçao. Principal components of the population, aside from native Curaçaoans, were (1943 est.) English, 7,511; Dutch, 5,156; and Venezuelans, 4,213. Dutch is the official language but many inhabitants speak a patois known as Papiamentu, composed of Spanish, Dutch, African and Portuguese elements. Administrative officials include the governor (appointed by the crown), an elective council, and, for the outlying islands, underlying officials called *gezaghebbers*. The governor in 1945 was Dr. Pieter A. Kasteel.

**History.**—Gov. Kasteel on April 3, 1945, received U.S. Senators Mead, Tunnell and Ferguson, present in the West Indies on an inspection trip. Commodore L. W. Busbey, Jr., succeeded Rear Admiral Frank E. Beatty as commander of the Allied naval forces located at Curaçao, on May 16. With the end of the war in Europe, interest in Curaçao revived in the possibility of a greater degree of autonomy, based on policy statements made by Netherlands officials in the spring of 1944.

**Education and Religion.**—Estimates of school enrolment in 1944 were in excess of 17,000. The predominant religion is Roman Catholicism.

**Finance.**—Curaçao currency was detached from Netherlands currency in



1943 but was kept at approximately its prewar value. The value of the prewar Curaçao guilder was approximately 55 U.S. cents. Total revenues for Aruba in 1944 were 8,942,300 florins (1943: 7,783,200 florins). The 1944 budget totalled 9,291,000 florins (1943: 8,254,200 florins). Sterling balances of about £6,000,000 existed at the end of 1944 but they could not be used effectively for imports. The Netherlands government allotted \$1,300,000 monthly but this met only the minimum needs for dollar exchange.

**Production.**—Aside from petroleum production, the only important items are beans, corn, pulse and aloes (only the last of which is commercially important) and, among minerals, lime phosphate and salt. Production of aloes usually reaches about 500,000 lb. annually. The Aruba refineries began experiments in 1945 with hydroponics to reduce the need for imported foodstuffs.

**Trade and Communications.**—Export of petroleum products (which go chiefly to the United Kingdom) increased 8% in the first quarter of 1945 over the corresponding period of 1944. Despite continuing wartime dislocation of shipping, supplies of essential imports kept up though other importation almost stopped because of the allocation of exchange for imports on the 1941 basis. Most imports consist of petroleum, which comes largely from the Maracaibo fields. The refinery on Aruba, the world's largest, completed in 1945 the processing of the 1,000,000,000th barrel of oil from its opening in Jan. 1929. Aloes shipments to the United States in the first quarter of 1945 totalled 80,243 lb. valued at \$21,784 as against 41,265 lb. valued at \$15,168 in the corresponding period of 1944. Total aloes exports to the United States in 1944 were 212,000 lb. (1943: 515,000 lb.). (R. H. FN.)

**Curling.** Utica, N.Y., Curling club won both the Allen and Mitchell medals to dominate 1945 curling competition. Utica defeated the Ardsley Curling club in both finals, scoring a 16-13 victory in the Allen and a 21-12 decision in the Mitchell test. Utica curlers also won the Emmett medal, but bowed to the New York Caledonians, 17-15, in the Gordon medal final. The Douglas medal went to the Toronto Granites on a 23-11 victory over Ardsley. The Schenectady Curling club won both the Mohawk and Griffith medals, while the St. Andrew's Golf club annexed the Utica and Country club cups. Utica won its first Munson shield in seven years by defeating the Heather Club of Westmount, Quebec, 72-67. (M. P. W.)

**Currency:** see COINAGE; EXCHANGE CONTROL AND EXCHANGE RATES. See also under various countries.

**Curtin, John** (1885-1945), prime minister of the commonwealth of Australia from 1941-45, was born at Creswick, near the gold field of Ballarat, Victoria, on Jan. 8, 1885. The son of a policeman, he was educated at a state school, and began his career as a "printer's devil." Later he worked in potteries and a canister factory. He came under the influence of Tom Mann, the British socialist leader, and from 1911-15 was secretary of the timber workers' union in Melbourne. He wrote many labour pamphlets and articles and in 1917 went to Western Australia as editor of the *Westralian Worker*. In 1928 he entered the federal parliament as labour member for Fremantle. In 1935 he succeeded James Scullin as leader of the opposition, and in 1939 declared labour's absolute support of the war. In 1941 he became prime minister and at the general election in 1943 was returned to power with a large majority. With statesmanlike vision and firm faith he planned and worked for a maximum contribution by Australia in World War II and also laid down the broad outlines of Australia's policy in the postwar world. His adherence to labour ideals and policy never faltered; yet he proved himself a realist, for, although jailed during World War I for anticonscription speeches, he risked sectional opposition by extending compulsory service in the Australian militia for the Pacific war. He was of frail physique and the strain of his great task brought on repeated attacks of neuritis. He died at the prime minister's lodge, Canberra, on July 5.

**Cycling.** Not after 1940 had the international six-day championship race been held but it was forecast by the sponsors of this classic that the event would be restored to the sports calendar during 1946 on an even grander scale than heretofore.

Similar announcements of return to activity were made known by the American Bicycling league, the National Cycling association and other ruling organizations in the sport throughout the United States, Great Britain and Canada.

The same records which stood, unchallenged because of inactivity, from 1941 on continued to obtain during 1945. They were the following:

The N.C.A. sprint championship was won by Tom Saetta of Brooklyn, N.Y., with Mike DeFilipo of Newark, N.J., taking the paced title. The A.B.L. senior road championship went to Marvin Thompson of Chicago, Ill., and Andrew Bernadsky of San Francisco, Calif., took top honours in the junior class. On the distaff side Miss Jean Michels of Chicago won the girls' championship in 1941.

Bob Stauffacher of San Francisco, Calif., was first in two important events: the senior class track championships of the A.B.L. and the Century Road club's senior title. In the former Chuck Edwards, another Chicagoan, won the premier place among the juniors.

One of the last prewar classics was the international bike race held over the American highway from Tegucigalpa, Honduras, to Guatemala City. The last six-day race before World War II struck was held in Montreal, Canada, and was won by the team of Angelo DeBacco of Newark, N.J., and Rene Cyr of Montreal.

The A.B.L. named an All-American cycling group as shown in the following list:

Name	City	Points
George Hurlburt, Jr.	Buffalo	275
Furman Kugler	Somerville, N.J.	195
Jerry Kandler	Milwaukee	190
Iggy Gronkowski, Jr.	Buffalo	115
George Wolf	San Francisco	98
Johnny Weber	Milwaukee	85
James Dolle	Irvington, Ind.	84
Isamer Fiyuyama	Honolulu	79
George Edge	Philadelphia	74
Harry Naismyth	Somerville, N.J.	67
Bruce Burgess	Irvington, Ind.	65
Francis M. Cabe	Honolulu	64

(T. J. D.)

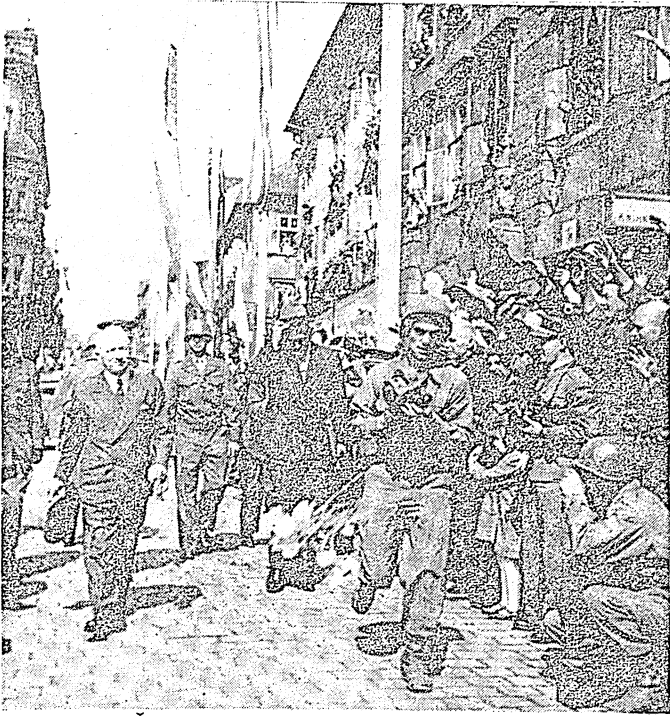
**Cyclotron:** see ATOMIC BOMB; CHEMISTRY; PHYSICS.

**C.Y.O.:** see CATHOLIC ORGANIZATIONS FOR YOUTH.

**Cyprus:** see MEDITERRANEAN, BRITISH POSSESSIONS IN THE.

**Czechoslovakia.** Czechoslovakia, a republic in central Europe, established in 1918, was dismembered in 1938-39 as the result of German aggression. Its territory fell under German, Hungarian and Polish domination. Part of it was constituted as a German protectorate (Bohemia and Moravia), another part became an "independent" republic allied to Germany (Slovakia). Before the dismemberment the area of Czechoslovakia was 50,244 sq.mi., the pop. (1930 census) 14,729,536. In 1945 the republic of Czechoslovakia was reconstituted, but its eastern province (Carpatho-Ukraine) was ceded to the soviet union. The remaining area was 49,321 sq.mi., the pop. (1930 census) 14,001,200. Capital: Praha (pop. 848,823). Other important cities: Brno (pop. 264,925), Moravská Ostrava (pop. 125,347), Bratislava (pop. 123,852), Plzeň (pop. 114,704). President (1945) Dr. Eduard Beneš; prime minister, Zdeněk Fierlinger.

**History.**—At the beginning of the year 1945 Russian forces were advancing in the eastern territory of the Czechoslovak republic, in the Carpatho-Ukraine and in eastern Slovakia. A delegation of the Czechoslovak government in London under Minister František Němec established its offices in Užhorod and in Košice. In February the London Czechoslovak government left for Košice via Moscow. There the government was reorganized and the Communists received a strong representation in it. The Czechoslovak ambassador to Moscow, Zdeněk Fier-



EDUARD BENEŠ, last elected president of the Czechoslovak republic, ended a 7-year exile when he returned home on April 7, 1945, to head a provisional government. Shown in civilian clothes (left), he is being hailed on a visit to the city of Pilsen (Plzeň)

linger, became prime minister, and Communists became ministers for the interior, for education, and for information. A Communist became vice-foreign minister, and the ministry of defense was taken over by officers trained in the U.S.S.R.

On May 5, Praha was liberated by forces of the interior, included in the Russian zone of occupation which covered eastern Bohemia, Moravia and Slovakia, while western Bohemia with Plzeň was occupied by U.S. forces. The Czechoslovak government under President Beneš moved to Praha. It included five vice-premiers (one Czech Communist, one Slovak Communist, one Czech Social Democrat, one Czech Popular Socialist, and one Slovak Democrat). Of its 22 members 6 were Slovaks. It represented a coalition of four parties, the Communists, the Social Democrats, Popular Socialists (the party of Dr. Beneš) and the Catholic Peoples party.

The new Czechoslovak armed forces were to be trained and rearmed by Russia with their organization and armament identical to those of the Red army. They were built around the Czechoslovak divisions which served on the eastern front with the Russians while the forces which had served in the west with the Allied armies were disbanded.

A number of Czechoslovak-Germans were tried and executed for treason, among them Dr. Jošeph Pfitzner, professor of history at the German university in Praha and vice-mayor of the city under the Germans. His public execution drew so many protests that this newly introduced procedure was abandoned. Trials of Czech and Slovak collaborators were postponed until 1946. The Czechoslovak government decided to remove the German and Hungarian minorities from the country. The number involved was great, more than 3,000,000 Germans and about 750,000 Hungarians. A special regime was imposed upon the Germans for the interim period; they had to wear white armbands and were subjected to many restrictions.

On Oct. 24, decrees ordered the nationalization of practically all industrial corporations with more than 500 employees. In addition, all natural resources, public utilities, transport, commercial banks and insurance companies became state property. Those owned by enemy nationals or collaborators were taken over without compensation, all the others were paid for in government bonds. No nationalization of agriculture, commerce or small-scale industry was contemplated. Far beyond the eco-

nomie field reaches the nationalization of the whole film industry, including not only the production of films but also all importation, distribution and showing in the motion picture houses, all of which became state property. Imported Russian films were given 60% of the screen time in all Czechoslovak theatres. Of other films, only those could be shown which the government thought conformed to its social and political line.

Territorially, Czechoslovakia lost Carpatho-Ukraine to the Soviet Union and was in a dispute with Poland about Teschen (Těšín). The Czech government claimed from the German Silesian territory which had come under Polish administration the districts of Kladsko (Glatz), Ratibor and Hlubčicko (Leobschütz). This land disputed by Poland would afford to the Czechoslovak industrial centres around Moravská Ostrava a connection with the Oder river.

On Oct. 28 the Czechoslovak provisional national assembly met, not as the result of elections but of an agreement among the parties, to function until the meeting of an elected constitutional national assembly. The provisional assembly was composed of 300 members, 200 Czechs (120 from Bohemia and 80 from Moravia) and 100 Slovaks. The parties represented in the government coalition received equal representation in the national assembly.

**BIBLIOGRAPHY.**—Jan Papanek, *Czechoslovakia of Tomorrow* (1945); Jan Cech and J. E. Mellon, *Czechoslovakia: Land of Dream and Enterprise* (London, 1945). See also *The Central European Observer*, a fortnightly review (London) and *Journal of Central European Affairs*, a quarterly (Boulder, Colo.). (H. Ko.)

**Dahomey:** see FRENCH COLONIAL EMPIRE.

**Dairy Industry, Bureau of:** see AGRICULTURAL RESEARCH ADMINISTRATION.

**Dairying.** The dairy industry made a new high record in 1945. At the beginning of the year the United States department of agriculture estimated that there were 27,785,000 milk cows and heifers on U.S. farms, slightly more than the 27,656,000 head in 1944. The average number during the year 1944 had been above 1943. Excellent pastures brought yield to a new high record or about 123,000,000,000 lb. of milk, 3% above the previous record year of 1943. The output per cow was high, partly due to an abundant feed supply in addition to the good pastures. The average production per cow was near 4,800 lb. which was 5% above 1944 and 1% above the 1942 record.

The large milk production was directed to meet wartime needs and the output of cheese, canned and dried milk was near record levels. Creamery butter production was the lowest, however, in two decades. Dairymen were encouraged by government programs to sell whole milk which reached a total of nearly 70,000,000,000 lb. or 5,000,000,000 lb. above the previous record in 1944, and double the amount sold in 1930. Dairymen sold less cream and had much less skim milk to feed to livestock.

The end of World War II brought change and as early as June 1945 the number of cows had declined 2% below the 1944 number. Fewer heifer calves were saved and production per cow began to decline from the high level. Farm prices of milk and butter fat, controlled by ceiling prices continued almost unchanged through 1944 and 1945. The dairymen's cash incomes were the highest ever reported and reached the total of over \$3,500,000,000, more than double prewar. Government incentive payments, begun in Oct. 1943, were an important factor in maintaining the high production. The total milk production per capita for the country as a whole was 872 lb. in 1945 compared with an average of 805 lb. in 1936-40. The government authorized the continuation of the production program through

June 1946. (See also BUTTER; CHEESE; MILK.)

FILMS.—*Milk* (Encyclopedia Britannica Films Inc.). (J. C. Ms.)

**Dalai Lama:** see TIBET.

**Dalton, Hugh** (1887— ), British politician, was born Aug. 26 at Neath, Glamorgan county, Wales, the son of a British cleric who was at one time tutor to King George V. The younger Dalton was educated at Eton and King's college, Cambridge, and then studied at the London School of Economics (1911-13). He passed his bar examinations, 1914, but was prevented from practicing by the outbreak of World War I, in which he served with the British expeditionary forces on both the French and Italian fronts. After the armistice, he continued his studies in economics, and began practicing law. Although a Tory by birth and heritage, Dalton joined the newly formed Labour party, and in 1924 he was elected to the house of commons as Labour candidate for the Peckham division. He was parliamentary undersecretary of the foreign office (1929-31), during the first government of Ramsay MacDonald. He lost his seat in commons during the 1931 elections, but was returned in 1935. When Prime Minister Winston Churchill formed his coalition cabinet in May 1940, he appointed Dalton minister of economic warfare, and in Feb. 1942 Dalton was made president of the board of trade. After the Labour party's overwhelming victory at the polls in 1945, Prime Minister Clement R. Attlee named Dalton, July 27, chancellor of the exchequer. Politically, Dalton was a firm adherent of the party program and had expressed himself in favour of gradual socialization of Britain's economy. In his budget speech to commons, Oct. 23, he announced substantial tax cuts in both the income and excess profit brackets.

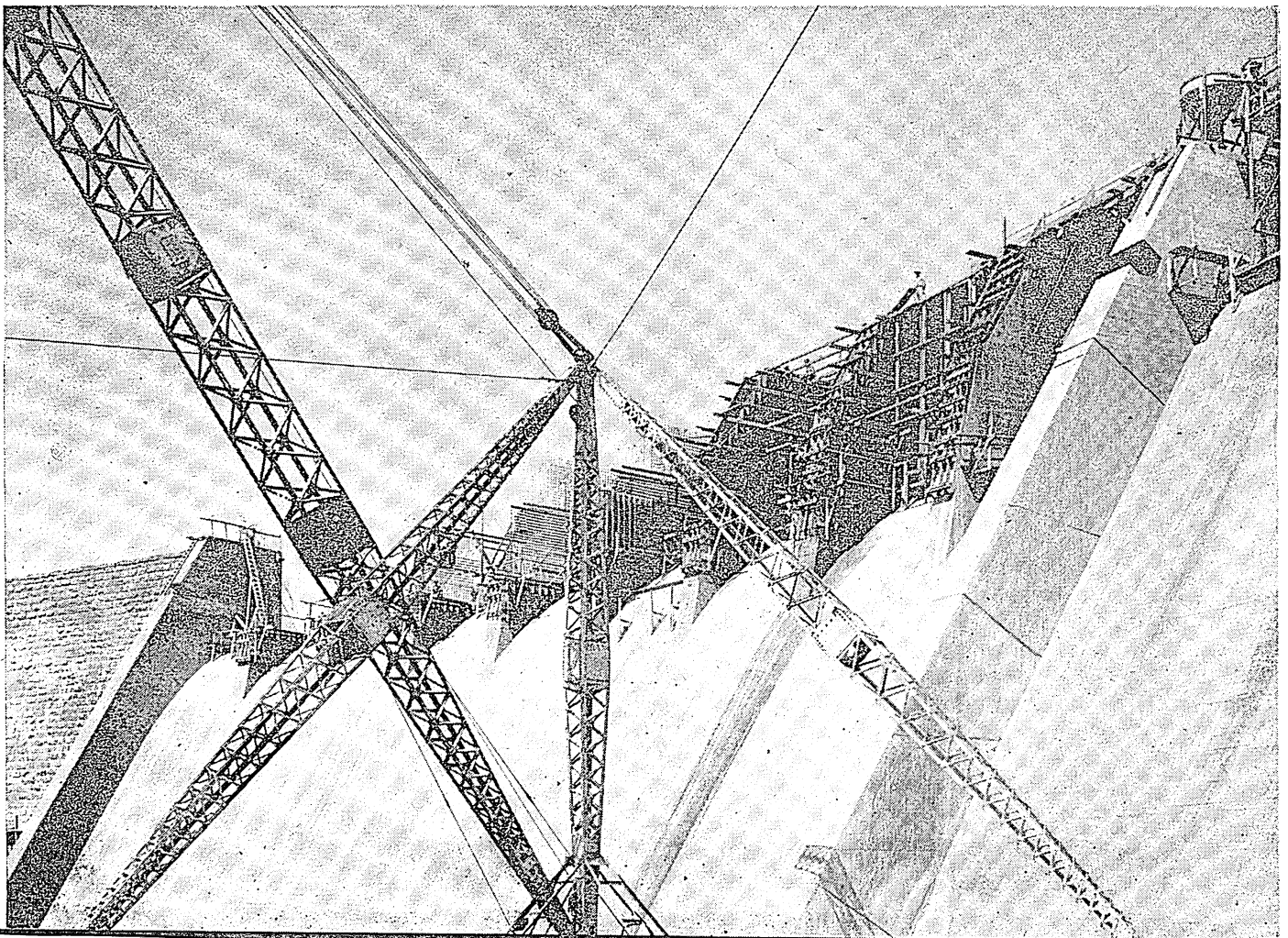
VIEW showing construction of piers on controlled spillway section of Altus dam, near Altus, Okla. The dam, approximately 98% completed in 1945, was built to irrigate 40,000 acres of land, supply water for city of Altus, and provide flood control

**Dams.** With the ending of World War II, plans for many projects involving dams were pushed to completion in order that construction could be started as soon as materials and manpower became available. Work on many dams, halted during the war, was resumed.

In the United States, at Anderson Ranch dam, construction was proceeding 24 hours per day during 1945 in an effort to complete enough of the dam to provide 45,000 ac.ft. of storage for flood waters in the spring of 1946. By Oct. 1945, the earth-fill had reached a height of 300 ft. above bed rock. When completed, the structure was to be 456 ft. high, the highest earth-fill dam in the world. It was designed to store 500,000 ac.ft. of water to irrigate 34,000 ac. in the Boise valley. An unusual feature of the construction of this dam is the use of a belt conveyor for transporting the fill material nearly two miles from the borrow pit to the site, where it is distributed over the dam by truck.

The construction of the second step of the Ross dam on the Skagit river in Washington, was under way during 1945. The first step was completed in 1940 to a height of 290 ft., creating storage of 70,000 ac.ft. of water. The second step was planned to raise the dam to a height of 475 ft., creating an additional storage of 670,000 ac.ft. This would provide an increased average output at the hydroelectric plants downstream of 300,000,000 kw.-hr. annually. It was planned to raise the dam eventually two more steps of 100 ft. each, to a final height of 675 ft. With Ross dam, the Diablo dam, and future storage at the Gorge dam, the river was expected ultimately to develop 1,120,000 h.p.

In Mexico, Las Virgenes dam, a round head buttress type of dam, was under construction on the San Pedro river, to provide nearly 350,000 ac.ft. of storage for irrigation and power. This unusual type of dam was first used at the Don Martin dam at Coahuila, Mexico, built in 1929. The buttresses of the dam are widened at the upstream edges to a mushroom shape. The





## Chief Dams Completed or Under Construction During 1945

Name of Dam	River	Place	Type	Maximum Height Feet	Crest Length, Feet	Volume (Cu. yd.)	Purpose*	Built by	Progress†
Anderson Ranch . . . .	Boise, S. Fork	Idaho, U.S.	Earthfill‡	330	1,350	9,500,000	I,F,P	U.S. Reclamation Bureau	U
Bluestone . . . . .	New	West Virginia, U.S.	Concrete, gravity	180	2,060	950,000	F	U.S. Army Engineers	U
Davis . . . . .	Colorado	Arizona, U.S.	Earth and rockfill	138	1,600	4,230,000	P	U.S. Reclamation Bureau	U
El Palmito . . . . .	Nazas	Mexico	Earthfill	295	1,005	6,632,348	I,P	Mexican National Commission of Irrigation	U
Green Mountain . . . .	Blue	Colorado, U.S.	Earth and rockfill	285	1,300	4,861,000	I,P	U.S. Reclamation Bureau	U
John Martin . . . . .	Arkansas	Colorado, U.S.	Earthfill and concrete gravity	130	14,000	5,915,000 (earth) 220,000 (conc.)	F	U.S. Army Engineers	U
Ross . . . . .	Skagit	Washington, U.S.	Concrete, arch	475	—	—	P	Seattle Department of Lighting	U
Shasta . . . . .	Sacramento	California, U.S.	Concrete, straight gravity	560	3,500	6,200,000	I,F,P	U.S. Reclamation Bureau	C
St. Etienne-Cantales . .	Cère	France	Concrete, arch	230	900	180,000	P	—	U
Wolf Creek . . . . .	Cumberland	Kentucky, U.S.	Earthfill and concrete gravity	242	5,730	11,500,000 (earth) 1,250,000 (conc.)	F,P	U.S. Army Engineers	U

\*F—Flood Control, I—Irrigation, P—Power †C—Completed in 1945, U—Under Construction. ‡Highest in world.

widened edges then join together to form the upstream deck of the dam.

In Uruguay, another round head buttress dam was nearing completion on the Rio Negro. The dam was to provide 4,860,000 ac.ft. of storage for the Rincon del Bonete project, the first important hydroelectric installation in Uruguay. The development was designed to produce 180,000 h.p. and would more than double the country's power supply.

King George VI officially dedicated the Ladybower dam at Bamford, England, on Sept. 25, 1945. The 137-ft.-high dam was in 1945 one of the largest earthfill dams in the British Isles. Constructed for the Derwent Valley Water board to supply Nottingham, Leicester and several other towns of Derbyshire, the reservoir covers 504 ac. and was planned to provide 6,300,000,000 gal. storage capacity.

Designs were being prepared during 1945 for a concrete gravity dam 550 ft. high, on the Sutlej river, Punjab province, India.

As the war drew to a close in Europe, dams in the Roer river valley played an important part. Five dams, totalling 5,826,937,000 cu.ft. of storage, were attacked by the Allies in early Feb. 1945. The control house and gates at the south side of the Schwammenauel dam were blown up by the Germans. At the Urft dam on the Urft river, second largest of the five dams, a conduit was broken by aerial bombs, releasing 1,606,822,000 cu.ft. of storage and flooding the Roer. When the dam was captured on Feb. 4, 1945, the Germans had blown up the spillway gates and destroyed the outlet control towers.

The table herewith lists ten important dams of the world completed or under construction during 1945. (See also AQUE-DUCTS; IRRIGATION; TENNESSEE VALLEY AUTHORITY.)

FILMS.—*Water Power* (Encyclopædia Britannica Films Inc.). (B. O. M.)

**Dance.** The memorable year 1945 proved to be a year of both culminations and beginnings for the dance, as well as for the world in general.

History has made it a matter of record that war is always a great stimulus to the dance. World War II was no exception. What with war benefits, canteen dances, camp shows, free instruction for "the boys," rehabilitation classes and such, the armed forces were made so dance conscious that they became interested not only in seeing dancing but also in participating in it.

In civilian life in the U.S., besides ice ballets and roller ballets, there was a square dance done on horseback at the rodeo. Metro-Goldwyn-Mayer featured swimmer Esther Williams in a water ballet. Television emphasized the dance on the air waves, and Broadway and Hollywood vied with each other to book the best dance talent. After its long and lean Cinderella days, the dance suddenly found itself not only the belle of the ball but the toast at every type of shindig, big and small.

Civic ballets as well as city and community sponsored dance events, courses of instruction, recreational groups and competitions proved that the dance had woven its patterns into the daily lives of the people, as well as occupying the professional limelight.

It is significant that it was just about 20 years before that Martha Graham resigned her prominent role in the Denishawn company to devote herself to serious pioneering in a new dance form. In 1945, Miss Graham was signed for a triumphant world tour. Besides a personal victory this constituted an admirable accomplishment for the so-called Modern Dance.

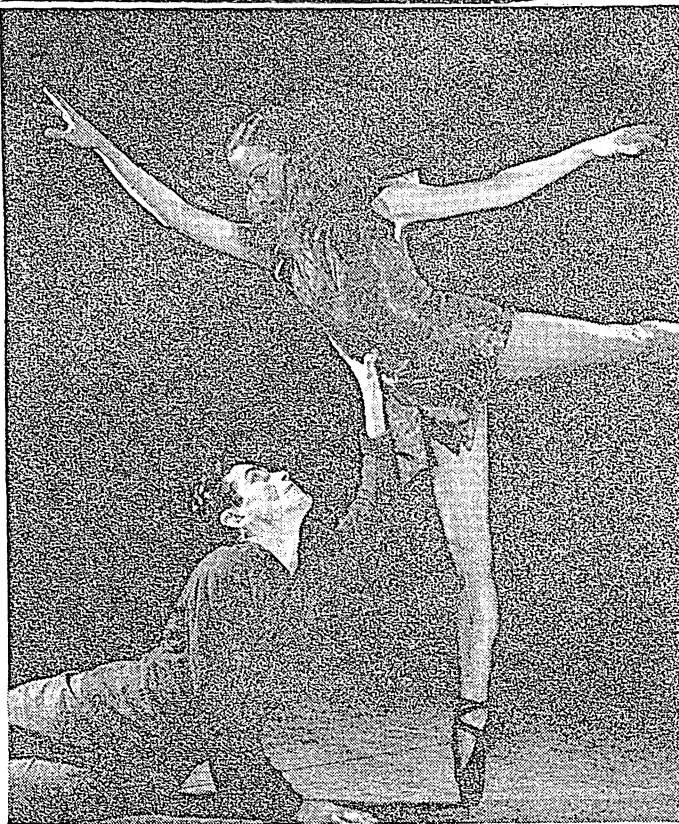
Miss Graham's repertoire consisted of *Appalachian Spring*, *Herodiade*, *Every Soul Is a Circus*, *Salem Shore*, *Deaths and Entrances*, and the new *Dark Meadow* to music by Carlos Chavez.

In 1945 the ballet companies played to bigger and more enthusiastic houses than ever before. Sell-outs became routine. The following new ballets were presented by Ballet Russe de Monte Carlo: *Ballet Imperial*, *Dance Concertantes*, *Concert Barocco*, *Mosartiana*, all by George Balanchine. These ballets followed the same style of classical variations skilfully woven to the pattern of the music, gorgeously costumed, and executed with skilful, if somewhat brittle, technique. *Comedia Balletica*, first called *Musical Chairs*, also a series of variations carefully set to music and done with a light satirical touch, was choreographed by Todd Bolender, a disciple of Balanchine.

*Frankie and Johnny*, choreographed by Ruth Page and Bentley Stone, was chosen as a ballet to give modernity, humour and relief to the company's repertoire. It overshot its goal considerably, however, and provoked not only severe criticism but also fun poked at it by the press, as "ballet burlesque."

The new ballets presented by Ballet Theatre included a psychological murder study by Anthony Tudor, called *Undertow*, that was murky enough for the most morbid consumption. Leonide Massine contributed *Moonlight Sonata*, a piece without distinction. *The Firebird* was a new version of the well known ballet to Stravinsky's music, done by Adolf Bolm and fabulously mounted, with decor by Marc Chagall. *Graziana* was a classical music visualization of Mozart's music by choreographer John Taras. *Interplay* by Jerome Robbins was a study in juxtaposition of classical and modern technique, done in a flippant manner. *The Gift of the Magi* was a realistic ballet based on O'Henry's story and choreographed by Simon Semenov. The dancing failed to catch the poignancy of the O'Henry masterpiece, but it was light and popular.

*On Stage* choreographed by Michael Kidd was the best and also the most popular of the new ballets. It concerned itself with an appealing drama of a timid young artist trying to capture fame. The leading role, a stage janitor, was played by Michael Kidd, the choreographer. This was a promising first ballet by a gifted young dancer but it revealed so clearly the



HUGH LA'NG and Nana Gollner during the premier performance of *Undertow*, a psychological ballet presented in New York by the Ballet Theatre on April 10, 1945

need of artistic direction in this company.

A new ballet enterprise was a small touring company formed by Leonide Massine to give excerpts from famous ballets. It met with limited success.

The San Francisco ballet directed by William Christensen continued its activity on the west coast giving regular seasons of ballet and touring neighbouring states.

In Canada the Volkoff ballet and Morenoff ballet continued their performances, and the Winnipeg ballet joined the ranks of successful young ballet companies.

Col. de Basil's Original Ballet Russe appeared regularly in South America and as far north as Panamá.

In Mexico a new local Mexican ballet celebrating Mexican themes, artists and dancers was successfully launched by the Campobello sisters. In the summer the National Opera company in Mexico City featured a ballet group from the School of American Ballet directed by William Dollar and George Balanchine. Besides appearances in the operas this group gave special ballet performances and presented works by Balanchine and Dollar to Mexican audiences.

In England the dance became so popular that one critic observed: "The war has made us a dancing nation." The Sadler's Wells ballet danced on the continent, entertaining troops, besides giving its regular season in England. A new ballet by Helpmann was laid in the slums of Glasgow and called *The Miracle of Gorbals*. A new ballet by Andree Howard was called *The Fugitive* and was concerned with a psychological drama of two sisters who were both in love with a fugitive.

Ballet Rambert continued to tour hostels, factories and provincial theatres. Ballets Russe Kyasht, the International ballet and the Anglo-Polish ballet gave regular performances. Ballet Jooss again had a regular London season and presented a new ballet by Hans Zullig called *Le Bosquet*. The London Archives of the Dance were organized under the chairmanship of Cyril Beaumont.

In Paris the Archives of the Dance were happily found intact although Paris companies and dancers suffered severely during the war. By the fall of 1945 steps were taken to reorganize its ranks. Eugene Grunberg was appointed new director of Les

Nouveaux Ballets de Monte Carlo, and a subsidy was granted to carry it on.

In Australia, the Kirsova ballet in Sydney and the Borovousky ballet in Melbourne played to enthusiastic native and expeditionary forces.

The most discouraging aspect of the 1945 ballet season was the dearth of new and significant material. The classical ballets followed the cut and dried formulas of past successes while the modern pieces were trivial or morbid as the case might be, but they all lacked originality, creative flair and inspiration. With the strides that the dance art made after World War I, it was amazing that no ballet was produced that could equal *The Green Table*, dance masterpiece of World War I.

Rapid progress was made during 1945 in bringing dance artists to stage and screen. For years producers had contended the masses could not appreciate art and, therefore, chose dancers for their pulchritude, their personality, their speed and flash. Experiments entertaining soldiers from 1943 to 1945 helped to prove the box office appeal of the best artists.

In 1945, Broadway chose real choreographers to do their dance sequences instead of the proverbial song and dance men. Anthony Tudor did the ballets for *Day Before Spring*, and *Holiday Pinaflore*. Agnes de Mille did the dances for *Carousel*, Jerome Robbins helped produce *On the Town*. Tamiris scored as dancer-arranger in *Up in Central Park*. Balanchine did dances for *Mr. Strauss Goes to Boston*. David Lichine was dance director for *Polonaise*. Esther Junger distinguished herself in the dances for *Dark of the Moon*. Nimura was welcomed back after his absence as the choreographer for the oriental numbers in *Lute Song*.

Among the ranking dancers to grace Broadway were found Irina Baronova, Viola Essen, Anton Dolin, Alicia Markova, Tatiana Riabouchinska, Harold Lang, Mary Ellen Moylan. Vera Zorina added not only to her laurels as a ballerina but also won praises for the beautiful rendition of her lines in Shakespeare's *Tempest*.

Hollywood, not to be outdone by Broadway, signed a host of first-rate dancers and announced a series of dance films such as *Spectre de la Rose*, *Ballerina*, *Life of Pavlova*, *Nijinsky*, to say nothing of ballets woven into regular pictures with such stars as Anton Dolin, Alicia Markova, George Zoritch, Milada Mladova, Marc Platt, Jack Cole and Vera Ellen dancing the leading roles. Tatiana Riabouchinska and David Lichine capped the climax by dancing a duo in Walt Disney's *Make Mine Music*.

The most promising dance work for future development of the art, however, was done by such amateur and semi-professional groups as Lisa Gardiner's Washington Concert ballet, Bernice Holmes Ballet company, the Young Peoples Dance Theatre of South Orange, N.J., the Atlanta Civic ballet, the Pittsburgh Civic ballet, the New Jersey Civic ballet, etc.

La Meri's Ethnologic Dance centre added to its laurels by a Hindu version of *Scheherazade*. Other new works of interest were: *Iberia*, a Spanish ballet; *Krishna and Radha*, a Hindu ballet; *Caribbean Impressions Suite*, *Salome's Dance*, *Gesture Songs*.

The department of education in the New York Museum of Natural History did an outstanding piece of dance education in the free dance programs of historical and national dances given at the museum and also presented in neighbouring museums and educational centres. In fact, the whole educational field made marked progress in incorporating dance art in its curriculum. Besides offering training courses, schools and university-sponsored groups, some educational centres gave concentrated summer courses and others featured workshops directed by professional dancers. Oregon State college developed a dance group that entertained not only the soldiers, but toured neighbouring

towns with a full evening dance concert.

The Dance Educators of America conducted the first normal course for dancing teachers planned along university lines and giving expert graded instruction in all types of dancing along with proper progressive methods and procedures. This bore fruit in standardizing terms and fundamentals as well as improving the quality of the dance instruction given to children and adults.

The greater consciousness of dance art in the general public enlarged the number and scope of touring dance attractions. Among the outstanding of these were Svetlova and Dolinoff, Teresita Osta, Katherine Dunham and company, Iva Kitchell, Mia Slavenska, Miriam Marmein, Agna Enters, Bill Robinson, Edwin Strawbridge, Paul Draper and Patricia Bowman.

Vaslav Nijinsky, so often reported missing, was found alive after the nazi retreat, and was reported improved in health.

(L. Mh.)

**Ballroom.**—The year 1945 was the year of peace but there was no lull in the ballroom. All over the world, marching feet relaxed and danced to such tunes as: "Symphony," "If I Loved You," "You're So Nice to Come Home To," "It's Been a Long, Long Time." Those who did not march kept the same pace at home.

During 1945, dancing was the chief entertainment sponsored by hostess groups all over the world. Many reporters believed that Yankee jitterbugging did much to cement friendly relations abroad.

Through 1945, the fox trot was still the most popular dance. For the first time, rumba ran it a close second. Rumba played on the radio; new rumba tunes were composed—the most infectious being "No Can Do," which swept the U.S. Rumba was accepted and taught in the dignified, social dancing classes held for society children.

Few new tunes were written in waltz tempo. Therefore, the waltz was neglected in the ballroom. Few samba tunes were popular, so the dance never became nationally known. Square dancing showed a head start in 1944 but did not progress during 1945. The tango was rarely done and was played in only a few of the more cosmopolitan night clubs and hotels.

Jitterbug dancing quieted down during 1945 and the steps became standardized so that one no longer heard of sectional dances like the Jersey flea hop, the Georgia jump, and so on. Swing dancing calmed down to keep time with the sentimental songs of the year.

Prominent educators began to recognize the importance of ballroom dancing in the schools. Almost every public school taught its pupils ballroom dancing and some settlement houses requested a juke box before any other recreational equipment.

There were no new dances during 1945, although there was a little flurry of excitement over Mexican dancing toward the end of the year. Dances called La Bamba and La Bambooka were pictured in magazines—but went no further. (A. Mu.)

**Danzig.** This formerly Prussian port on the Baltic sea at the mouth of the Vistula river was constituted by the Treaty of Versailles in 1919 as a free city under the protection of the League of Nations, to give to Poland, the land of the Vistula basin, the necessary outlet to the sea promised in Woodrow Wilson's Fourteen Points. The territory had an area of 754 sq.mi. and a population of 407,000. With the outbreak of World War II in Sept. 1939 the city was annexed by Germany. As a result of the German defeat, the city was incorporated in 1945 into Poland. Prior to World War II the Poles had built, 12 miles to the northwest, on Polish territory, a new harbour in Gdynia which had grown into a modern city of 120,000 population. As a result of the war, much of the old city of Danzig with its historic buildings was destroyed while

the harbour remained intact. In Gdynia the harbour was destroyed while the city was largely spared.

Under the new Polish administration Danzig, called in Polish "Gdansk," was to be enlarged as a great harbour which would also embrace Gdynia and Zoppot (Copot), a fashionable seaside resort between the two ports. In 1945 practically all removable property of commercial and industrial value was removed from Danzig to the U.S.S.R. The character of the population was undergoing a rapid shift in 1945, with Poles replacing the Germans. (H. Ko.)

**Darby, William Orlando** (1911-1945), U.S. army officer, was born Feb. 8 in Fort Smith, Ark., and was a graduate of the U.S. military academy, 1933. During World War II, the United States army decided to set up a select body of shock troops similar to the British commandos. Darby, then a major, was assigned by Gen. Eisenhower to interview and select officers for this unit, which subsequently became known as the "Rangers." The First Ranger battalion officially entered the ranks of U.S. combat outfits on June 19, 1942. Generally they performed what the army signaled as "impossible" tasks. Later, Col. Darby went to the Italian front and saw action there for two years. One of the army's most seasoned combat commanders, he was wounded three times and decorated 10 times. On April 22, he was designated assistant commander of the U.S. 10th Mountain division, a special Alpine unit then engaged in bitter fighting in the Po valley. The war department disclosed on May 1 that he had been killed while leading a combat team.

**Dartmouth College.** During 1945 the navy college training program continued at Dartmouth, under the forms of V-12 and the Naval Reserve Officers Training Corps. During the summer term transition was largely effected from the V-12 program to N.R.O.T.C. Military students, both navy and marines, continued to dominate the campus with a total of about 850 in the navy unit, although the number of civilian students increased to about 400 as compared with about 250 the previous year and 2,400 before World War II. A serious problem was faced in respect to numbers of students seeking admission or readmission as demobilization was effected. Top priority was given to those among the 3,000 undergraduates who left college for war service who wished to return to Dartmouth. In addition, pressure increased late in the year among other groups of prospective postwar students including V-12's with several terms of credit toward the degree and applicants from high schools. The college provided special housing units for married G.I. students. Plans were made to revert to a two-semester calendar plus a short summer term which would be maintained only as long as required by veterans desiring an accelerated program. Ernest Martin Hopkins retired on Nov. 1 after 29 years as president of Dartmouth. He was succeeded by John Sloan Dickey, Dartmouth graduate in the class of 1929, and most recently director of the office of public affairs in the department of state, Washington, D.C. (For statistics of enrolment, faculty, endowment, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (S. C. Ha.)

**Dates:** see FRUIT.

**Daughters of the American Revolution, National Society of:** see SOCIETIES AND ASSOCIATIONS.

**Davis, Elmer** (1890- ), U.S. journalist, radio news analyst and government official, was born Jan. 13 in Aurora, Ind. A graduate of Franklin college, Franklin, Ind., he was a Rhodes scholar at Queens college, Oxford university,



completing his studies there in 1912. Davis was a reporter and editorial writer on the *New York Times*, 1914-24, wrote 12 books, including essays, short stories and satires, and reached the top rung of radio fame in 1939 as a news analyst for the Columbia Broadcasting system. On June 13, 1942, President Roosevelt announced his decision to fuse the various overlapping government information services into a single centralized organization and appointed Davis to head the new organization, known as the OWI (Office of War Information, *q.v.*). Davis had the delicate task of co-ordinating the government's war publicity and propaganda, both at home and abroad. Late in 1943 OWI was the target of attacks from professional newspaper sources, when the British released news of the Cairo conference, and the Russians of the Tehran conference, before U.S. papers were informed. In April of 1944 the OWI director won a two-year fight to share with the army and navy power to make decisions on release of war news. Pres. Truman abolished the OWI Aug. 31, 1945, and directed the state department to take over the structure of the agency's international organization. Davis' resignation was announced Sept. 12, and two months later he returned to the radio field as a news commentator.

**Dawson, Bertrand Dawson,** <sup>1ST VISCOUNT, OF PENN</sup> (1864-1945), British physician, was born at Purley, Surrey, March 9, the son of an architect. He received his medical training at the London hospital with which he was associated all his professional life and where he was appointed full physician in 1906. In 1907 he became physician-extraordinary to King Edward VII and later served as physician-in-ordinary to King Edward VII, King George V, King Edward VIII, and to King George VI and Queen Elizabeth. His elevation to the peerage in 1920 marked the first attempt of a British government to secure the expression of medical opinion in the house of lords. As president of the Royal College of Physicians, 1931-38, Lord Dawson was recognized as head of the British medical profession. He married Minnie Ethel, youngest daughter of Sir Alfred Yarrow, in 1900. They had three daughters. When Lord Dawson died on March 7 the peerage became extinct as there was no son to inherit it.

**DDT:** see ENTOMOLOGY; MEDICINE; WILDLIFE CONSERVATION.

**Deafness.** In 1945, the number of hard of hearing individuals in the United States impaired in one or both ears was estimated to be 10,000,000 to 15,000,000. Of this number, possibly 4,000,000 were seriously handicapped and at least 3,000,000 required hearing aids or the use of lip reading. Probably, no more than 500,000 actually used hearing aids. The Volta bureau, Washington, D.C., estimated 95,000 deaf enough to require specialized instruction in schools for the deaf. The American Society for the Hard of Hearing, Washington, D.C., and its component societies in many cities, provided information and arranged for instruction in lip reading.

Otologists have continued research on the fenestration or window operation for the amelioration of the hearing loss. Percentage of successful results had not (up to the close of 1945), been compiled by an independent evaluating agency. However, most hard of hearing individuals were rehabilitated by hearing aids and lip reading, or a combination of the two. From 1939 on, significant advancement was made in the technical development of the vacuum tube hearing aid. In 1945, it weighed 16 to 18 ounces complete with A and B batteries. These instruments consisted of a microphone, amplifier, battery and receiver. If used for air conduction, the receiver was attached to a moulded ear piece; if for bone conduction,

the receiver pressed against the mastoid.

A new type of hearing aid found favour, which consists of two visible parts only. The batteries are enclosed in the same case with the amplifier and microphone; the ear piece is connected to the case with one cord. The cost of the hearing aids ranged from \$40 to \$175.

Army and navy rehabilitation centres introduced elaborate testing and fitting methods. The results were not available up to the close of 1945. Many deafened individuals were satisfied with a hearing aid selected over the counter by themselves. In difficult cases, there was a definite advantage in employing the fitting procedures. In either case, the hard of hearing person was advised to have his ears examined by a physician before considering the purchase of a hearing aid. A list of acceptable hearing aids may be obtained from the Council on Physical Medicine of the American Medical association. (H. A. C.)

**Deaths** (of prominent persons in 1945): see OBITUARIES.

**Death Statistics.** Mortality in the United States during 1945 was somewhat lower than in 1944; provisional reports covering the first 9 months of 1945 show a death rate of 10.4 per 1,000 population, compared with 10.6 for the same period of the previous year. For the entire year 1944 also, the death rate was 10.6 per 1,000 population, the number of recorded deaths being 1,411,338. Canada, too, experienced an improvement in mortality from 1944 to 1945, according to provisional reports from cities of 10,000 or more inhabitants covering the first nine months of both years; these show a reduction of 2.4% in the number of deaths from one year to the next. During all of 1944, there were recorded 115,918 deaths in Canada, with a death rate of 9.7 per 1,000 population. Mortality in England and Wales during 1945 was practically at the same level as in 1944; this indication is provided by reports of deaths from London and the great towns for the first nine months of each year. There were 492,188 recorded in all of England and Wales during 1944, the death rate being 11.6 per 1,000 population.

Up to the end of World War II the British empire lost 353,652 men in the armed forces killed by enemy action. To this number, the United Kingdom contributed 244,723; Canada 37,476; Australia 23,365; New Zealand 10,033; South Africa 6,840; India 24,338; and the colonies 6,877. There were 30,189 merchant seamen killed. In addition, up to the end of the war in Europe, 60,585 civilians were killed, of whom 26,920 were men, 25,392 women, 7,736 children and 537 unidentified.

The total casualties in the armed forces of the U.S., as reported on Nov. 2, 1945, came to 1,068,794. The killed numbered 273,830, of whom 217,569 were of the army and 56,261 of the navy; the wounded were: army 571,442 and navy 80,260; missing: army 18,311 and navy 8,908; prisoners: army 115,333 and navy 710. In the *Biennial Report of the Chief of Staff of the United States Army*, dated Sept. 1, 1945, it is stated that the war in Europe resulted in 772,626 battle casualties, of whom 160,045 were dead, while the Pacific area had 170,596 casualties and 41,322 dead. It is estimated that in opposing the U.S., British and French armies in Europe, the Germans and Italians lost about 373,600 dead and 85,000 permanently disabled. Japanese losses after Pearl Harbor in the east, including China, are estimated at 1,219,000 dead and 240,000 permanently disabled. The efficacy of modern health practices in the control of disease among troops is shown by the following: the annual death rate from disease among the men in the Mexican War was 10%; for the Civil War (Union troops) 7.2%; Spanish War and Philippine Insurrection 1.6%; World War I 1.3%; World War II .06%.

According to a report to the Japanese diet (*New York Times*, Sept. 7, 1945), Allied air attacks on Japan resulted in 241,309 deaths and 313,041 wounded among the civilians. The atomic bomb released on Aug. 6, 1945, over Hiroshima caused 49,221 civilian deaths and wounded 58,839, while the atomic bomb over Nagasaki on Aug. 9, 1945, killed 21,501 civilians and wounded 51,580. The medical branch of the U.S. strategic bombing survey estimates that Allied bombing killed about 500,000 civilians in Germany, including imported labour.

Provisional death rates per 100,000 population in the U.S. for 1944 from the more important causes of death, as reported by 40 states are as follows: diseases of the heart 320.0; cancer 130.2; intracranial lesions of vascular origin 94.2; nephritis 68.6; total accidents 66.4, of which 16.3 were from automobile accidents; pneumonia 47.4; tuberculosis 39.7; diabetes mellitus 27.1; influenza 12.9; syphilis 10.3; diarrhoea and enteritis 7.3; appendicitis 5.5; and cerebrospinal meningitis 2.1.

For the first nine months of 1945, the record for the millions of industrial policyholders of the Metropolitan Life Insurance company, when compared with the like period for 1944, showed decreases in the death rates from the following causes of death: measles, scarlet fever, influenza, pneumonia, tuberculosis, syphilis, diabetes mellitus, the class "other chronic heart diseases," diarrhoea and enteritis, appendicitis, chronic nephritis, home accidents and occupational accidents. Increases were noted for cancer, cerebral haemorrhage, and diseases of the coronary arteries and angina pectoris. Death rates for the two years were substantially at the same level for typhoid fever, whooping cough, diphtheria, suicides, homicides and motor vehicle accidents.

The leading causes of death according to age, and their death rates per 100,000 population (white persons only) of the same ages in the U.S. during 1943 (the latest with details available) were: ages 1 to 4, all causes 232, pneumonia and influenza 47, accidents 51, diarrhoea and enteritis 14; ages 5 to 14, all causes 90, accidents 30, pneumonia and influenza 7, diseases of the heart 6; ages 15 to 24, all causes 176, accidents 68, tuberculosis 20, diseases of the heart 13; ages 25 to 44, all causes 318, diseases of the heart 53, tuberculosis 39, cancer 36; ages 45 to 64, all causes 1,396, diseases of the heart 462, cancer 250, intracranial lesions of vascular origin 113; ages 65 and over, all causes 7,132, diseases of the heart 2,782, intracranial lesions of vascular origin 873, cancer 857.

The principal causes of death from accidents in 1943 and their death rates per 100,000 population were: injury by fall 18.0; motor vehicle accidents 17.8; air transport accidents 5.3; drowning 4.5; burns (conflagration excepted) 4.4; railway accidents (except collisions with motor vehicles) 2.8.

In the brief period from 1940 to 1944, maternal mortality in the U.S. decreased by 39%, reaching a minimum of 2.3 per 1,000 live births in the latter year, with 6,369 maternal deaths being reported. In the same year, 1944, Canada reported 771 maternal deaths, with a rate of 2.7 per 1,000 live births, and England and Wales reported 1,168 such deaths, the rate being 1.6 per 1,000 live births. In 1943, the latest year with complete data for the U.S., there were 7,197 deaths from puerperal causes, the maternal mortality rate being 2.5 per 1,000 live births. Of the total puerperal deaths, 36.0% were from septicaemia, 26.9% from toxæmia and 15.6% from haemorrhage. Deaths during or after delivery accounted for 65.0% of the total, deaths before delivery for 14.2%, ectopic gestation for 4.6% and abortions for 16.2%. The maternal mortality rates per 1,000 live births in 1943 according to age of mother were: ages 10-14, 9.9; ages 15-19, 2.2; ages 20-24, 1.6; ages 25-29, 1.9; ages 30-34, 3.0; ages 35-39, 5.1; ages 40-44, 7.4. The white population had a maternal mortality rate of 2.1 per 1,000 live

births and other races a rate of 5.1. A study (*Statistical Bulletin*, Metropolitan Life Insurance Co., July 1945) showed that maternal mortality was lowest where hospital confinement was most frequent, namely in the Pacific coast states. The improvements from 1940-43 were most rapid in the southern and mountain states, which generally had the poorest records; these areas also had the smallest proportions of hospitalized births. In 1943, 77% of the white births in the country as a whole were hospitalized, but only 33% of the births of other races.

The expectation of life at birth corresponding to mortality conditions in the population within the U.S. in 1943 was 64.50 years, a reduction of one-third of a year from the high reached in 1942. The factors in this reduction are: the severe influenza epidemic in the closing months of 1943; the withdrawal of healthy males for overseas duty during the year; and the sharp increase in fatal accidents, particularly in military aviation. According to sex and race, the years of expectation of life at birth were: white males 63.16; white females 68.27; Negro males 54.65; Negro females 57.97.

Taking the mortality of married persons of ages 20 and over as a standard (U.S. bureau of the census, *Vital Statistics, Special Reports*, Vol. 23, No. 2), it was found, from 1940 records, that among males, the single had an excess mortality of 41% greater, the widower an excess of 92% and the divorced an excess of 115%. Among females, the single had a mortality 17% greater than the married, the widow 51% and the divorced 73%. (See also ACCIDENTS; CENSUS DATA, 1945; INFANT MORTALITY; SUICIDE STATISTICS.)

**BIBLIOGRAPHY.**—U.S. Public Health Service, *Public Health Reports* (issued weekly); U.S. Bureau of the Census, *Vital Statistics—Special Reports* (issued irregularly), *Monthly Vital Statistics Bulletin*, *Current Mortality Analysis* (issued monthly) and *Annual Reports of Vital Statistics*; Metropolitan Life Insurance Co., *Statistical Bulletin*, (issued quarterly); Population Association of America, *Population Index* (issued quarterly at Princeton, N.J.); National Safety Council, *Accident Facts* (1945). (A. J. Lo.)

**Debt, National.** The course of the national debt in the United States from 1913 to 1946 is shown in Table I. From a figure of \$42,971,000,000 at the time the rearmament program was begun in 1940, the national debt rose to an estimated total of \$275,000,000,000 for the middle of 1946.

Table I.—National Debt of the United States, 1913-46

	June 30	(Millions of dollars)		June 30	(Millions of dollars)
1913	.....	\$ 1,193	1930	.....	\$ 16,185
1914	.....	1,188	1931	.....	16,801
1915	.....	1,191	1932	.....	19,487
1916	.....	1,225	1933	.....	22,539
1917	.....	2,976	1934	.....	27,053
1918	.....	12,244	1935	.....	28,701
1919	.....	25,482	1936	.....	33,545
1920	.....	24,298	1937	.....	36,427
1921	.....	23,976	1938	.....	37,167
1922	.....	22,964	1939	.....	40,445
1923	.....	22,350	1940	.....	42,971
1924	.....	21,251	1941	.....	48,961
1925	.....	20,516	1942	.....	72,422
1926	.....	19,643	1943	.....	136,696
1927	.....	18,510	1944	.....	201,003
1928	.....	17,604	1945	.....	258,682
1929	.....	16,931	1946	.....	275,000

Source: Data from 1913 to 1945 are from U.S. treasury department, daily treasury statement (revised); 1946 estimated.

The Fifth, Sixth, and Seventh War Loan drives were held during the fiscal year 1945. Sales of securities were \$20,600,000,000, \$21,600,000,000 and \$26,300,000,000, respectively. The Victory Loan drive, the last great public drive to be held in connection with World War II, was opened in Aug. 1945 to run until the end of the calendar year. The goal was set at \$11,000,000,000 as against \$14,000,000,000 for the Seventh War Loan drive. The loan was oversubscribed, with sales of all types of securities reaching \$21,100,000,000. Sales to individuals totalled \$6,800,000,000, compared with the goal of \$4,000,000,000.

In conformity with the treasury policy of securing funds from

noninflationary sources, considerable emphasis was placed upon the sale of war bonds and stamps to individuals. As may be seen in Table II, the outstanding bonds in this category exceeded

Table II.—Public Debt of the United States, Direct and Guaranteed  
(Millions of dollars)

Item	June 30			
	1942	1943	1944	1945
Direct public debt, total	\$72,422	\$136,696	\$201,003	\$258,683
Interest-bearing debt, total	71,968	135,380	199,543	256,357
Public issues:				
Bonds, total	48,777	79,420	114,738	152,734
U.S. savings bonds	10,188	21,256	34,606	45,586
All other	38,589	58,164	80,132	107,148
Notes, total	9,704	16,663	26,962	33,633
Treasury notes	6,689	9,168	17,405	23,497
Tax and savings series	3,015	7,495	9,557	10,136
Certificates of indebtedness	3,096	16,561	28,822	34,136
Bills	2,508	11,864	14,734	17,041
Special issues	7,885	10,871	14,287	18,812
Noninterest-bearing debt	454	1,316	1,460	2,326
Guaranteed obligations	4,568	4,100	1,623	433
Total direct and guaranteed debt	76,990	140,796	202,626	259,116

Source: Daily statement of the U.S. treasury.

\$45,000,000,000 by the end of fiscal year 1945 and in the course of that year there had been a net increase of \$11,000,000,000 in savings bonds sales. Of this increase approximately \$8,000,000,000 was in the lower denomination E Series bonds, sales of which reached an all-time peak in the Seventh War Loan drive, after declining slightly in the Fifth and Sixth War Loan drives. As the volume of savings bonds outstanding rose during World War II, an increase in the amount of redemptions was to be expected. This occurred not only in dollar amount but also in the rate of redemptions. In June 1945, for instance, redemptions were 1.21% of outstandings, as compared with 1.04% a year earlier. It is likely that this increase could be accounted for by the sales pressure used in the war loan drives and the increase in the number of bond owners. In any event, the data indicate no serious lack of control over the redemption rate.

"THE LINE FORMS AT THE RIGHT." Darling of the *New York Herald Tribune* saw in 1945 a seemingly endless stream of postwar additions to the national debt



An important element in the sale of savings bonds throughout the war period was the widespread adoption of the pay roll deduction plan sponsored by the treasury. The peak in the numbers participating was reached in June 1944 when about 27,600,000 employees had \$540,000,000 of their pay deducted for the purchase of war bonds. During the fiscal year 1945 the total sale of bonds by this method was about \$6,000,000,000 out of total gross sales in this category of securities of \$11,600,000,000. With the beginning of a declining trend in employment in war industries the number of persons participating in the pay roll savings plan declined. In April 1945, for example, there were 2,200,000 fewer participants than in the same months of 1944. (See also WAR BONDS.)

A significant feature of the management of the public debt during the war was the low interest rate policy that was adopted and maintained by the government. World War II was financed at an average rate of interest of 1.8% on the securities issued, compared with an average rate of 4.25% on the securities issued to finance World War I. Interest rates during the war period rose only moderately above the level prevailing during the depression of the '30s, the highest rate for long-term market issues being 2.5%. As a special inducement to individuals to increase their savings and thus assist in the government's anti-inflation program, the interest rate on savings bonds if held to maturity was fixed at 2.9%.

For securities outstanding the computed annual rate of interest amounted to 1.94% in June 1945 compared with 2.26% in June 1942. As may be seen in Table II, the major factor in this decline was the proportionate rise in certificates of indebtedness and notes outstanding.

Although these securities carried a low interest rate, they were a popular outlet, because of their high degree of liquidity, for business funds being built up during the war. The large increase in the holdings of government securities by nonfinancial corporations during World War II is shown in Table III.

Table III.—Ownership of Government Interest-Bearing Securities  
(Billions of dollars)

	End of month		June 1940	June 1945
Total amount outstanding	47.9	256.8		
Total held by banks	18.6	105.7		
Commercial banks	16.1	83.9		
Federal reserve banks	2.5	21.8		
Total held by non-bank investors	29.3	151.1		
Individuals	9.7	58.6		
Insurance companies	6.5	22.7		
Mutual savings banks	3.1	9.6		
Other corporations and associations	2.6	30.3		
State and local governments	.3	4.9		
U.S. government agencies and trust funds	7.1	24.9		

Source: U.S. treasury department, treasury bulletin.

Although the rate of interest on outstanding securities was very low, the actual interest charge on the public debt rose sub-

Table IV.—Debt of State and Local Governments, United States  
(Millions of dollars)

End of fiscal year	Total	State	County	Municipal	School district and special district
1929	17,234	2,300	2,270	9,259	3,405
1930	18,459	2,444	2,434	9,929	3,652
1931	19,534	2,666	2,564	10,458	3,846
1932	19,804	2,896	2,565	10,483	3,860
1933	19,985	3,018	2,521	10,577	3,869
1934	19,286	3,201	2,477	9,730	3,878
1935	19,429	3,331	2,433	9,778	3,887
1936	19,662	3,318	2,389	10,058	3,897
1937	19,594	3,276	2,345	10,067	3,906
1938	19,576	3,309	2,282	9,923	4,062
1939	19,996	3,343	2,219	10,215	4,219
1940	20,246	3,526	2,156	10,189	4,375
1941	20,183	3,370	2,046	10,210	4,357
1942	19,643	3,163	1,846	10,079	4,354
1943	18,645	2,862	1,634	9,784	4,365
1944	17,426	2,768	1,694	8,624	4,165
1945	16,532	2,338	1,525	8,589	4,050

Source: U.S. department of commerce.

stantially year after year because of the large increase in the debt total. From a figure of \$1,041,000,000 in the fiscal year



1940 actual interest payments for the fiscal year 1945 amounted to \$3,617,000,000.

**State and Local Government Debt.**—The figures on the debt of state and local governments, 1929-45, are shown in Table IV.

**Other Countries.**—Latest figures available for the national debt of leading countries are given in Table V. The debt of all belligerent countries rose precipitously in World War II and even some of the neutral countries had to increase government expenditures to an extent that made borrowing necessary. By and large, the one area of the world not subject to rising national debt totals during the war period was Latin America.

Table V.—National Debt of Various Countries

Country	Date of latest debt figures	Total debt in local currency* (1000,000)
<b>Africa</b>		
Egypt . . . . .	12/31/44	90.0 pounds
Union of South Africa . . . . .	12/31/44	519.0 pounds
<b>America, North</b>		
Canada . . . . .	3/31/45	11,298.4 dollars
Mexico . . . . .	12/31/43	1,916.6 pesos
United States . . . . .	6/31/45	259,116.0 dollars
<b>America, South</b>		
Argentina . . . . .	12/31/44	8,453.4 pesos
Brazil . . . . .	12/31/42	10,339.0 cruzeiros†
Chile . . . . .	12/31/44	5,936.1 pesos
Colombia . . . . .	5/31/45	310.9 pesos
Ecuador . . . . .	10/31/44	448.3 sucres
Peru . . . . .	6/30/44	1,303.8 soles
<b>Asia</b>		
India . . . . .	3/31/45	10,762.5 rupees
Japan . . . . .	3/31/44	77,554.8 yen
<b>Europe</b>		
Belgium . . . . .	3/31/45	196,382.0 francs
Bulgaria . . . . .	12/31/42	40,774.6 leva
Czechoslovakia . . . . .	12/31/38	52,950.0 koruny
Denmark . . . . .	12/31/43	2,529.0 kroner
Finland . . . . .	2/28/44	58,251.0 markkas
France . . . . .	4/30/44	1,417,018.0 francs
Germany . . . . .	12/31/44	351,000.0 marks
Greece . . . . .	3/31/40	52,746.2 drachmas
Hungary . . . . .	3/31/43	4,869.0 pengos
Italy . . . . .	6/30/44	653,000.0 lire
Netherlands . . . . .	7/31/44	12,103.0 guilders
Norway . . . . .	6/30/39	1,528.4 kroner
Poland . . . . .	3/31/39	5,317.8 zlotys
Portugal . . . . .	12/31/43	8,675.5 escudos
Rumania . . . . .	3/31/42	108,697.7 lei
Spain . . . . .	5/31/43	32,035.7 pesetas
Sweden . . . . .	7/31/45	11,163.8 kroner
Switzerland . . . . .	12/31/42	5,864.9 francs
Turkey . . . . .	5/31/39	610.4 pounds
United Kingdom . . . . .	3/31/45	22,398.1 pounds
Yugoslavia . . . . .	3/31/39	24,620.0 dinars
<b>Oceania</b>		
Australia . . . . .	3/31/45	2,588.8 pounds
New Zealand . . . . .	3/31/44	566.5 pounds

Sources: Statistical Yearbook and monthly statistical bulletins of the League of Nations; official government sources.

\*For approximate value of various currencies see *Exchange Control and Exchange Rates*.  
†Prior to Nov. 1, 1942, the official designation of the Brazilian currency unit was the milreis.

Because of the tremendous scale of military operations the national debt in the belligerent countries rose higher than in any previous war period. In the United Kingdom the national debt stood at £22,398,000,000 at the end of March 1945 compared with £8,301,100,000 in 1939. During this same period the Canadian national debt about tripled, to reach a total of \$11,298,000,000, while the Australian debt rose from £1,295,000,000 to £2,589,000,000. For most of the occupied countries little information on the national debt was available. However, some idea of the effect of war and occupation upon the finances of these countries could be gained from the case of France where the national debt rose from 352,210,000,000 francs in 1939 to 1,417,018,000,000 francs in the spring of 1944.

For Italy the available data showed an increase from 108,636,000,000 lire in 1935 to 653,000,000,000 lire in the summer of 1944. The national debts of the other axis powers were not released in complete form, but even the incomplete figures revealed huge increases. In Germany the national debt increased from r.m. 30,737,000,000 in 1939 to r.m. 351,000,000,000 at the end of 1944, while the national debt of Japan rose from 40,470,-

000,000 yen in 1942 to 75,555,000,000 yen in March 1944. (See also BUDGET, NATIONAL; GREAT BRITAIN; INCOME AND PRODUCE, U.S.; TAXATION.) (M. Gt.)

**Debts, Government:** see DEBT, NATIONAL.

## Decorations, Medals and Badges—Military, Naval and Civil.

Although World War II was not officially declared over at the close of 1945, the United States was planning and providing recognition for its returning heroes.

Early in 1945 congress provided for a World War II service medal. No attempt was made at that time to qualify service nor to give the medal a name; however, on Oct. 25, 1945, the U.S. war department announced authorization of a World War II victory medal ribbon which was designed by Arthur E. DuBois, consisting of two double rainbows in juxtaposition separated by a central band of red bordered in white. This ribbon represented World War II by the two double rainbows. The World War I victory medal ribbon consisted of a double rainbow in juxtaposition 36 mm. in width and was created by the Interallied board which met in Paris in 1919, whereas the World War II victory ribbon was created for the United States armed forces. The design for the medal was to be announced early in 1946.

On Oct. 25, 1945, announcement was also made that all individuals having served in the armed forces within the United States were also authorized to wear the American campaign medal ribbon.

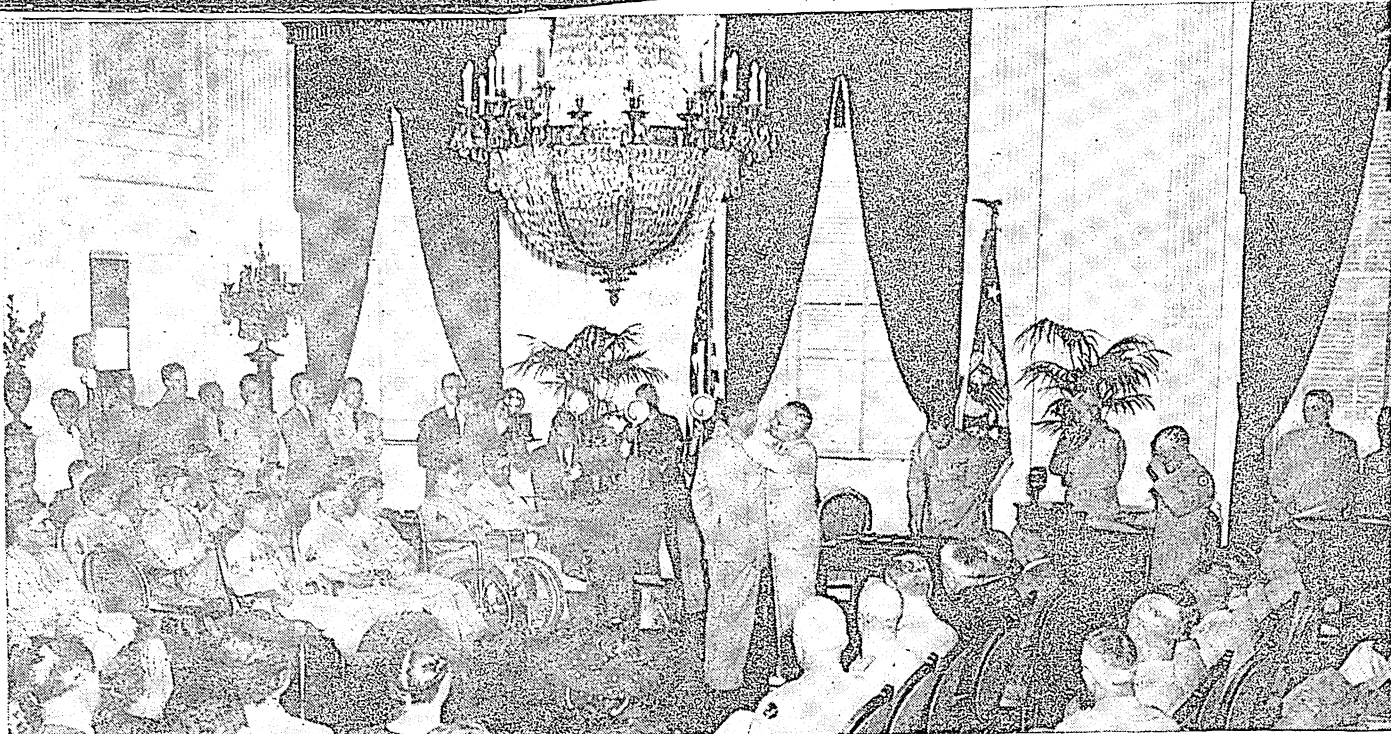
On July 6, 1945, the president signed executive order No. 9586 creating the medal of freedom for award to any person who on or after Dec. 7, 1941, performed a meritorious act or service which aided the United States in the prosecution of a war against an enemy or enemies and for which an award of another United States medal or decoration was considered inappropriate, or who had similarly aided any nation engaged with the United States in the prosecution of a war against a common enemy or enemies. This decoration was not to be awarded to a citizen of the United States for any act or service performed within the United States or to a member of the armed forces of the United States. It was designed by Thomas Hudson Jones. For grades of award, a bronze, silver or gold palm is added to the suspension ribbon of the decoration and to the service ribbon. The obverse shows the head of "Freedom" taken from the statue at the pinnacle of the capitol at Washington, D.C.

On July 2, 1945, congress passed a law for a Selective Service system medal to be furnished to those who gave their services to the draft boards, etc., for which no compensation was made. The first awards of this medal, designed by Thomas Hudson Jones, was to be made by the president of the United States on Jan. 21, 1946, when token awards would be made to one individual selected from each state. The obverse of this medal shows the seal of the Selective Service system. The ribbon is composed of blue and yellow.

Congress authorized in 1945 a U.S. antarctic expedition medal 1939-41, to be awarded to those who served with Admiral Richard E. Byrd. The design for this medal and ribbon had not been announced by the close of 1945.

The Coast and Geodetic survey was authorized by congress to have six ribbons to represent their service. DuBois also aided in the creation of these ribbons for: meritorious service, distinguished service, good conduct, defense service, Atlantic war zone, Pacific war zone.

The navy department created a commendation ribbon Jan. 11, 1944, but the military commendation ribbon, which is also green and white, was not announced until Dec. 18, 1945.



CONGRESSIONAL MEDAL OF HONOR was awarded to 28 veterans of the European and Pacific theatres by Pres. Truman on Aug. 23, 1945. Relatives and high ranking officials of the army and navy attended the ceremony at the White House

A U.S. war department exceptional civilian award decoration was approved Dec. 29, 1945.

On July 28, 1945, the medical badge was authorized by the U.S. war department to be furnished to those medical corps men of the army who had served in combat.

Among Great Britain's ribbons appeared:

- The 1939-45 star—blue, red, light blue
- The Africa star—yellow, red, yellow—in each yellow portion a stripe, one is dark blue—the other light blue
- The Atlantic star—a variegated colour ribbon starting with dark blue to white in centre and ending in green
- The air crew Europe star—black, yellow, light blue, yellow, black
- The Italy star—red, white, green, white, red
- The France and Germany star—blue, white, red, white, blue
- The Pacific star—red, dark blue, green, yellow, green, light blue and red
- The Burma star—blue, orange, blue, red, blue, orange and blue
- The defense medal—green, black, green, red, green, black and green.

(A. E. Du.)

**Defense, Civilian:** *see* CIVILIAN DEFENSE.

**Defense Board, Economic:** *see* FOREIGN ECONOMIC ADMINISTRATION.

**Defense Communications Board:** *see* WAR COMMUNICATIONS, BOARD OF.

**Defense Research Committee, National:** *see* SCIENTIFIC RESEARCH AND DEVELOPMENT, OFFICE OF.

**Defense Transportation, Office of.** During the first half of 1945, or until V-J day, the Office of Defense Transportation continued to exercise its functions under executive order 8989, to enforce existing regulations affecting transportation, and to place new restrictions on highway, waterway and pipeline transportation in the United States. After V-J day it began a process of revoking and relaxing restrictions until only a few controls remained at the end of the year; at the same time the ODT personnel was reduced by successive steps foreshadowing the dissolution of the agency in 1946.

Until after V-J day the ODT carried on and secured popular support for a vigorous campaign to reduce civilian passenger travel in order to free railroad equipment for war-connected traffic. Rail equipment for heavy troop movements was also provided by the elimination of sleeping car runs under 450 miles; shortening of advance passenger space reservation time to 5

days, later changed to 14; assignment of about two-thirds of all Pullman sleeping cars to military use; and making all passenger coaches available for military use under ODT supervision.

In Oct. 1945, government possession and operation of the Toledo, Peoria and Western railroad, which had been operated by the ODT from early in 1942, was terminated. The Illinois Central railroad was taken into the possession of the government in Aug. 1945, following an unsettled labour dispute. However, the government directed the railroad management to continue operations in the usual manner.

To meet railroad manpower shortages on the west coast, the ODT joined with the army and other war agencies in a railway manpower recruiting campaign. Special deferments for railroad workers were obtained from Selective Service and the army released a number of experienced railroad workers.

The ODT, during the latter half of 1945, particularly after V-J day, lifted numerous highway transport restrictions and regulations governing certificates of war necessity, motor truck deliveries, inter-city buses, agricultural industry transportation, for-hire motor carriers, 35-mile an hour speed limit, automobile racing and the rationing of new commercial motor vehicles.

By Nov. 1, 1945, the ODT had returned to private operation all of the 103 midwest trucking lines it had taken over in Aug. 1944 to prevent disruption of service during the labour disputes. On Aug. 16, it terminated its control over more than 1,600 motor transportation lines in Chicago and vicinity, taken over for the same reason in May 1945. On July 8, 1945, the ODT relinquished possession and control of the Scranton, Penn., Transit Co., which was seized on June 16 after a strike.

The first half of 1945 saw large quantities of bulk commodities—petroleum and its products, iron ore, coke, grain and sulphur—moving on the nation's waterways under ODT supervision, as well as the building, under ODT sponsorship, of an additional fleet of steel tank barges.

During the entire war period inland waterways handled a grand total of 1,731,034,485 barrels of petroleum and its products, 345,835,040 tons of iron ore, 62,827,283 tons of limestone, as well as enormous quantities of coal, grain, sulphur and other bulk commodities. Termination of hostilities enabled ODT to remove completely its controls over inland craft.

The ODT during 1945 expedited liquid rail shipments by imposing extra demurrage charges on idle tank cars; by requiring daily telegraphic reports on the location and status of

every car and by requiring loading and unloading crews to work around the clock. ODT controls over the shipment of all liquids were lifted Sept. 20, 1945.

Under the War Production board's Controlled Materials plan which terminated Sept. 30, and the earlier Production Requirements plan, the ODT, as claimant agency for transportation reported that major transportation items produced during the three-and-one-half years ending June 30, 1945, included 1,082 steam, 1,741 Diesel electric, 38 electric locomotives; 155,002 freight cars, 1,200 troop sleepers and 400 kitchen cars; 181,146 trucks and tractors; 19,580 integral buses; 5,572,392 tons of replacement rail. Twelve hundred more troop sleepers and 400 kitchen cars were scheduled for completion by the end of 1945, and the production of 750 passenger cars—the first authorized after 1942—was scheduled to begin late in 1945 for completion by July 1, 1946.

The activities and personnel of the Office of Defense Transportation were sharply reduced immediately following the cessation of hostilities. Its remaining 103 district offices, 39 field offices and 8 regional offices of the highway transport department were closed in successive stages by Dec. 1, 1945. Fourteen railway department field offices were closed by November.

At the same time more than 23,000 special ODT advisory committees were dissolved. These committees, whose members numbered approximately 103,000, serving without compensation, co-operated with the ODT in gathering information, formulating policies, and executing various plans designed to secure the fullest utilization of all transportation equipment in the interest of the war effort.

By Jan. 1, 1946, all wartime controls on transportation were lifted except those necessary to provide adequate rail transportation for troops being returned from the European and Pacific theatres of war. The ODT was scheduled to be fully liquidated by June 30, 1946. (See also ELECTRIC TRANSPORTATION; MOTOR TRANSPORTATION; RAILROADS.) (J. M. J.)

**De Gaulle, Charles:** see GAULLE, CHARLES DE.

### Deland, Margaretta Wade (Campbell)

(1857-1945), U.S. writer, was born Feb. 23, at Allegheny, Pa. Her works, set in Maine or Pennsylvania backgrounds, first received wide attention with the publication of *John Ward, Preacher* (1881), which stirred the reading public of two continents into protest against its supposed irreligion. The honour of becoming one of the first women to be elected to membership in the National Institute of Arts and Letters was bestowed upon Mrs. Deland in 1926. Her works include *The Old Garden*, verse (1886), *Around Old Chester* (1915), *The Kays* (1926), *Captain Archer's Daughter* (1932), *If This Be I (As I Suppose It Be)* (1935) and an autobiography, *Golden Yesterdays* (1941). Mrs. Deland died in Boston, Jan. 13. See *Encyclopædia Britannica*.

**Delaware.** Delaware is on the middle Atlantic seaboard and is one of the 13 original states. The state is popularly called the "Diamond state" but it is also known as the "First state," having been the first, on Dec. 7, 1787, to ratify the federal constitution. Area 2,399.2 sq.mi. (land 1,961.7; inland water 437.5). Population (1940), 266,505, of which 139,432 were urban and 127,073 rural. Native white numbered 215,695; foreign born 14,913; Negro 35,876. The principal city is Wilmington, 112,504 (1940), and Dover is the capital with a population of 5,517 (1940). On July 1, 1944, the bureau of census estimated the civilian population of the state at 283,802.

**History.**—Soon after V-J day World War II production

terminated and reconversion began. The state council of defense and other wartime agencies finished their work and Forts Delaware and duPont, which had long guarded the shipping lanes of the vital Delaware river area, were closed by the war department. Despite the fact that construction and other peacetime industries absorbed a number of employees, factory employment decreased 22% and pay rolls dropped about 18% after V-J day. Most of the loss of employment was in the shipyards and machine shops of the Wilmington area. The housing situation was critical throughout the state and there was an acute shortage of men's clothing which was accentuated by the returning veterans. Delaware's nearly 30,000 men and women in the armed forces were returned to civilian life at the rate of about 1,000 per week during the last three months of 1945. During the closing months of 1945, food prices were 0.4% higher, and fuel and light costs increased 0.5% over the corresponding period of 1944. Wholesale and retail sales were approximately 5% and 10% respectively greater than in the previous year. Marriages and deaths in the state were less during 1945 than in the previous year but births amounting to about 6,300 for the 11-month period increased 5%.

The state legislature met in January and continued in session for 60 legislative days. Among the principal enactments were: establishment of the family court; modification of election and banking laws; inauguration of state pension system; and an act for a Delaware river crossing. The governor was Walter W. Bacon; U.S. senators, C. Douglass Buck and James M. Tunnell, Sr.; congressman, Philip A. Traynor; secretary of state, William J. Storey; adjutant general, Paul R. Rinard; attorney general, Clair J. Killoran; and W. Watson Harrington, chancellor. Charles S. Richards, formerly resident judge of Sussex county on the state supreme court, became chief justice and James B. Carey succeeded him as resident judge.

**Education.**—In the 127 elementary and 46 secondary schools there was a total enrolment of 42,315 during 1945. Despite a critical shortage of teachers the staff of 1,589 was maintained through the use of teachers with temporary certificates. The percentage of such certificates (outside of the city of Wilmington) was 15% during 1945 as compared with 11% for the previous year. None of the state's schools were closed because of lack of personnel but it was necessary to discontinue some agricultural, physical education and manual training courses. Again the state board of education reappointed Dr. H. V. Holloway to the office of state superintendent of public instruction.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—There was a noticeable increase in the number of cases and the amounts spent for welfare during the first 11 months of 1945. Total expenditures for 3,817 relief cases were \$112,854.62; for 14,710 old-age assistance cases were \$272,052.21; and \$242,345.52 for 3,115 cases of aid to dependent children. Unemployment compensation payments totalled \$1,047,068.60 during 1945, of which \$210,288.00 was paid for 2,762 veterans' readjustment claims. Statistics for the state's penal institutions were not available.

**Communications.**—During 1945 there were 3,898.3 mi. of highways under state control. Expenditures during the year were \$3,076,997.17 as compared with \$2,621,161.08 in 1944. The federal aid contribution in 1945 was \$156,015.22 as compared with \$279,969.04 in 1944. There was an increase in traffic on the state highways of 22.73% during December of 1945 over that of the same month of the previous year. The railroad mileage was approximately 279. Water-borne commerce statistics were available for only the port of Wilmington and the Delaware and Chesapeake canal. The tonnage of the Wilmington marine terminal for the first 11 months of 1945 was 209,098 as compared with 610,671 tons during the same period of 1944. The tonnage



of cargo handled through the Delaware and Chesapeake canal dropped from an all-time high of 5,449,024 in 1944 to 3,645,915 tons in 1945. The 12 airfields of the state were either under control of the armed services or were closed to civilian traffic. As of Oct. 31, 1945, there were 69,605 telephones in use throughout the state.

**Banking and Finance.**—There were 42 state banks, mutual savings and trust companies in operation during the fiscal year 1944-45 with resources of \$493,276,718.52, an increase of \$45,006,521.32 over the previous year. The deposits amounting to \$443,360,368.98 increased by \$42,699,102.91. The 13 national banks had resources of \$39,081,601.15 and deposits of \$34,411,042.92 respectively. The 39 building and loan associations had resources of \$16,014,115.53, an increase of \$858,296.43. The state budget (fiscal year 1944-45) was \$8,945,422.86, the receipts \$13,875,482.07 and the expenditures \$11,520,782.45. The gross debt of the state was \$4,481,000.

**Agriculture.**—The total value of all agricultural production (Jan.-Oct.) amounted to \$71,224,000. Of this sum \$12,462,000 was the value of the crops and the livestock was valued at \$58,762,000. The estimated value of crops for all of 1945 was \$18,899,000. In addition to these figures the production of the broiler industry was estimated to be between \$55,000,000 to \$60,000,000 as compared with an estimated \$47,693,000 in 1944. Government payments are not included as they were not available. Fruit crops were unfavourably affected by an early warm spell followed by a freeze just as fruit was blossoming. The wet period in July caused a considerable loss in yield of tomatoes as well as loss in other truck crops. Some grain was lost during this period. The season was generally good for grain and hay.

Table I.—Leading Agricultural Products of Delaware, 1945 and 1944

Crop	1945	1944
Corn, bu. . . . .	4,224,000	3,645,000
Apples, bu. . . . .	308,000	870,000
Hay, tons . . . . .	109,000	97,000
Wheat, bu. . . . .	1,306,000	1,280,000
Tomatoes, tons . . . . .	30,000	64,000
Strawberries, crates . . . . .	44,000	54,000
Lima beans, tons . . . . .	9,880	3,220

**Manufacturing.**—The total estimated value of manufactures for the Nov. 1, 1944, to Oct. 31, 1945, period was \$220,257,162.04. Total employment statistics for the whole state were not available but 456 plants of the Wilmington industrial area reported a decrease of 9,345 employees as of Nov. 15, 1945, when total employment was 51,966 as compared with 61,311 for the same time in 1944.

Table II.—Principal Industries of Delaware, 1945 and 1943

Industry	Value of products	
	1945	1943
Chemicals . . . . .	\$43,203,298.91	\$22,333,203.62
Shipbuilding . . . . .	63,294,890.65	57,213,700.04
Leather . . . . .	11,501,630.82	8,510,131.61
Foundries, machine shops, tools . . . . .	33,603,377.62	35,454,394.14
Fibre . . . . .	24,407,180.44	2,988,317.81
Textiles . . . . .	35,603,254.65	35,070,462.60
Canning and packing . . . . .	872,732.09	1,216,774.15

**Mineral Production.**—The chief products, building stone, granite, sand, brick and clay products, had a total value of \$203,705.06 (Oct. 31, 1945) as compared with \$320,409.82 for the same period of 1944. The termination of federal construction and the lag in civilian building due to lack of other supplies was reputed to be the cause of the decrease.

**BIBLIOGRAPHY.**—Books of 1945: A. O. H. Grier, *This Was Wilmington* (1945); Rebecca Jean Brownlee, *The Income Tax in Delaware* (1944); Henry Seidel Canby, *Family History* (1945). (L. D. V.)

**Democracy.** Democracy is not only a technique of government, based upon freely elected representative institutions, and upon an executive responsible to the people; it presupposes also the belief in the dignity of every individual and his inherent rights to freedom of thought and expression. It

rejects all totalitarian forms of government and recognizes spheres of individual freedom, protected by law against government interference. Democracy demands a spirit of tolerance and compromise which emerges in the interplay of several parties, in the free discussion of various viewpoints.

In the year 1945 democracy reasserted itself and began definitely to overcome the long period of distrust which had set in after World War I. The victories of the United States and of Britain against the fascist powers strengthened the faith and confidence in democracy. In the countries of western and northern Europe, civic liberties, equality of all before the law, and a due regard for objective justice were quickly re-established and fascist legislation abolished. In France, Belgium, the Netherlands, Luxembourg, Norway and Denmark the democratic institutions were again functioning in 1945. Greece enjoyed complete liberty of press and of assembly by the end of the year and democratic elections in which all parties could compete were scheduled for spring 1946. Full freedom of these elections was assured.

Wherever such freedom of elections was assured and opposition candidates could present themselves at the polls, the elections held confirmed everywhere the trend away from all forms of totalitarianism to democracy. This was the more remarkable because all these countries suffered from an unprecedented economic misery and from much administrative chaos in the wake of the long years of war.

Free elections in which opposition parties were represented were held in 1945 on the European continent in France, Luxembourg, Norway, Denmark, Finland, Austria and Hungary. In Norway and in Denmark, as in Great Britain, the moderate socialist or labour parties gained the strongest representation; in Norway the labour party received the absolute majority and formed the government; in Denmark the bourgeois parties of the centre and the right received 83 seats against 47 for the Social Democrats and 18 for the Communists. In Luxembourg the Catholic party received most of the votes; together with the Social Democrats they had 34 out of 51 seats and formed the government. In Finland the bourgeois parties received about one-half of the votes, the Social Democrats one-fourth and the Communists one-fourth. The same proportion prevailed in France, where the Communists, the Social Democrats, and the Catholic republicans emerged as the three strongest parties. In Austria and in Hungary the Catholic Agrarian parties received a clear majority of the votes and seats while the Communists lost heavily, especially in Austria. On the whole, the trend on the continent of Europe, wherever full freedom of expression and election existed, went to the two democratic parties of the centre, the Progressive Catholics and the Social Democrats.

In Britain the Labour party received 393 out of the 640 seats in the house of commons. The popular vote was not so overwhelmingly labour as the distribution of the seats might suggest. Labour received 11,962,678 votes, the Conservatives 9,018,235 and the Liberals 2,280,135 votes. The radical parties of the left made a very poor showing: Commonwealth received 1 seat; the Communists 2 seats, a gain of 1.

Outside the countries where democracy had a long established tradition, democracy was at least recognized as a desirable goal. That was also the case in the soviet union and in China. In Brazil, free presidential elections were held. General Enrico Gaspar Dutra, the president-elect, wished Brazil's forthcoming constituent assembly to draft a "completely democratic" constitution after the model of the United States. In Venezuela a revolution under Romulo Betancourt proclaimed its democratic aims directed as much against the dictatorship of entrenched wealth as against the totalitarianism of communism. Thus after 20 years, when under attack from communism and fascism the

prestige of democracy had been falling, the year 1945 witnessed everywhere a new rise in the appreciation of the freedom and dignity, of the results and benefits of the democratic way of life. (See also COMMUNISM; EDUCATION; FASCISM; GREAT BRITAIN; UNION OF SOVIET SOCIALIST REPUBLICS; UNITED STATES.)

FILMS.—*Democracy* (Encyclopædia Britannica Films Inc.).

(H. Ko.)

**Democratic Party.** The Democrats at Washington shifted from a war-making to a peace-making and reconversion administration throughout most of 1945, and promptly discovered that postwar problems presented greater difficulties, politically, than repelling the axis threat against the "democracies" of the world.

As the year ended, international differences suppressed during the war emergency beset President Harry S. Truman, who succeeded Franklin D. Roosevelt on April 12. Labour strife swept the country, based on the unions' demands for higher wages. Republicans and conservative Democrats inside and outside congress, released from the pressures and restraints of the win-the-war spirit, combined to block Truman's major proposals for social, labour and economic reforms on the domestic front.

The prolonged stalemate between the White House and Capitol hill gave deep concern to Democratic political strategists, who conceded that the administration's lack of accomplishment in the months after V-J day might affect adversely their chance of holding a congressional majority in 1946 and Truman's own prospect of election in 1948. They were especially fearful of resentment among the various powerful voting blocs—labour, liberal, racial—which had enjoyed so many benefits under the Roosevelt regime, and demanded more of the same from his successor.

The president's legislative reverses derived from an active and avowed alliance of southern conservatives and Republicans. Even before the United States entered the war in 1941, these conservatives and Republicans had begun to oppose Roosevelt's more advanced program, but, as new domestic reforms were forgotten or withdrawn during the military crisis, they had become quiescent.

With the return of peace, these conservatives and Republicans reasserted their opposition even more violently and effectively. Moreover, to their surprise, they discovered that Truman was fully as "New Dealish" as his predecessor, whereas they had anticipated that the former senator and vice-president would be more restrained in his demands on them for legislation.

Toward the close of 1945, the exasperated Truman indulged in sharp criticism of his former colleagues, accusing them over the radio and in press remarks of "letting him down" and "stalling" on his reconversion program. His accusation did not improve relations, and his own leaders rebelled. It also enabled the opposition to charge that the Democrats were so hopelessly divided that their own president had to castigate them—an indictment which the Republicans did not fail to make.

A year-end headline in a Washington, D.C., newspaper aptly described the relationship between president and congress: "Congressmen still call him 'Harry,' but block most of his plans." Presidential "must" proposals that were blocked or sharply modified during 1945 included the following: compulsory universal military training; a labour disputes fact-finding agency with provision for a 30-day cooling-off period before a strike; a broad public health program; domestic control of atomic energy; unemployment compensation expansion; a full employment bill; a minimum wage increase measure; a permanent Fair Employment Practices committee; federal aid for housing and slum clearance.

Even the grants which congress gave him fell short of the president's original requests, but he accepted them. The legis-

lators authorized him to reorganize the government departments, but with less sweeping power than he asked. They extended the Second War Powers act until June 30, 1946, whereas Truman had requested a year's extension. They passed a \$6,000,000,000 tax reduction bill, but it differed sharply from the treasury's recommendations.

President Truman fared better with respect to action on his foreign proposals, but in this instance most of them had been advanced by Roosevelt before his death. The lawmakers committed the U.S. to membership in the United Nations organization with authority for that body to employ U.S. forces to preserve world peace.

Congress also provided for expansion of the Export-Import bank. It authorized creation of an International Bank for Recovery and Development and an International Monetary Fund. It appropriated funds to complete the U.S. contribution to the United Nations Relief and Rehabilitation administration.

National Chairman Hannegan, and presumably President Truman, were particularly disturbed over Democratic leaders' opposition to legislation benefiting labour and racial elements in the electorate. The proposal to establish a statutory FEPC, which was designed to bar employment discrimination based on colour, creed or national origin, was held up by a few southern Democrats in the Rules committee. Their failure to act promptly, despite Truman's intervention, made restless the prospective beneficiaries in large industrial centres.

Labour legislation (the full employment and the expanded unemployment compensation bills) was shelved by Rep. Carter Manasco of Alabama and Rep. Robert L. Doughton of North Carolina—chairmen, respectively, of the House Expenditures and Ways and Means committees. Punitive bills, imposing financial penalties on striking unions and depriving them of Wagner act benefits under certain circumstances, were sponsored by Rep. Howard W. Smith, an old-line Virginia Democrat.

These evidences of anti-labour feeling among administration leaders, together with Truman's suggestion for a 30-day cooling-off period before a strike in key industries, caused the first rift between a Democratic president and the Congress of Industrial organizations in 13 years. President Philip Murray characterized Truman as an "enemy of labour"—a remark which surprised some of his own associates. John L. Lewis, president of the United Mine Workers, was equally caustic.

These possibly prophetic signs of unrest forced National Chairman Hannegan to intensify organizational efforts in preparation for 1946 and 1948. He made more trips and speeches; he shook more hands, and he visited more state and local leaders than any predecessor save James Aloysius Farley.

Hannegan expanded and reorganized the publicity bureau. He selected Sam A. O'Neal as director of publicity to succeed the ageing Charles A. Michelson. O'Neal, a veteran Washington correspondent for St. Louis and Chicago newspapers, took to his typewriter and to the road more frequently than any party publicist since the early days of the New Deal.

Organization Democrats and party bosses enjoyed more patronage under Truman than they had under Roosevelt, due largely to Hannegan's promptings. The national chairman obviously relied on the four-times-successful Roosevelt formula for future triumphs at the polls—a combination of the solid south, the labour and racial vote in great metropolitan centres and the political machines in key cities of the northeast and midwest.

The Democratic leadership on Capitol hill underwent a few changes during 1945. When Truman quit the vice-presidency, Sen. Kenneth McKellar of Tennessee was elected president pro tem of the senate. Sen. Alben W. Barkley of Kentucky remained as majority leader, with Senator Lister Hill of Alabama as his assistant.

Sam Rayburn of Texas continued as speaker of the house of representatives, and John W. McCormack of Massachusetts as majority leader. Rep. John J. Sparkman of Alabama was named as McCormack's aide. He succeeded Robert Ramspeck of Georgia, who resigned to accept a private position.

Deaths, defeats and resignations in 1945 lowered the Democratic membership in both bodies. In the senate their number had dropped from 58 to 56 at the end of the year, while the Republicans increased from 37 to 39. The Progressives had one seat—Robert M. La Follette, Jr., of Wisconsin.

In the house the majority lost five places, slipping from 241 to 236. The Republicans held their own at 190. There were two members of minor parties—one Progressive and one American Labour—and seven vacancies.

(See also UNITED STATES.)

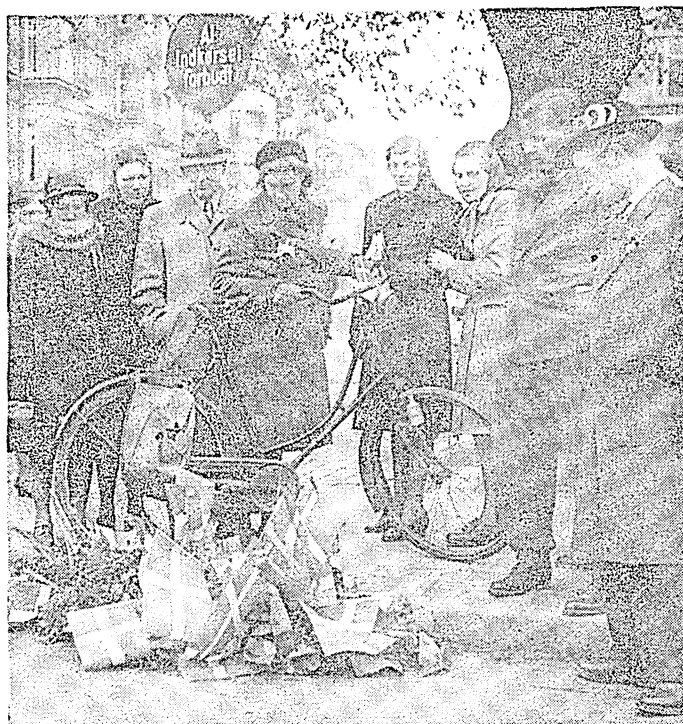
(R. Tu.)

## Dempsey, Sir Miles Christopher

(1896– ), British army officer, was born Dec. 15 in Cheshire, England. He left the Shrewsbury school in 1914 to enter World War I and joined the Royal Berkshire regiment as 2nd lieutenant in 1915. He served in France, Belgium and Iraq. In 1921 he became a captain, in 1932 a major, and was promoted to lieutenant colonel in 1938. He won his first renown in the famous rear-guard action which enabled the British to evacuate hundreds of thousands of troops from Dunkirk in May 1940 during World War II. He distinguished himself again when, as acting lieutenant general, he commanded the famous 13th corps of Gen. Montgomery's 8th army which chased Rommel across Africa from El Alamein to Libya late in 1942. In 1944 he went to Normandy as commander of the British ground forces in the invasion of France, for which he was knighted after D-day. Dempsey's British 2nd army entered Germany for the first time, Jan. 16, 1945. Operating with the Canadian 2nd army, his force later helped to cut the escape route for German forces in the Netherlands. In March, Dempsey's 2nd army reached the Rhine and crossed the river near Wesel. As the war in Europe ended, Dempsey's forces were deep in north Germany:

**Denmark.** A monarchy of north central Europe. Area, 16,575 sq.mi.; pop. (est. 1940) 3,844,312. Capital: Copenhagen (700,465). Other principal cities: Aarhus (99,881); Odense (87,521); Aalborg (55,652). Religion: Lutheran Christian. Ruler in 1945: King Christian X (*q.v.*); prime minister after the liberation from German rule, May 4 to Nov. 3, Vilhelm Buhl; after the fall elections, Knud Kristensen.

**History.**—The last months of World War II built up to a crescendo of terror and sabotage in Denmark. Gasoline depots were blown up, factories making things for the Germans were destroyed, a great explosion wracked the cruiser "Nuernberg" lying in Copenhagen harbour; but most important of all was the utter disintegration wrought upon rail transportation, stopping the flow of food, materials and soldiers through the country. Hitler's last birthday was celebrated grimly in Denmark by blastings of bridges and rail switches every four minutes. Altogether the Danes counted up 8,350 cases of railway blowups in the five years of war. Major acts of sabotage were numbered as: 1940, 25 acts; 1941, 100; 1942, 280; 1943, 820; 1944, 930; 1945, 680 (four months). These acts were carefully planned, co-ordinated through the Danish Freedom council and aided in various ways by materials and information flown in from Britain. The effectiveness of the program was signaled by a special bulletin of appreciation to the Danes from Gen. Dwight D. Eisenhower. Secret armed forces at the time of the German surrender numbered 55,000. During the war years about 225 illegal underground papers were published, total



MEMORIAL of flowers and Danish flags mark the place in Copenhagen where a Danish patriot was killed. The city was liberated in May 1945

copies issued in 1944 numbering 12,300,000. In addition about 1,100,000 underground books were published, their sale helping support the "fight for freedom."

In general Denmark suffered less than most of the occupied countries. Hitler had hoped to make it his "model protectorate" and Germany needed all the food production it could get from friendly co-operation. Yet Danish resentment at the attack on its freedom brought inevitable reprisals. As the result of the occupation, 3,006 Danes died; of these 1,281 were sailors in the merchant marine. During the war 41 Danish ships sailed for the U.S.; only 17 survived. In June there were 78 ships ready to return from British to Danish registry; another 71 ships were lost in British service. Within the country the war-incidence of disease increased tragically the cases of tuberculosis, meningitis, scarlet fever, diphtheria and venereal diseases. The presence of about 350,000 war refugees complicated social and housing problems.

Denmark watched eagerly the vast pincers movement closing in on Germany in April 1945. Germans began to leave Denmark on May 1, but the movement then slowed, and only on May 4 was it formally announced that they would surrender to Gen. Bernard L. Montgomery. Some Danish prisoners, freed by the negotiations of Count Folke Bernadotte, reached home on May 2. Once under way the German disintegration was rapid, and the Danes quickly took charge of their government. Field Marshal Montgomery was feted in the capital and decorated with the Order of the Elephant. On May 4 King Christian X asked the former premier, Vilhelm Buhl, to form a cabinet, and on May 9 the old Rigsdag reassembled. Fritz Clausen, leader of the Danish Nazi party, and K. B. Martinson, chief of the former Schalburg corps, were arrested. Princess Helena, wife of the king's brother, Prince Harald, was expelled from the country with the king's approval because of her pro-German activities during the war. The people demanded vigorous prosecution of all collaborators and war criminals. But the Freedom council, the wartime political executive, held its only meeting "above ground" and its last on May 9.

Eager as was Denmark to participate in the discussions creating a new world organization, it could not at first do so



because it was not in a legal state of war with Germany and because there was not an official Danish "government-in-exile." As soon as liberation made it possible, the Danish government sent a delegate to the San Francisco conference, and by a special polled vote Denmark was admitted to the conference as the 50th country—June 5, 1945. On Sept. 11 the government ratified the United Nations agreement.

The old question of the Slesvig (Schleswig) boundary inevitably recurred, though most Danish leaders professed a desire to leave the line where it had been fixed by the plebiscite at the close of World War I. Anxiety grew, however, as some 300,000 Germans, displaced from the eastern areas of Germany, crowded into the German part of the duchy, creating there a strong population pressure. Because of its central geographic position, Denmark found itself liberated largely by the western Allies, but in the island of Bornholm, by the Russians.

In the Faeroe Islands the British wartime occupation withdrew and the Danes became busy with plans for reintegration of the region with Denmark. Iceland's final separation from the Danish crown was of course accepted. A ship was sent out to Greenland to thank the U.S. personnel and to greet and re-establish contact with the islanders. The U.S. army air force weather service offered to give Denmark four of the weather stations built in the Greenland area.

The elections of late October were notable in several respects. In the last elections, in 1943, the Germans had not permitted the Communists to enter the race, and the party leaders were arrested. In 1945 the government decided it was only fair to aid the Communists to re-establish themselves, hence loaned them 750,000 kroner (1 krone=19.308 U.S. cents in 1940) for organization and publication. The Communists won 18 seats in the lower house of the Rigsdag, but the Social Democrats won only 48 (down 18 from the 1943 figure), hence the left wing was left with the same number of seats. The Liberals increased their representation from 28 to 38, the Conservatives dropped from 31 to 26, the Radicals from 13 to 11, the Georgists increased from 2 to 3 and the Nationalists (Centre) from 3 to 4. The slight gain for the right wing caused the coalition premier, Social Democrat Vilhelm Buhl, to resign. On Nov. 3 the king asked the Agrarian (Liberal) leader, Minister of the Interior Knud Kristensen, to form a government. The election of course brought a pause in the nationalization program, but left the total situation still unclear.

**Education.**—In 1940 there were 407,355 students in the elementary schools and 67,064 in the middle and secondary schools. In the two Danish universities 6,474 students were enrolled. Even during the war about one-third of Denmark's famous folk high schools continued to function.

**Economic and Financial Conditions.**—Agricultural production was down only slightly in 1945, and Denmark was eager to resume export of foodstuffs on a large scale. Sympathy for the plight of the Netherlands led to a gift of 250,000 eggs and more than 200,000 lb. of oatmeal and other foodstuffs. Regular commerce recovered slowly, however, because of the disruption of traffic and finance elsewhere. Denmark negotiated by Sept. 1 a number of trade agreements with Sweden, Poland, Great Britain, Norway, Belgium and Luxembourg; and also a \$20,000,000 credit with the U.S., interest at 3½%, payable by 1966. This credit was to be used for the following purchases in the U.S.: iron \$4,000,000; yarn \$2,000,000; coal and oil \$4,000,000; tobacco \$1,280,000; chemicals \$1,000,000; plus quantities of synthetic rubber and manufactured tires. Sweden also extended loans or credits to a total sum of 230,000,000 kroner.

In order to regain control of its currency and to check inflation and profiteering, the government required the exchange of all notes issued prior to 1943 for new notes. Concern was

profound because of the swollen note circulation and the inability to purchase needed supplies from abroad. (F. D. S.)

**Denny, Harold Norman** (1889-1945), U.S. war correspondent, was born March 11, in Des Moines, Ia. A former student at Drake university, he turned to newspaper work in 1913 and was a reporter and copy editor for papers in Des Moines, St. Paul and Minneapolis. When the United States entered World War I, he enlisted and fought in the Lorraine, Champagne, Aisne-Marne and the Meuse-Argonne battles. He joined the staff of the *New York Times* in 1922 and during the following 23 years covered wars and rebellions all over the world. He reported the Moroccan campaign in 1926, and saw action with the U.S. marines in Nicaragua in 1928 and in Cuba in 1930. Crossing the Atlantic, he reported the Ethiopian war, 1935, the Russian invasion of Finland, 1939, and the German blitzkrieg through France, 1940. After the fall of France, he was assigned to North Africa where he was captured in Nov. 1941 by Rommel's Afrika Korps which turned back Sir Claude Auchinleck's army at Halfaya pass. Denny was repatriated in 1942 and wrote a book of his experiences, *Behind Both Lines* (1942). He was in England again in preparation for the invasion of France and was with Gen. Courtney Hodges' U.S. 1st army in its advance to the Ardennes forest. He was on the spot when Aachen fell and witnessed the junction on the Elbe of U.S. and Russian troops. One of his most notable assignments was in Moscow, 1934-39, where he reported the treason trials and purges of 1936-38. His series of uncensored articles were the object of diplomatic protest. Denny died of a heart attack in Des Moines, July 3.

**Dental Association, American:** see AMERICAN DENTAL ASSOCIATION.

**Dentistry.** Dental infections both acute and chronic, long a serious problem, had previously been treated surgically, frequently with loss of teeth and other tissues. Fortunately the organisms ordinarily found in infections in the mouth are susceptible to penicillin.

Vincent's infection or trench mouth was exceedingly prevalent both in military and civilian life. In one review of penicillin treatment of this condition, 43 patients were treated with 25,000 units intramuscularly every three hours. All patients were cured. Fusiform bacilli and spirochetes were not detectable after 48 hours except in patients with dental caries. An evaluation of penicillin therapy at the National Naval Medical centre, Bethesda, Md., based on 1,455 cases treated, found that in stomatitis and Vincent's angina, treated with 20,000 units of penicillin intramuscularly every two hours for two or three days, "good results" were obtained. In another investigation patients with Vincent's infection were divided in four groups. Group one was treated with 3% chromic acid and 10% silver nitrate, preceded by gargling with equal parts of 50% sodium perborate and 50% hydrogen peroxide. The second group received 1-gm. doses of sulfadiazine used as lozenges every four hours. The third group was treated with penicillin applied on a swab every four hours in concentrations of 250 to 500 units per c.c. Group four patients were treated with penicillin intramuscularly. The patients in group three responded much more rapidly than those in groups one and two. It was concluded that the topical application of penicillin in a concentration of 500 units per c.c. four times a day is a rapidly effective therapeutic procedure in the treatment of Vincent's angina. Another report, however, indicated the high value of intramuscular injections for this condition.

Actinomycosis or lumpy jaw is not a common but a persistent and troublesome disease. That "penicillin is the most effective therapeutic agent we have in the treatment of actinomycosis" was the report made by two investigators (J. M. Walker and J. W. Hamilton, *Annals of Surgery*, March 1945 [Lippincott]). These investigators also reported favourable results in osteomyelitis, a serious infection of the bone.

In its early use, penicillin was administered either intramuscularly or intravenously, but injection directly into the infected area and administration by mouth were gradually gaining favour. In the opinion of one group, penicillin instilled locally results in a much higher concentration at the site of infection than that obtained in the blood with a corresponding higher percentage of favourable results.

The author of this article, in a series of 35 cases of acute and chronic infections of the jaws and supporting tissues of the teeth, found that penicillin in doses of 25,000 units injected directly into the infected areas three or more times brought remarkably favourable results.

Penicillin in agar pastilles dissolved in the mouth provides "the best form of therapy known at the present time" for the treatment of Vincent's infection, is the opinion of another group. The pastilles were placed between the gum and the cheek and were replaced every four hours.

By this method a therapeutic concentration of penicillin in the saliva could be maintained.

Haemorrhage has always been an occasional complication of surgery in the mouth which has a bountiful blood supply. Various agents had been used to control bleeding, one of the most effective being adrenalin, the active principle of the adrenalin gland.

During 1945 marked advances were made in knowledge of the various factors contained in the blood. As a result of the studies of Cohn of the Harvard Medical school, Cambridge, Mass., a substance called fibrin foam was developed for use in control of haemorrhage. In an article on the "Use of Fibrin Foam in Dental Operations," four cases were reported in which fibrin foam and thrombin were successfully used to control post-operative haemorrhage. Other reports, yet unpublished, indicated that this method of treatment should prove to be an important advance in the management of bleeding after dental operations.

The interest in fluorine as an inhibitor of dental caries developed further during 1945. The Massachusetts legislature authorized a study of this problem by the state department of health.

A program to interest dentists in the importance of fluorides in dental health was launched in New York in June.

**BIBLIOGRAPHY.**—C. S. Keefer, "Penicillin in Treatment of Infections," *West. J. Surg.*, 53:93 (April 1945); J. S. Sweeney, W. J. Morginson, R. W. Robinson and E. M. Kilpatrick, "Therapeutic Effectiveness of Penicillin in Treatment of Vincent's Stomatitis and Its Failure to Influence Favorably Certain Other Medical Conditions," *J. Lab. & Clin. Med.*, 30:132-134 (Feb. 1945); Penicillin Committee of the National Naval Medical Centre, "Penicillin: A progress Report Based on 1,455 Cases Treated at the National Naval Medical Centre, Bethesda, Md.," *U.S. Nav. M. Bull.*, 44:453 (March 1945); P. L. Shallenberger, E. R. Denny and H. D. Pyle, "Use of Penicillin in Vincent's Angina," *J.A.M.A.*, 128:706-710 (July 1945); B. M. Schwartz, "Effectiveness of Penicillin in Treatment of Vincent's Angina," *ibid.*, 128:704-706 (July 1945); J. M. Walker and J. W. Hamilton, "Treatment of Actinomycosis with Penicillin," *Ann. Surg.*, 121:373-384 (March 1945); F. H. Bentley, S. Thomson, A. K. Bingham, J. A. Key and M. H. Wostenholm, "Treatment of Compound Fractures by Early Wound Suture and Penicillin," *Lancet*, 1:232-236 (Feb. 1945); P. Greey and I. B. Macdonald, "Penicillin Agar Pastilles," *Canad. M. A. J.*, 52:327-330 (April 1945); P. K. Losch, "Use of Fibrin Foam with Thrombin in Dental Operations," *J. Oral Surg.*, 3:177-185 (July 1945); "New York Institute Launches Fluorine Educational Program," *J. Am. Dent. A.*, 32:1327 (Oct. 1945).

**FILMS.**—*The Teeth* (Encyclopædia Britannica Films Inc.).

(L. M. S. M.)

**Deposit Insurance Corporation, Federal:** see FEDERAL DEPOSIT INSURANCE CORPORATION.

**Dermatology.** A new cutaneous disease was the subject of many reports in the dermatologic literature during 1945. The disease occurred in military personnel stationed in the Southwest Pacific area, particularly on the island of New Guinea and adjacent islands. Most of the authors believed that it was due to the ingestion of quinacrine hydrochloride (atabrine); many were of the opinion that other factors such as avitaminosis were involved. J. W. Bagby called it a "lichen planus-like" disease. In the cases he studied the onset was variable; in some the eruption began as a true lichen planus, in others as a generalized erythematous eruption, in others large areas of pustules developed, which in healing were replaced by lesions resembling hypertrophic lichen planus. C. L. Schmitt, O. Alpíns and G. Chambers reported that the disease appears in two phases; the initial eruption mimicked such common dermatoses as heat rash, fungous infection, eczema, contact dermatitis and urticaria. This phase was followed by characteristic lesions which resembled lichen planus nodules or plaques and remained localized or became widespread, occasionally accompanied by an acute exfoliative dermatitis. These authors considered that treatment of the initial eruption with irritating ointments acted as a precipitating factor to the actual causative agent. After a comprehensive survey of many causes, T. W. Nisbet stated that the variable manifestations of this disease were confusing at first; later however it became possible to recognize it early and to differentiate it from other dermatoses because of certain characteristics. The course of this disease was characterized by periods of remission, and exacerbation and complete recovery rarely or never took place as long as the patient remained in the New Guinea area. All of the authors stated that the manifestations cleared gradually over a period of months, during evacuation to and after arrival in the temperate climates of the United States and Australia. Nisbet reported that only the mildest topical applications should be used in local treatment of these cases and that penicillin was useful in the treatment of the severe, generalized exfoliative and eczematoid forms in which secondary infection occurred.

A substance was synthesized which belongs to a new and distinct pharmacologic group of compounds. These substances are antispasmodics and at least one has a profound antihistamine effect. One of these synthetic compounds, called benadryl, which appears to have a low toxicity, was studied by A. C. Curtis and B. B. Owens in the treatment of urticaria. Eighteen patients with various types of urticarial eruptions were treated with this compound; 14 showed decided improvement. Benadryl is palliative only. Lesions similar to the original ones recurred promptly when the drug was discontinued. Preliminary studies seemed to indicate that it should be tried in the treatment of other types of allergic diseases. L. W. Shaffer, L. Carrick and H. S. Zackheim used benadryl for treatment of eight cases of urticaria with favourable effect in seven. They stated that it might offer valuable relief in the chronic type until investigation reveals the cause of urticaria and adequate control measures can be carried out. Acute cases responded favourably when the drug was administered. Results of its use in a variety of other diseases suggested that it is of no value for dyshidrotic eczema or neurodermatitis, but encouraging for cases of atopic eczema and lichen urticatus. Further trial of the drug in treatment of these diseases was indicated.

The treatment of various cutaneous diseases with penicillin was extensively studied and the results published. T. M. Cohen and R. O. Pfaff found that the drug was of value when locally applied in ointment form in impetigo contagiosa, folliculitis, sycosis barbae, so-called tropical ulcer and dermatophytosis secondarily infected with haemolytic streptococci. H. J. Templeton, C. E. Clifton and V. P. Seeberg used gauze impregnated

with penicillin liquid. They concluded that the drug was a valuable therapeutic agent in the treatment of pyogenic infections of the skin, particularly those of superficial type, such as impetigo. In more deep-seated infections, like sycosis vulgaris, surface application of the drug was of questionable value. Six cases of dermatitis herpetiformis were treated by C. C. Carpenter and W. H. Hall with penicillin administered intramuscularly. During the period of administration the disease improved but relapsed to pretreatment status within hours to days after administration of varying doses up to 1,000,000 units. Sixteen cases of actinomycosis, 11 of which were of the cervicofacial type, were treated by L. Dobson and W. Cutting; 8 were given penicillin and 8 received sulfadiazine. They stated that both drugs were highly effective in this disease but that sulfadiazine may be more effective than penicillin in many cases. John H. Lamb suggested that care be exercised in the treatment with penicillin of patients who have previously had an acute fungous infection of the feet, groins or hands, and reported two cases of an acute vesicular dermatitis of these areas in patients who were receiving this drug parenterally, with the dermatitis subsiding shortly after the drug was discontinued.

According to M. H. Saffron, cutaneous diphtheria is a common dermatosis in certain geographic areas where diphtheria is more or less endemic and climatic conditions are favourable. It was a military problem in these areas, particularly in the near and middle east, southern Europe, India and the coasts of Africa. Two forms of the disease occur; the rare acute variety, associated with nasal or faucial diphtheria, consisting of a solitary lesion, and the chronic form characterized by multiple indolent lesions which result from superinfection by *Corynebacterium diphtheriae* of pre-existing dermatoses. Both types may result in characteristic late postdiphtheritic complications, such as paralysis and toxic myocarditis. The recommended treatment is diphtheria antitoxin in fairly large doses, administered parenterally.

World War II added fresh importance to dermatophytosis and stimulated many investigations of this disease. Those of F. D. Weidman, J. G. Hopkins, C. W. Emmons and G. M. Lewis indicate certain changing concepts of the disease. Bacteria are gaining prominence as a cause of many cases of infectious intertrigo that have previously been considered mycotic in origin. They emphasized sensitization to local applications, trauma and long-standing hypostasis as a cause of dermatitis. The use of foot baths containing chlorine compounds was becoming discredited. More emphasis was laid on careful hygiene of the feet in prophylactic treatment. Evidence was submitted in the controversy whether dermatophytosis predisposes to contact dermatitis; this evidence indicated that it does not. This is of importance in adjudging disability claims, both civil and military. They proposed methods for standardizing fungicides and the clinical evaluation of them. For therapy, some of the older remedies, like Whitfield's ointment and boric acid were found to be of value, as were some of the newer fungicides, such as the fatty acids and their salts.

W. W. Duemling emphasized the high incidence of fungous infections of the skin and the severe exacerbation of the lesions of acne vulgaris which occurred in military personnel in tropical areas. He attributed such occurrences to the heat, humidity, crowded conditions and lack of proper bathing facilities in these areas.

In a comprehensive report on the status of poison ivy extracts, Johnson stated that the poisonous substance in at least one species of *Toxicodendron* is urushiol, the active factor in the sap of the lac trees of Japan, China and Indo-China. No accepted method of standardization of ivy extracts has been evolved. The treatment of the acute eruption with these ex-

tracts should be discouraged because many patients were made worse by such procedures and there was no satisfactory evidence that any were helped by their use. (See also MEDICINE.)

**BIBLIOGRAPHY.**—James W. Bagby, "A Tropical Lichen Planus-like Disease," *Arch. Dermat. & Syph.*, 52:1-5 (July 1945); Charles L. Schmitt, O. Alpines and George Chambers, "Clinical Investigation of a New Cutaneous Entity," *ibid.*, 52:226-238 (Oct. 1945); Thomas W. Nisbet, "A New Cutaneous Syndrome Occurring in New Guinea and Adjacent Islands," *ibid.*, 52:221-225 (Oct. 1945); Arthur C. Curtis and Betty B. Owens, "Beta Dimethylaminoethyl Benzhydryl Ether Hydrochloride (Benadryl) in the Treatment of Urticaria," *ibid.*, 52:239-242 (Oct. 1945); Loren W. Shaffer, Lee Carrick and Herschel S. Zackheim, "Use of Benadryl for Urticaria and Related Dermatoses," *ibid.*, 52:243-245 (Oct. 1945); Theodore M. Cohen and Richard O. Pfaff, "Penicillin in Dermatologic Therapy," *ibid.*, 51:172-177 (March 1945); H. J. Templeton, C. E. Clifton and V. P. Seeberg, "Local Application of Penicillin for Pyogenic Dermatoses," *ibid.*, 51:205-208 (March 1945); C. C. Carpenter and W. H. Hall, Jr., "Treatment of Dermatitis Herpetiformis with Penicillin," *ibid.*, 51:241-242 (April 1945); Leonard Dobson and Windsor C. Cutting, "Penicillin and Sulfonamides in the Therapy of Actinomycosis," *J.A.M.A.*, 128:856-863 (July 1945); Morris H. Saffron, "Cutaneous Diphtheria as a Military Problem," *Arch. Dermat. & Syph.*, 51:337-340 (May 1945); Fred D. Weidman, Chester W. Emmons, Joseph G. Hopkins and George M. Lewis, "The War and Dermatophytosis," *J.A.M.A.*, 128:805-811 (July 1945); Werner W. Duemling, "Cutaneous Diseases in the South Pacific," *Arch. Dermat. & Syph.*, 52:75-86 (Aug. 1945). (H. Fx.)

**Destroyers:** see NAVIES OF THE WORLD.

**Detroit.** Fourth largest city of the United States in the 1940 census, Detroit is the centre of the large industrial area of southeastern Michigan. Area, 137.9 sq.mi.; pop. (1940) 1,623,452 of whom 320,664 were foreign-born whites, British and Canadian ranking first with 110,698, and Polish second with 52,235. Pop. est. (June 1945), 1,685,000.

Assessed value as of June 30, 1945, \$2,906,345,890; gross bonded debt, \$313,491,739; net bonded debt, including utility debt, \$287,506,510; net tax supported debt, \$225,927,119; gross city appropriations, fiscal year ending June 30, 1946, \$193,972,593 including schools and utilities; tax levy, city and school purposes, \$85,510,509; combined city and school tax rate, \$29.42. Mayor, Jan. 1, 1946: Edward J. Jeffries, Jr., serving a third two-year term.

In a city whose industrial life depends so largely upon the automobile, events in this field were of first importance in 1945. The transition to a peacetime production was interrupted by major and minor strikes, the most important of which was the "economic blockade" by the C.I.O.-U.A.W. against the General Motors corporation, beginning late in 1945 but continuing into 1946. This strike was intended to isolate the corporation, leaving its competitors in production. However, the Ford Motor company was also seriously affected by strikes among its suppliers and the total output of cars for 1945 was greatly under schedule. The major strike raised the significant question of the determination of wages on the basis of individual corporation profits rather than by relationship to those paid in the industry as a whole. The refusal of the General Motors corporation to negotiate wages on the basis of profits became a question for congressional consideration. Contractual negotiations between the C.I.O.-U.A.W., the Chrysler corporation and the Ford Motor company were underway at the close of the year.

Additional competition in the automotive manufacturing field was projected by the formation of the Kaiser-Frazer corporation organized by Henry J. Kaiser, wartime shipbuilder, and Joseph W. Frazer, at times in charge of sales for the Chrysler corporation and the Willys-Overland company. This new organization acquired a lease on the government-owned Willow Run bomber plant, had close relations with the Graham-Paige company, and was expected to be in production by spring of 1946.

The C.I.O. Political Action committee was again active in the mayoralty and councilmanic campaign. For mayor a national officer of the C.I.O.-U.A.W. was successfully nominated but



was defeated in the election by the incumbent official. The campaign was marked by considerable bitterness. All candidates for the city council endorsed by the C.I.O. were defeated except one incumbent councilman.

In spite of heavy usage, the municipally owned street railway was operated at a loss, in part due to high wages and a relatively low fare. An increase to a universal fare of ten cents on both streetcars and busses was put into effect at the end of the year, over protests of the local C.I.O. and OPA, and court action was threatened.

(L. D. U.)

**Devers, Jacob Loucks** (1887- ), U.S. army officer, was born Sept. 8 in York, Pa. On his graduation from West Point in 1909 he was commissioned a second lieutenant in the field artillery. During World War I he served at Fort Sill, Okla., first as an artillery instructor and later as executive officer. As a division commander under Maj. Gen. Adna R. Chaffee, who built up the armoured force, he became experienced in the problems of mechanization. After Gen. Chaffee's resignation in 1941, Gen. Devers became commander of the armoured forces at Fort Knox, Ky., and was made a lieutenant general, Sept. 1942. He was appointed commander of U.S. forces in the European theatre of World War II in May 1943, and in December he was named deputy commander in the Mediterranean theatre. On Aug. 15, 1944, Devers commanded Allied landings in southern France. A month later, Sept. 15, Allied headquarters announced that he had been put in command of the 6th army group, consisting of U.S. and French units. Devers withdrew part of his forces from a salient in Germany in late Dec. 1944, during the German counterattack. This strategic retreat enabled him to consolidate his lines and contain the German drive. The 6th army group then participated in the all-out Allied offensive that ended in the collapse of the reich, May 7, 1945. Devers, who had been appointed to the temporary rank of a full general (March 13), became commander of the army ground forces, June 29. Testifying (Nov. 14) before the senate military affairs committee, Devers urged creation of a unified army-navy command, declaring that he would be willing to serve under a navy man if one were appointed chief of staff to a civilian secretary.

**Diabetes.** In 1943 the diabetic death rate in the United States reached its peak, 27.1 per 100,000 with 36,314 deaths, constituting 2.48% of the total deaths or one death from diabetes in each 40 deaths, in contrast to 1:182 in 1900, 1:100 in 1910, 1:60 in 1930. In rank among causes of death, excluding accidents, it was seventh. But there were wide variations among the states, thus ten (New York, Rhode Island, Pennsylvania, Vermont, New Hampshire, Massachusetts, Delaware, New Jersey, Connecticut and Ohio) with the highest mortalities averaging 38.8 were offset by ten (Arizona, New Mexico, Arkansas, Alabama, North Carolina, Georgia, Tennessee, Nevada, South Carolina, Texas) with the lowest, whose average mortality is less than one-third as great, 12.2 per 100,000. Such a great difference in death rates appeared improbable in the light of a survey of the incidence of living diabetics in Arizona, which showed it to be essentially the same as in the states with the high mortalities. Estimates upon the number of living diabetics in the United States vary between 657,000 to 1,000,000.

In the Latin-American republics the death rates from diabetes ranged from 15 per 100,000 for Buenos Aires in 1943 and 9.8 for 21 capital cities in Brazil (based on 1941 population) to 2.1 per 100,000 for Nicaragua and even below this level in several others. In England and Wales the provisional rate for 1944 was 9.6, but for Canada in 1942 was 19.3 per 100,000.

Alloxan claimed the attention of investigators during 1945 in 25 laboratories and in 8 different countries. Devised tests for alloxan allow its recognition and demonstration in the pancreas within five minutes after injection and its presence has also been noted in normal animal tissues. Various alloxanlike substances in addition to alloxantin act similarly to it, but its action can be prevented by neutralization or solution in either rabbit or human blood and by previous injection of various chemicals. Although alloxan acts with great rapidity and specificity and in five minutes causes necrosis of the beta cells of the islands of Langerhans, it was shown the same effect can be produced by repeated small injections over periods of weeks and in this way more closely simulates the onset of diabetes in humans. The development of cataracts in alloxan diabetic animals was confirmed. Various birds do not develop diabetes as a result of injection of alloxan, but pigeons show hyperglycaemia with occasional hydropic degeneration and ducks a partial necrosis of the islands. In many diabetic pigeons a deposit, identified as sodium urate, was observed in the pericardium, pleura and liver suggesting a resemblance to visceral gout in humans. A high fat diet abolished glycosuria in alloxan diabetic rats. An admirable and exhaustive review and comparison of the pathology of the pancreas in experimental diabetes produced by pancreatectomy, injections of anterior pituitary extract and alloxan was prepared by G. L. Duff. He was of the opinion, shared by several but not by all, that "it is most improbable at present that alloxan plays a role in the aetiology of human diabetes." B. A. Houssay and his co-workers also discussed and in some ways dissented from existing explanations of the hyperglycaemia and hypoglycaemia which follow injections of alloxan and have added new evidence.

An epoch-making preliminary announcement was made upon the point of attack of insulin in the conversion of glucose to bodily needs by W. H. Price, C. F. Cori and S. P. Colowick. They showed that the first step in the utilization of glucose by animal tissues, the reaction of adenosine triphosphate with glucose to form glucose-6-phosphate and adenosine diphosphate is inhibited by anterior pituitary extract. This inhibition is demonstrated in phosphate-saline extract of various rat tissues (muscle, liver, kidney, heart, brain) either by injecting rats with anterior pituitary extract (A.P.E.) prior to the preparation of tissue extracts or by adding A.P.E. to the enzyme preparation *in vitro*. The enzyme inhibited by A.P.E. is hexokinase.

Rats made diabetic by the injection of alloxan yield tissue extracts which show the same enzyme activity curves as those obtained from rats previously injected with A.P.E. The brain is an apparent exception, since brain extracts prepared from rats injected with alloxan or with A.P.E. do not show an inhibition of hexokinase activity. Brain extracts can, however, be inactivated by addition of A.P.E. *in vitro*.

The conversion of glycogen to lactic acid in muscle extract is not inhibited by A.P.E. When oxygen consumption is measured in a dialyzed liver dispersion, oxidation of glucose is inhibited by A.P.E., while that of fructose-6-phosphate and of pyruvate is not. (From W. H. Price, C. F. Cori and S. P. Colowick, *Journal of Biological Chemistry*, Oct. 1945.)

Insulin releases hexokinase from the A.P.E. inhibition either *in vivo* or *in vitro*, but insulin by itself does not enhance hexokinase activity. When insulin is reduced by cysteine, it no longer exerts its antagonistic effect against A.P.E. inhibition of hexokinase activity. The implications of this work seemed to be far-reaching and the promised subsequent reports by the authors were awaited with the greatest interest.

Among the outstanding papers published during 1945 was one on *The Use and the Abuse of Glucose in the Treatment of Diabetic Coma*. The mortality was 1.5% with the prompt administration and concentration of insulin in the first three hours, in contrast to 18% when approximately the same dose was spread over 12 hours.

Diabetic neuropathy or neuritis in its manifold forms de-

serves especial comment because of its frequency in the growing number of diabetics undergoing treatment whose lives have often been prolonged almost solely by the grace of insulin, despite a lack of reasonable dietetic control. It is refreshing to read R. W. Rundles' careful and detailed report of 125 cases and of the literature and to note that he could write that none of the group was found to be among "those regularly attending our diabetic clinic or under the adequate supervision of competent physicians with provision for enlightened dietary management and check-up visits" (*Medicine*, May 1945 [Williams and Wilkins Co.]). Rundles' critical analysis and study of the problems of diabetic neuropathy is so complete that his paper certainly ranks in the first ten of all the contributions to diabetic literature in 1945. An excellent editorial summary of it exists.

One of the encouraging signs of the awakening of physicians and the public to the seriousness of the diabetic situation was the establishment of the American Diabetes association, a counterpart to the one already existing in England, whose secretary in 1945 was Dr. Cecil Striker of Cincinnati, O., and the development of state and local societies and of diabetic camps. Each year the influence of these various activities advanced and already in several cities diabetic foundations were being created. An endeavour was made to interest the many rather than the few in these enterprises. In one city more than 600 patients contributed to a diabetic fund and more than 3,000 for the enlargement of a local hospital in order to provide more beds and additional laboratory space. (See also *PHYSIOLOGY*.)

**BIBLIOGRAPHY.**—E. P. Joslin, "Medical Progress: Diabetes Mellitus," *New England J. Med.*, 232:219-226 (Feb. 1945); R. S. Leech and C. C. Bailey, "Blood Alloxan and Blood Glutathione in Rabbits Injected with Alloxan," *J. Biol. Chem.*, 157:525-542 (Feb. 1945); S. Banerjee, K. Dittmer and V. du Vigneaud, "A Microbiological and Fluorometric Test for Minute Amounts of Alloxan," *Science*, 101:647-649 (June 1945); J. A. Ruben and R. S. Tipson, "The Presence of Alloxan in Normal Livers," *Science*, 101:536-537 (May 1945); R. M. Archibald, "Methods for the Determination of Alloxan, Together with Observations of Certain Properties of Alloxan," *J. Biol. Chem.*, 158:347-373 (April 1945); G. Brückmann and E. Wertheimer, "Diabetogenic Action of Alloxan Derivatives," *Nature, London*, 155:267-268 (March 1945); A. R. Weinglass, E. G. Frame and R. H. Williams, "Inhibition of Diabetogenic Action of Alloxan," *Proc. Soc. Exper. Biol. & Med.*, 58:216-219 (March 1945); M. G. Goldner, "Alloxan Diabetes: Its Production and Mechanism," *Bull. New York Acad. Med.*, 21:44-45 (Jan. 1945); G. Gomori and M. G. Goldner, "Acute Nature of Alloxan Damage," *Proc. Soc. Exper. Biol. & Med.*, 58:232-233 (March 1945); C. C. Bailey, O. T. Bailey and R. S. Leech, "Alloxan Diabetes: Its Physiologic and Pathologic Characteristics," *Bull. New England M. Center*, 7:59-65 (April 1945); C. C. Scott, P. N. Harris and K. K. Chen, "Effects of Alloxan in Birds," *Endocrinology*, 37:201-207 (Sept. 1945); I. A. Mirsky, "Alloxan Administration to the Duck," *Proc. Soc. Exper. Biol. & Med.*, 59:35-37 (May 1945); G. L. Duff, "The Pathology of the Pancreas in Experimental Diabetes Mellitus," *Am. J. M. Sc.*, 210:381-397 (Sept. 1945); W. H. Price, C. F. Cori and S. P. Colowick, "The Effect of Anterior Pituitary Extract and of Insulin on the Hexokinase Reaction," *J. Biol. Chem.*, 160:633-634 (Oct. 1945); H. F. Root, "The Use of Insulin and the Abuse of Glucose in the Treatment of Diabetic Coma," *J.A.M.A.*, 127:557-564 (March 1945); correction, 127:1068 (April 1945); R. W. Rundles, "Diabetic Neuropathy," *Medicine*, 24:111-160 (May 1945); Editorial, "Diabetic Neuropathy," *J.A.M.A.*, 128:1230-31 (Aug. 1945). (E. P. Jo.)

**Diamonds.** To those who are accustomed to think of diamonds in carats, it may come as somewhat of a shock to learn that an important part of materials for World War II was approximately 11 short tons of industrial diamonds that were imported into the United States during 1939-44. Furthermore it is probable that this relatively small tonnage of material directly or indirectly had some part in the production of more equipment and contributed more toward the winning of the war than the same weight of any other material, including the uranium that went into the production of atomic bombs. Incidentally, this weight of industrial stones was considerably more than the total output of industrial stones during that period, the surplus requirements each year having been drawn from stocks accumulated in prewar years, but which were practically exhausted in 1945.

The extent to which technological advances can affect the

status of an industry is well illustrated by a comparison of the diamond industry in World Wars I and II. The mines of South Africa, which then produced about 95% of the world output, were almost entirely closed down for about two years during World War I, because diamonds were considered a luxury that could well be dispensed with. In World War II diamonds were such an important factor in the war production program that the output was kept as high as conditions would permit.

**World Production.**—Production data were difficult to secure during the war years, and for many countries only estimates can be given. Table I presents the data as collected or estimated by S. H. Ball.

Table I.—World Production of Diamonds  
(Thousands of carats)

	1939	1940	1941	1942	1943	1944*
Angola . . . . .	690	784	787	792*	795	800
Belgian Congo . . . .	8,360	9,603	5,866	6,018	4,880	7,540
Gold Coast . . . . .	1,088	825*	1,000	1,000*	1,000	1,000
Sierra Leone . . . . .	600*	750	850	850*	850	850
South Africa . . . . .	1,250	543	158	118	302	699
South West Africa . . .	35	30	47	56	100	154
Brazil . . . . .	350*	325	325	300	275	320
Others . . . . .	127*	156*	155	148	150	139
Total . . . . .	12,500	13,016	9,188	9,282	8,352	11,502

\*Estimated.

**Cutting.**—Before World War II about 90% of the cutting industry was concentrated in Belgium and the Netherlands. When driven out of their homes, the cutters who could, made their way to other countries, and from 1940 on the small cutting industries that were scattered in other countries were enlarged, partly by the immigration of these workers, and partly by training new craftsmen. At the close of 1945 the United States, Palestine and Brazil were the most important centres of the industry, with smaller units in South Africa, Great Britain, Cuba, Puerto Rico, Canada, India and Borneo.

**United States Imports.**—The United States has long been the largest buyer of gem diamonds. For ten years the weight of industrial diamonds imported exceeded that of gem stones, though of course the value was much lower. Imports during World War II are shown in Table II.

Table II.—U.S. Diamond Imports, 1939-44  
(In thousands of carats)

	Rough	Cut	Industrial	Total
1939 . . . . .	154.0	488.2	3,568.7	4,210.9
1940 . . . . .	227.9	321.5	3,809.1	4,358.5
1941 . . . . .	215.0	229.6	6,882.2	7,326.8
1942 . . . . .	277.8	125.8	11,203.7	11,607.3
1943 . . . . .	751.2	193.7	12,084.1	13,029.0
1944 . . . . .	896.5	169.1	12,614.5	13,680.1

The rough stones imported in 1944 were valued at \$43,445,219, the cut stones at \$29,263,121 and the industrial stones at \$22,816,827; these values give average values per carat of \$48.46 for rough, \$173.06 for cut and \$1.81 for industrial stones.

(G. A. Ro.)

**Diatomite.** The annual production of diatomite in the United States was not reported, but the total sales for 1942-44 were 524,872 short tons, as compared with 360,502 tons in 1939-41. California and Oregon are the chief producers. The principal uses are as filter aid, insulation and filler. An important recent application was as a filter aid in portable high pressure filters for water supplies for the armed forces.

Brazil was reported to have developed a large production and consumption, possibly even of a magnitude to make the country the leading producer.

(G. A. Ro.)

**Dictatorships:** see COMMUNISM; FASCISM; GERMANY; SPAIN; UNION OF SOVIET SOCIALIST REPUBLICS.

**Diesel Engines:** see POWER ENGINEERING.

**Dietetics.** The trend in dietetics during 1945 was in the direction of (a) a revision of the recommended dietary allowances; (b) further appraisal of food composition; (c) simplification of calculations required for the estimation of the nutrient content of the diet; (d) further study of the "acceptability" of foods; and (e) reconsideration of sanitary requirements in food preparation.

**Recommended Dietary Allowances.**—The Food and Nutrition board of the National Research council made changes in the tabulated data and footnotes in view of new information and a need for clarifying the basis for certain recommendations. Since these recommendations will serve as a gross guide for the levels to be attained both in the normal diet and many therapeutic diets, it is reproduced in the table.

#### Further recommendations.

**—Fat.**—There is available little information concerning the human requirement for fat. Fat allowances must be based at present more on food habits than on physiological requirements. While a requirement for certain unsaturated fatty acids (the linoleic and arachidonic acids of natural fats) has been amply demonstrated with experimental animals, the human need for these fatty acids is not known. In spite of the paucity of information on this subject there are several factors which make it desirable that fat be included in the diet to the extent of at least 20 to 25% of the total calories and that the fat intake include essential unsaturated fatty acids to the extent of at least 1% of the total calories. At higher levels of caloric expenditure, e.g., for a very active person consuming 4,500 calories and for children and adolescent persons, it is desirable that 30 to 35% of the total calories be derived from fat. Since foodstuffs such as meat, milk, cheese and nuts may be expected to contribute "invisible" fat to the extent of from one-half to two-thirds of the total amounts of fat implied by the above proportions of the total calories, it is satisfactory to use separated or "visible" fats such as butter, margarine, lard and shortenings only to the extent of one-third to one-half of the amounts indicated.

**Copper.**—The requirement for copper for adults is about 1 to 2 mg. daily. Infants and children require approximately 0.05 mg. for each kilogram of body weight. The requirement for copper is approximately one-tenth that for iron. A good diet normally will supply sufficient copper.

**Iodine.**—The requirement for iodine is small, probably about 0.002 to 0.004 mg. daily for each kilogram of body weight, or a total of 0.15 to 0.30 mg. daily for the adult. This need is met by the regular use of iodized salt; its use is especially important in adolescence and pregnancy.

**Phosphorus.**—Available evidence indicates that the phosphorus allowances should be at least equal to those for calcium in the diets of children and of women during the latter part of pregnancy and during lactation. In the case of other adults the phosphorus allowances should be approximately 1.5 times those for calcium. In general, it is safe to assume that if the calcium and protein needs are met through common foods, the phosphorus requirement also will be covered, because the common foods richest in calcium and protein are also the best sources of phosphorus.

**Vitamin K.**—The requirement for vitamin K usually is satisfied by any good diet. Special consideration needs to be given to newborn infants. Physicians commonly give vitamin K either to the mother before delivery or to the infant immediately after birth.

**Salt.**—The needs for salt and for water are closely interrelated. A liberal allowance of sodium chloride for the adult is 5 grams daily, except for some persons who sweat profusely. The average normal intake of salt is 10 to 15 grams daily, an amount which meets the salt requirements for a water intake up to four litres daily. When sweating is excessive, one additional gram of salt should be consumed for each litre of water in excess of four litres daily. With heavy work or in hot climates 20 to 30 grams daily may be consumed with meals and in drinking water. Even then, most persons do not need more salt than usually occurs in prepared foods. It has been shown that after acclimatization persons produce sweat that contains only about 0.5 gram to the litre in contrast with a content of two to three grams for sweat of the unacclimatized person. Consequently, after acclimatization, need for increase of salt beyond that of ordinary food disappears.

#### Recommended Dietary Allowances (Revised, 1945\*)

Food and Nutrition Board, National Research Council

	Cal- ories	Pro- tein gm.	Ca gm.	Fe mg.	Vita- min A† I.U.	Thia- min‡ mg.	Ribo- fla- vin‡ mg.	Nia- cin‡ mg.	Ascor- bic Acid mg.	Vita- min D I.U.
<b>Man (154 lb., 70 kg.)</b>										
Sedentary . . . . .	2,500	70	0.8	12	5,000	1.2	1.6	12	75	
Moderately active . . . . .	3,000	70	0.8	12	5,000	1.5	2.0	15	75	
Very active . . . . .	4,500	70	0.8	12	5,000	2.0	2.6	20	75	
<b>Woman (123 lb., 56 kg.)</b>										
Sedentary . . . . .	2,100	60	0.8	12	5,000	1.1	1.5	11	70	
Moderately active . . . . .	2,500	60	0.8	12	5,000	1.2	1.6	12	70	
Very active . . . . .	3,000	60	0.8	12	5,000	1.5	2.0	15	70	
Pregnancy (latter half) . . . . .	2,500†	85	1.5	15	6,000	1.8	2.5	18	100	400-800
Lactation . . . . .	3,000	100	2.0	15	8,000	2.0	3.0	20	150	400-800
<b>Children up to 12 years:**</b>										
Under 1 year†† . . . . .	100/ 2.2 lb. (1 kg.)	3.5/ 2.2 lb. (1 kg.)	1.0	6	1,500	0.4	0.6	4	30	400-800
1- 3 yr. (29 lb., 13 kg.) . . . . .	1,200	40	1.0	7	2,000	0.6	0.9	6	35	400
4- 6 yr. (42 lb., 19 kg.) . . . . .	1,600	50	1.0	8	2,500	0.8	1.2	8	50	400
7- 9 yr. (55 lb., 25 kg.) . . . . .	2,000	60	1.0	10	3,500	1.0	1.5	10	60	400
10-12 yr. (75 lb., 34 kg.) . . . . .	2,500	70	1.2	12	4,500	1.2	1.8	12	75	400
<b>Children over 12 years:**</b>										
Girls, 13-15 yr. (108 lb., 49 kg.) . . . . .	2,600	80	1.3	15	5,000	1.3	2.0	13	80	400
16-20 yr. (119 lb., 54 kg.) . . . . .	2,400	75	1.0	15	5,000	1.2	1.8	12	80	400
Boys, 13-15 yr. (103 lb., 47 kg.) . . . . .	3,200	85	1.4	15	5,000	1.5	2.0	15	90	400
16-20 yr. (141 lb., 64 kg.) . . . . .	3,800	100	1.4	15	6,000	1.8	2.5	18	100	400

\*Tentative goal toward which to aim in planning practical dietaries can be met by a good diet with a variety of natural foods. Such a diet will also provide other minerals and vitamins, the requirements for which are less well-known. This revision, at press Aug. 1945, to be published as National Research Council Reprint and Circular Series No. 122 "Recommended Dietary Allowances, Revised, 1945."

†The allowance depends on the relative amounts of vitamin A and carotene. The allowances of the table are based on the premise that approximately two-thirds of the vitamin A value of the average diet in the U.S. is contributed by carotene and that carotene has half or less than half the value of vitamin A.

‡For adults (except pregnant and lactating women) on diets supplying 2,000 calories or less, such as reducing diets, the allowances of thiamin, riboflavin and niacin may be 1 mg., 1.5 mg. and 10 mg., respectively. The fact that figures are given for different calorie levels for thiamin, riboflavin and niacin does not imply that we can estimate the requirement of these factors within 500 calories, but they are added merely for simplicity of calculation. Other members of the vitamin B complex also are required, although no values can be given. Foods supplying adequate thiamin, riboflavin and niacin will tend to supply sufficient of the remaining B vitamins.

§There is evidence that the male adult needs little or no iron. The requirement will be provided if the diet is satisfactory in other respects.

||For persons who have no opportunity for exposure to clear sunshine and for elderly persons, the ingestion of small amounts of vitamin D may be desirable. Other adults probably have little need for vitamin D.

¶During the latter part of pregnancy the allowance should increase approximately 20% over the preceding level. The value of 2,500 calories represents the allowance for pregnant, sedentary women.

\*\*Allowances for children are based on the needs for the middle year in each group (as 2, 5, 8, etc.) and for moderate activity and for average weight at the middle year of the age group.

††Needs of infants increase from month to month with size and activity. The amounts given are for approximately six to eight months. The dietary requirements for some of the nutrients such as protein and calcium are less if derived largely from human milk.

**Water.**—A suitable allowance of water for adults is 2.5 litres daily in most instances. An ordinary standard for diverse persons is one millilitre for each calorie of food. Most of this quantity is contained in prepared foods. At work or in hot weather, requirements may reach 5 to 13 litres daily. Water should be allowed *ad libitum*, since sensations of thirst usually serve as adequate guides to intake except for infants and sick persons.

**Food Composition.**—In cases of food allergy, the composition of various recipes may have to be changed to eliminate an offending food such as wheat, milk or eggs. A booklet of tested recipes has been recently published by the American Dietetic association for this purpose.

Further analyses of the mineral, vitamin, amino acid and cholesterol content of foods have been reported. Egg yolk and brain were the only foods shown to contain more than 1% cholesterol. In spite of the fact that these additional data have provided more adequately for an accurate evaluation of the nutritive content of the diet, it is still a laborious procedure to compute each item in a diet over a prolonged period of days. One method to shorten the computations is to use representative values for food groups. This method has been tested and found to correspond well with a detailed method of calculation. Two shortened methods of dietary calculation based on this principle have been published based on food habits in the southern part of the U.S. and on food habits in the north-central part.

**"Acceptability" of Foods.**—Critical studies have been made of the acceptability of foods in the army mess, air forces and civilian hospitals. In the army mess and in civilian hospitals it was found that fruit juices, fruits, fruit salads, meats, poultry, eggs, desserts, milk and milk drinks were well consumed. Food wasted in appreciable amounts were cooked and dry cereals, vegetable salads, lettuce from all salads, cooked vegetables, salad dressing, soups, bread and butter. Meat substitutes, generally used on the supper menu, made up another large part of the waste. Liver, fish, and ham loaf were the meats most frequently rejected. These studies served as a guide in ensuring greater adequacy in food intake and in the prevention of waste.

In the air forces it was found that anoxia (a diminution of oxygen in the blood) was directly proportional to the altitude. Since the oxygen requirement for carbohydrate metabolism is lower than for protein or fat, high carbohydrate preflight and in-flight meals were served to reduce susceptibility to anoxia and resulted in greater efficiency of air crews flying at medium altitudes without oxygen as well as for those operating at very high levels with oxygen. Postflight meals were high in minerals, vitamins and protein-rich foods. A tabulation of acceptability of approximately 100 foods in the air was made on the basis of some 10,000 meals served aloft.

**Sanitary Care in the Handling of Food.**—With the end of a global war, new diseases were introduced requiring not only revisions in ordinances and regulations for keeping food clean and sanitary, but also the proper control of the personnel who prepare and serve foods. Unless the personnel are trained to know why certain practices are demanded by superiors, they may negate the efforts of experienced dietitians. An injunction urging thorough cooking of all meats and meat products was a safeguard against the spread of diseases coming through the use of black market meat. (See also FOOD RESEARCH; VITAMINS.)



**BIBLIOGRAPHY.**—Ruth Okey, "Cholesterol Content of Foods," *J. Am. Dietet. A.*, 21, pp. 341-344 (June 1945); Eva G. Donelson and Jane M. Leichsenring, "Food Composition Table for Short Method of Dietary Analysis (Revised)," *J. Am. Dietet. A.*, 21, pp. 440-442 (July-August 1945); Ruth C. Steinkamp, William D. Robinson and Margaret M. Kaser, "Adaptation of Short Method of Calculating the Nutritive Content of Diets in Rural Areas of Middle Tennessee," *J. Am. Dietet. A.*, 21, pp. 522-526 (Sept.-Oct. 1945); D. M. Green and J. S. Butts, "Factors Affecting Acceptability of Meals Served in the Air," *J. Am. Dietet. A.*, 21, pp. 415-419 (July-Aug. 1945); Mary I. Hageman, "A Study of Plate Waste as a Directive Measure in Food Conservation," *J. Am. Dietet. A.*, 21, pp. 608-610 (Nov. 1945); Emma J. Thiessen and Nelma Saylor, "Acceptability of Vegetables in an Army Mess," *J. Am. Dietet. A.*, 21, pp. 616-617 (Nov. 1945); Fred W. Tanner, "Sanitary Care and Handling of Food," *J. Am. Dietet. A.*, 21, pp. 137-141 (March 1945); Harley J. Van Cleave, "Some Influences of Global War upon Problems of Disease," *J. Am. Dietet. A.*, 21, pp. 513-515 (Sept.-Oct. 1945).

**FILMS.**—*Consumption of Foods; Control of Body Temperature; Distribution of Foods; Foods and Nutrition; Fundamentals of Diet; Principles of Cooking; Production of Foods* (Encyclopædia Britannica Films Inc.). (D. F. Tr.)

**Dimension Stone:** see **STONE.**

**Diplomatic Services:** see **AMBASSADORS AND ENVOYS.**

**Disasters.** During 1944 loss of life and property in accidents included the following:

## Aviation

- Jan. 8 Port of Spain, Trinidad. At least 23 persons were killed when passenger flying boat was wrecked and sunk as it alighted on water.
- Jan. 10 Los Angeles, Calif. Fog caused crash of passenger plane in canyon, killing all 24 persons aboard.
- Jan. 25 Mexico City, Mex. Nine persons, including Constantino Oumansky, soviet ambassador to Mexico, and Mrs. Oumansky, were killed when Mexican military plane crashed shortly after its take-off.
- Feb. 13 San Francisco bay, Calif. Twenty-four persons perished when navy transport plane plunged into San Francisco bay.
- Feb. 15 New York city. B-29 Superfortress crashed into Flushing bay, bringing death to at least five persons. Five others were listed as missing.
- Feb. 23 Near Cedar Springs, Va. Seventeen persons were killed and five were injured when commercial passenger plane developed engine trouble as it was flying through rainstorm and crashed into mountainside.
- April 14 Morgantown, W.Va. All 20 persons aboard air liner were killed when plane crashed into Chestnut ridge, 12 mi. east of Morgantown.
- July 28 New York city. Twin-engined army bomber lost in fog rammed into Empire State building between 78th and 79th floors, setting upper stories of world's tallest building afire; 13 persons, including 3 occupants of plane, were killed and 26 others were seriously injured.
- Sept. 7 Florence, S.C. Commercial air liner plunged into deep swamp, killing all 22 persons aboard.

**GREAT NORTHERN'S "Empire Builder"** took a toll of 34 lives, with more than 40 injured, when the locomotive of its second section telescoped the observation car of the first section at Michigan, N.D., on Aug. 9, 1945

- Sept. 15 Kansas City, Kan. Twenty veterans as well as crew of three were killed when military transport plane crashed on north bank of Missouri river after take-off from Fairfax airport.
- Nov. 3 Honolulu, Hawaii. At least 7 persons were killed and 12 others were missing following crash of air liner about 450 mi. northeast of Hawaii; 8 persons aboard were rescued.
- Nov. 8 Corpus Christi bay, Tex. Collision of two navy planes resulted in death of 22 officers and men.
- Dec. 3 Corrientes province, Argentina. U.S. army transport plane crashed on flight from Asuncion to Montevideo killing all 14 men aboard.
- Dec. 6 Off east coast of Florida. Five navy torpedo bombers with total of 14 men aboard and navy rescue plane with 13 men aboard vanished completely in waters off east coast of Florida.
- Dec. 8 Billings, Mont. Transport plane crashed in attempt to land in heavy snowstorm, killing 19 of 23 persons aboard.

## Fires and Explosions

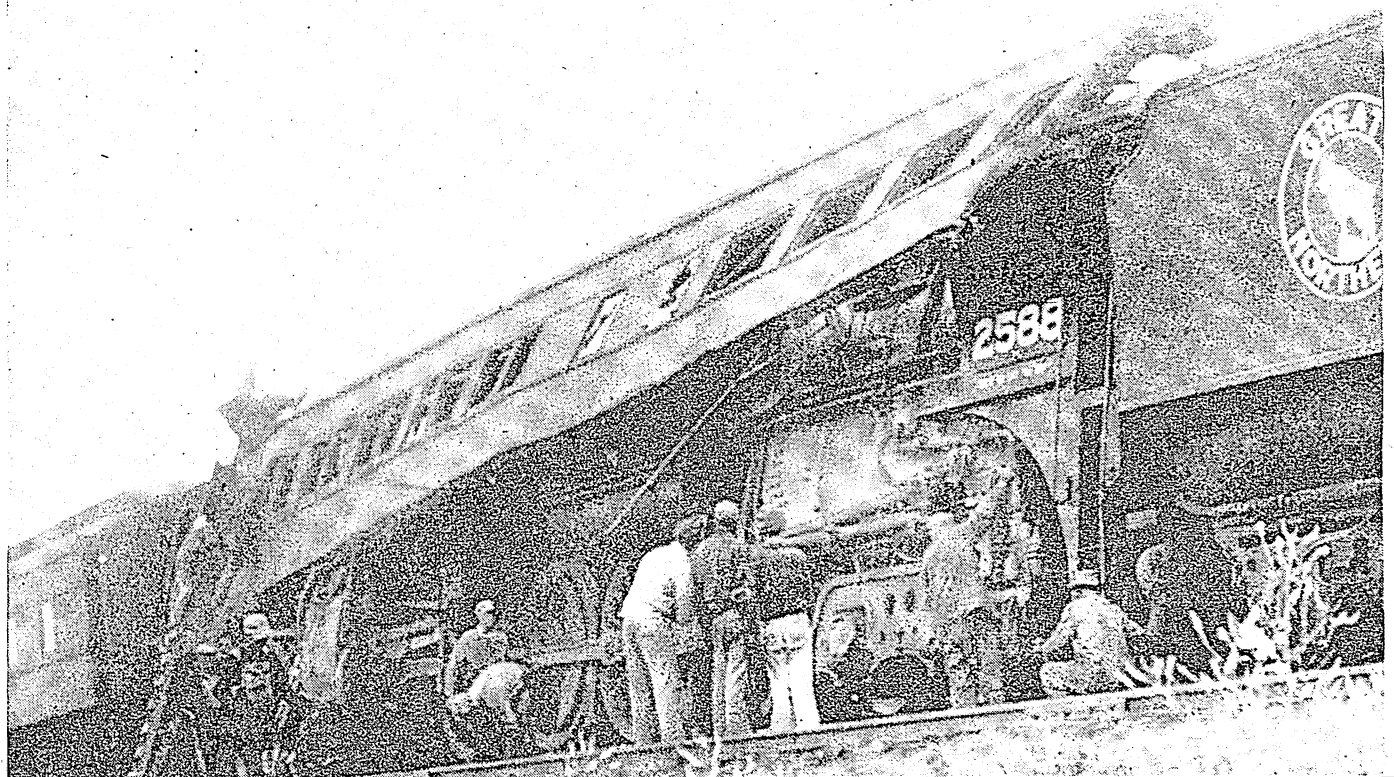
- Jan. 31 Auburn, Me. Sixteen children and one adult perished in fire that swiftly swept through frame nursery for children of war workers.
- May 25 Edgewood arsenal, Md. Blast wrecked two buildings and caused death of at least 11 persons and injuries to 52 others who were loading hand grenades at army's Chemical Warfare Service headquarters.
- June 19 Sewell, Chile. Fire that broke out in Sewell copper mine, 125 mi. from Santiago, caused death of 139 persons.
- July 18 Viareggio, Italy. Explosion of stored enemy mines wrecked American Red Cross club, killing 24 U.S. soldiers and 12 Italian civilians.
- Aug. 13 Detroit, Mich. At least 13 persons perished in sudden fire that swept through box factory.
- Oct. 12 Okinawa. Six men were killed and 23 injured in explosion in navy receiving yard.
- Dec. 23 Shikoku, Japan. Twelve U.S. officers and men perished in fire of undetermined origin that destroyed medical battalion barracks.
- Dec. 25 Hartford, Conn. Short circuit which started Christmas tree fire set hospital aflame and brought death to 15 patients, and 3 other persons.

## Marine

- Feb. 5 Upper New York bay, N.Y. At least 19 persons were killed, an unknown number missing and 74 injured when tanker loaded with 120,000 drums of high-octane gas exploded after crash with second tanker.
- April 9 Bari, Italy. U.S. Liberty ship loaded with aerial bombs blew up in harbour causing at least 360 deaths and injuries to 1,730 others; origin of blast was not known.
- April 9 In mid-Atlantic. Four persons were killed and 27 were missing when two tankers in Allied convoy collided.
- April 12 Southeast coast of Massachusetts. At least 15 men were killed and 7 were missing in collision between U.S. freighter and Allied tanker.
- April 23 Cape Elizabeth, Me. Forty-nine lives were lost when U.S. navy patrol ship exploded; cause of blast was not known.
- May 17 London. British admiralty lifted censorship to disclose that troop transport "Queen Mary" rammed and sank British cruiser "Curacao" off coast of Donegal, Oct. 2, 1942; "Curacao" sank in five minutes with loss of 338 naval personnel.

## Natural Disasters

- Feb. 8-9 New England. At least 20 persons were killed and considerable property damage was wrought by blizzard that piled up huge drifts in most of New England.



- Feb. 12 Mississippi-Alabama. At least 43 persons were killed and hundreds injured by tornado sweeping across parts of Mississippi and Alabama; property damage was heavy.
- March 7 Cincinnati, O. Ohio river rose above flood stage and floodwaters of other midwestern rivers spread into Ohio, Pennsylvania, West Virginia, Kentucky and Indiana, paralyzing war plants and transportation, causing heavy damage and taking toll of more than ten lives.
- April 12 Oklahoma-Arkansas-Missouri area. Tornado slashing through tri-state region caused more than 100 deaths and substantial property damage.
- July 9 Lehigh valley, Pa. and N.J. At least six persons were killed in electrical storm which caused heavy property damage.
- Sept. 15-18 Florida, Georgia and Bahama Islands. Terrific winds reaching peak speed of 143 m.p.h. ravaged large areas in south Florida and Bahamas, destroying three hangars, 25 patrol blimps and 366 aeroplanes at navy's air base at Richmond, Fla.; damage was estimated at \$50,000,000.
- Oct. 9 Okinawa. Forty-three persons were killed, 30 were listed as missing and 49 were injured in typhoon that swept island, sinking 8 vessels and grounding about 200 others, mostly small craft.
- Nov. 30 Northeastern United States. Raging storm accompanied by heavy gales and snows caused death of at least 34 people and wreaked considerable property damage as it swept over New England, New York state and New Jersey.

**Railroad**

- Feb. 1 Cazadero, Mex. About 100 persons perished when freight train crashed into rear of passenger train packed with pilgrims bound for religious festival. Fire that quickly consumed nine wooden coaches caused most of fatalities.
- June 15 Milton, Pa. At least 20 persons were killed and 32 others injured when express train jumped track and plowed into freight train going in opposite direction.
- Aug. 9 Michigan, N.D. Thirty-four persons were killed and at least 40 others injured when second section of passenger train crashed into first section.

**Traffic**

- June 25 Near Joplin, Mo. Loaded passenger bus struck a cow, plunged down embankment and overturned, killing 12 persons and injuring 28 others aboard.
- Nov. 26 Lake Chelan, Wash. Fourteen school children and bus driver were drowned when school bus dived over 50-ft. embankment into Lake Chelan during blinding snowstorm.

**Disciples of Christ.**

Statistics as of June 30, 1945, showed a total membership of 1,701,028 in the United States and Canada (Canada 9,080). This was a net gain of 19,095 for the year. Reported additions were about normal—50,607 by baptism, 45,903 otherwise—4,803 more than in 1944. (Actual additions must be more than reported, or membership less, to balance losses by death and provide more than a 5% increase.) In 1945 there were 8,004 churches in the United States and Canada (a gain of 6), and 7,448 ministers (a loss of 324). Chaplains in the armed services numbered 406. Disciples had churches in 39 other countries, most of which are not mission fields. There were 12,101 members in Great Britain, 32,522 in Australia, 4,327 in New Zealand (a loss of 663, a gain of 2,283, and a loss of 324, respectively). There was still no report from Poland, previously listed as having 65 churches and (estimated) 40,000 members. The total world membership in 1945 was 1,867,591 (gain, 21,762, as compared with a gain of 3,706 for 1944). Receipts and expenditures for local church maintenance in the United States and Canada increased to \$20,909,535 (increase, \$4,891,774); for missions and benevolences, after being suddenly almost tripled to \$5,505,779 in 1943, subsided to a more normal \$3,469,972 in 1944 and rose to \$8,759,872 in 1945. The foreign mission agency was able to continue its work in all fields except Japan and the Philippines, and was preparing to re-enter these. The missionary magazine, *World Call*, increased its monthly circulation (as of Nov. 1945) to 60,399, an accelerating gain of 71% from 1942 to 1945. The international convention of Disciples of Christ (U.S. and Canada) met at Columbus, Ohio, Oct. 17-22, 1944, under the presidency of the Rev. C. E. Lemmon of Columbia, Mo.; the 1945 convention was omitted. Dr. M. E. Sadler, president of Texas Christian university, Fort Worth, Texas, was president of the convention which was called to meet in Oakland, Calif., Aug. 6-11, 1946. (See also CHURCH MEMBERSHIP.)

(W. E. GA.)

**District of Columbia:** see WASHINGTON, D.C.  
**Divorce:** see MARRIAGE AND DIVORCE.

**Dodecanese.** A group of 12 islands in the Aegean sea. Area 1,035 sq.mi., pop. (1936) 140,848. Capital, Rhodes (27,466). The islands were occupied by Italy in the war against Turkey in 1912, and were officially ceded to Italy by Turkey in 1924. As the inhabitants of the islands are in the large majority Greeks, the Greek government demanded in 1945 the cession of the islands from Italy to Greece. The Greek demand was supported by the United States and Great Britain. Soviet Russia was reported to have demanded a trusteeship over the islands or at least a cession of military bases in the islands. (See also ITALIAN COLONIAL EMPIRE.) (H. Ko.)

**Doenitz, Karl** (1892— ), German naval officer, was born Sept. 16, in Berlin. He was commissioned an ensign in the Imperial German navy in 1913 and served in a submarine division during World War I. Taken prisoner by the British in 1918, he was committed to an insane asylum. He was repatriated in 1919, but the suspicion existed that he feigned insanity to hasten his release. After the war, he resumed his association with the German navy. Testimony produced by the prosecution at the Nuernberg war crimes trial in Nov. 1945 indicated that soon after the end of World War I the Germans were engaged in building submarines in violation of the Versailles treaty. In 1933, Doenitz was believed to have assisted in the construction of hidden U-boats and in training crews to man them. He was chief of the U-boat force, 1939-43, and was made grand admiral and commander in chief of the German navy in 1943. Doenitz was credited with development of the destructive "wolf-pack" technique of submarine warfare. On May 1, 1945, Doenitz announced the death of Adolf Hitler and declared that before he died Hitler had designated Doenitz as his successor. The new fuehrer conceded in a broadcast, May 5, that resistance against the western Allies had become senseless, but exhorted the wehrmacht to continue fighting against the Russians. The Allies blocked this attempt to drive a wedge between them and insisted that only unconditional surrender to Britain, U.S.S.R. and the United States would be accepted. As German resistance was disintegrating rapidly, Doenitz had no alternative but to comply with the Allied directives, and he ordered his envoys to sign the Allied unconditional surrender terms on May 7, at Reims, France, and in Berlin, May 8. The Allies dissolved his government, May 23, and arrested Doenitz, who was one of the principal defendants at the Nuernberg trials that started Nov. 20.

**Dog Racing.** The lifting on May 9, 1945, of the ban on animal racing brought a quick return of the galloping greyhound to United States dog racing centres, especially in New England and Florida. Free spending once again kept the mutual receipts far above average and brought a record payoff of \$2,850 for a daily double at a Miami track. In England, a record price of \$10,000 was paid for Magic Bohemian, a greyhound which had attracted attention by winning a 525-yard race in 29.1 seconds. (M. P. W.)

**Dog Shows:** see SHOWS.

**Dominica:** see WEST INDIES, BRITISH.

**Dominican Republic.** A West Indian republic occupying the eastern two-thirds of the island of Haiti or Hispaniola. Area, 19,129 sq.mi.; pop. (est. Jan. 1945) 1,999,276. The major part of the population, at least 75% of which is of mixed blood, is concentrated around Ciudad

Trujillo in the south or in the northern Cibao lowlands. The capital is Ciudad Trujillo (formerly Santo Domingo) with a pop. (1945 off. est.) of 123,780. Other urban centres are Puerto Plata (15,610), San Pedro de Macoris (22,728), Santiago de los Caballeros (54,113); (1944 off. est.) Barahona (13,751), La Romana (13,814), San Francisco de Macoris (15,418). Religion predominantly Roman Catholic; language: Spanish. President in 1945: General Rafael Leónidas Trujillo Molina.

**History.**—The political history of the Dominican Republic in 1945 was generally uneventful. On May 29 President Trujillo invited political leaders to reorganize the nation's political parties, inactive from 1930. A new executive department entitled Labour and National Economy was created June 1.

In the field of foreign affairs it was announced in March that diplomatic relations with the soviet union had been established, and in June during the United Nations conference in San Francisco representatives there signed a nondiscrimination pact with China. The republic in September became the third nation to sign the United Nations charter, with congress also approving the statute setting up the Court of International Justice. Following the visit in April of a mission soliciting contributions to the United Nations Relief and Rehabilitation administration, the government announced that the republic would make a preliminary gift of \$350,000, two-thirds of which would be in corn. War censorship on postal and cable service was ended Aug. 28.

President Trujillo announced in April that the government would establish an agricultural mortgage bank, and in November he submitted to congress a bill for the expenditure of \$5,000,000 on the construction of 25,000 low-cost houses.

A press report at the beginning of the year stated that the republic had repaid \$500,000 on lend-lease from the United States; the latter country in October disclosed that military lend-lease goods supplied to the Dominican Republic from March 1941 to July 1945 had amounted to \$1,140,000 in value.

**Education.**—In 1943 primary schools were estimated to number 1,896, with an enrolment of 203,990 students; 79 intermediate schools had an enrolment of 7,545. Enrolment at the University of Santo Domingo (1940) was 868. President Trujillo presented to congress in late September a bill providing for free public instruction in secondary and normal schools, according to a press report.

**Finance.**—The monetary unit is the peso, pegged in value at par with the U.S. dollar. A budget for 1945 of 21,418,133 pesos was reportedly approved in January. Revenue for 1944 amounted to 22,537,689 pesos, about 1,600,000 pesos more than 1943. At the close of 1944 the bonded indebtedness amounted to 11,980,167 pesos. By a decree of Jan. 31, U.S. 5-cent coins placed in circulation during World War II were replaced by national coins.

**Trade and Communications.**—Exports for 1944 were valued at 60,269,328 pesos (1943: 36,205,057 pesos) and imports at 18,524,575 pesos (1943: 14,370,804 pesos). Sugar sent to Great Britain under contract made up 72% of exports. Effective Oct. 1, 1945, import controls were removed on all but a few critical items.

The republic in 1944 had 163 mi. of public railway and 622 mi. of sugar plantation railroads. There were about 1,200 mi. of improved highways and 2,150 mi. unimproved. Motor vehicles in operation Jan. 1, 1945, were reported to number 1,168 automobiles, 790 trucks, 117 buses. In the early part of the year the nation's most noticeable shortage was that of tires, which seriously affected transportation by truck of basic supplies.

**Agriculture and Mineral Production.**—Sugar production for the 1944-45 season totalled 416,630 short tons (1943-44:

562,585 short tons). Exports for the first six months of 1945, mainly to the British Isles and Canada under contract, amounted to 283,891 short tons. Coffee output for 1944-45 was estimated at about 425,000 bags of 132 lb. each, with exports for the first eight months of 1945 amounting to 14,937 short tons. Exports of cacao for the first eight months amounted to 15,241 short tons, compared with 26,108 short tons in an equal period in 1944. It was estimated that the 1944 tobacco crop would be small: not more than 3,858 short tons compared with the 13,023 short tons reported for 1943. Exports of leaf tobacco (1944) amounted to 1,097 short tons (1943: 8,223 short tons); cigars, 213,425 pieces (1943: 85,575 pieces). Banana exports for 1944 amounted to 428,097 stems (1943: 693,005 stems). Yucca starch exports (1944) amounted to 13,542 short tons. Mahogany exported in 1944 was estimated at 1,519 short tons; lignum vitae 747 short tons; pine wood 11,141,265 bd.ft.

Gold exported in 1944 amounted to 988 oz., valued at 23,902 pesos; salt to about 2,240 short tons; gypsum, to 2,366 short tons.

FILMS.—*West Indies* (Encyclopædia Britannica Films Inc.). (D. Rd.)

**Donations and Bequests.** The year 1945 set a record in the history of U.S. philanthropy, according to estimates based on a continuing study of donations and bequests in eight of the largest cities of the country. The study, which had been in progress for 15 years, analyzed publicly announced gifts and bequests of \$1,000 and more to philanthropic organizations in New York, Chicago, Philadelphia, St. Louis, Los Angeles, Boston, Baltimore and Washington, D.C.

The 1945 total of gifts in these cities was \$191,134,648, compared with \$161,198,206 in 1944, or an increase of 18.57%.

Using this study of total gifts for the eight cities as a basis of estimate, 1945 gifts to U.S. philanthropy were expected to reach \$2,300,000,000, including all types of gifts—corporate, foundation and individual. Although this increase in 1945 was due almost entirely to several large gifts, many of more than \$1,000,000, the study showed the trend of individual giving, both small and large, was decidedly upward. Large gifts announced during the year covered a wide field of philanthropy.

In the educational field, Thomas W. Lamont gave \$1,500,000 to Harvard, in Cambridge, Mass., for an undergraduate library; Herbert L. Dillon presented \$1,100,000 to Princeton, in Princeton, N.J., for a gymnasium; the Statler foundation gave \$1,000,000 to Cornell, in Ithaca, N.Y., for studies in hotel administration; the Glenn L. Martin company gave \$800,000 to the University of Maryland, in College Park, Md., for the development of an aeronautical college, supplementing an earlier gift of \$1,700,000, and New York department stores gave \$500,000 to the New York university school of retailing. There were also several \$100,000 to \$500,000 individual gifts to educational institutions.

In the field of health, the Alfred P. Sloan foundation presented \$4,000,000 to Memorial Hospital in New York for the Sloan-Kettering Institute for Cancer Research, which touched off a fund-raising campaign for a like amount for teaching, treatment, research and prevention of cancer, and a published report in December announced that \$1,001,605 had already been raised toward this end.

John D. Rockefeller, Jr., made several publicly announced personal gifts of \$100,000 or more, among which were \$1,000,000 to the World Council of Churches for rehabilitation in Europe, and \$300,000 to the National War Fund.

Outside of the cities included in the study, other publicly announced large gifts were \$4,000,000 distributed by H. R. Cullen among four Houston, Texas, hospitals; \$1,000,000 to Notre Dame from Peter C. Reilly of Indianapolis, for a science fund; \$500,000 from the Humble Oil and Refining company to San Jacinto Memorial hospital in Harris county, Texas, and \$450,000 from Dr. Theodore L. Chase, a former resident of Philadelphia, to Temple university, Philadelphia, to be used principally for research in cancer.

Bequests in the eight cities totalled \$18,171,649 as compared with \$34,677,696 in 1944. This decrease was not significant, as the estates of many persons dying in 1945 would not be distributed for a year or more. For instance, in the 1945 study, there was a considerable amount of money included which was distributed from the estates of persons dying as far back as 53 years ago.

The trend in philanthropic giving in 1945 for the eight cities was as follows: war relief organizations and community war chests received the greatest amounts, \$63,073,499 and \$58,449,038, respectively; organized social work and education followed next with more than \$21,000,000 each; health agencies received \$15,480,938; foreign relief, \$7,919,959; religious organizations, \$1,796,492 and the fine arts, \$1,363,014.

As usual, New York city led with gifts of \$91,569,332, followed by



Chicago, \$23,352,485; Philadelphia, \$19,186,213; Los Angeles, \$15,704,580; Boston, \$13,753,268; Baltimore, \$9,923,366; Washington, D.C., \$8,864,391, and St. Louis, \$8,776,013. (See also COMMUNITY CHEST; SOCIETIES AND ASSOCIATIONS; WAR RELIEF, U.S.) (J. P. J.)

**Doolittle, James** (1896– ), U.S. army air officer, was born Dec. 14 at Alameda, Calif. During World War I he served as a flying instructor, and when peace came he completed a course in engineering at Massachusetts Institute of Technology, Cambridge, Mass., graduating in 1925 with a doctor of science degree. He returned to active army service in 1940, and in Jan. 1942 was promoted to the rank of lieutenant colonel in the air corps. Doolittle electrified the world on April 18, 1942, during World War II, by leading a U.S. squadron of 16 B-25 bombers in a spectacular daylight raid over Tokyo. He was made a brigadier general and awarded the congressional medal of honour. Transferred to Africa, he was advanced to the rank of major general. On Feb. 26, 1943, he became head of the bomber command in the Northwest Africa air forces, and in the following December was named commander of the 8th U.S. air force. On March 14, Doolittle was nominated for the rank of lieutenant general. After the end of the war in Europe, Doolittle and part of the 8th air force were assigned to the Pacific war, May 26, 1945. Shortly afterwards Doolittle arrived at Guam (July 23), but the war with Japan ended before he could fully employ the 8th air force in the Pacific area. A proponent of a unified command, Doolittle was angered by comment from two admirals that sea power and carrier-based planes won the war against Japan, and he asserted Nov. 9, "our B-29 boys are resting uneasily in their graves as a result of these two comments." Doolittle was scheduled to leave the air force Jan. 1, 1946, to become a vice-president of an oil firm.

**Douglas, Lord Alfred (Bruce)** (1870–1945), English poet, was born on Oct. 22, 1870, the third son of the eighth marquess of Queensberry and Sibyl, younger daughter of Alfred Montgomery. Well-born, handsome and gifted, educated at Winchester and Magdalen college, Oxford, Lord Alfred Douglas might well have looked forward to a brilliant career in the London of the 1890s. Instead, his entire life was influenced and overshadowed by his early friendship with Oscar Wilde, which led to the latter's imprisonment and downfall. He became embittered and almost fiercely litigious, invoking the law of libel at the mere association of his name with Wilde's career, and incurring endless troubles and controversies, including an imprisonment for a libel on Winston Churchill in 1923.

Yet Lord Alfred Douglas was a poet of distinction, who in his sonnets showed himself capable of excellent and sometimes exquisite verse. His first book of poetry, *The City of the Soul*, was published in 1899, followed by *Sonnets* in 1909, and in 1924 he published *In Excelsis*, a sonnet-sequence in which he shows the soul full grown. In 1938 he published *Without Apology*, a biographical work, followed in 1940 by *Oscar Wilde—A Summing Up*.

In 1902 Lord Alfred Douglas married Olive Eleanor Custance, by whom he had one son. He died at Lancing, Sussex, on March 20.

(C. M. F.)

**Draft:** see SELECTIVE SERVICE, U.S.

**Drama:** see RADIO; THEATRE.

**Dreiser, Theodore** (1871–1945), U.S. author, was born Aug. 27, in Terre Haute, Ind. For early career, see *Encyclopædia Britannica*. Dreiser, who lived in semi-retirement in Hollywood, Calif., during the last ten years of his

life, wrote little after his widely popular novel, *An American Tragedy* (1925). His later works include *Epitaph* (1930), *Dawn* (1931), *Tragic America* (1932), *Thoreau* (1939) and *America Is Worth Saving* (1941). At the time of his death, it was announced that he had completed two novels—the first in 20 years—*The Bulwark* and *The Stoic*, which were to be published posthumously. He received the award of merit from the American Academy of Arts and Letters for fiction in May 1944. Dreiser died at his home in Hollywood, Dec. 28.

**Dress:** see FASHION AND DRESS.

**Drought:** see METEOROLOGY.

**Drugs and Drug Traffic.** Seizures of drugs and devices in the United States in violation of the Food, Drug and Cosmetic act in the fiscal year 1945 increased by nearly 80% over similar actions in 1944. The largest increase involved proprietary preparations bearing false and misleading therapeutic claims or falling below labelled composition. Progress continued, however, in the Food and Drug administration's campaign to drive from the market "cure-alls" inviting self-treatment for such serious diseases as tuberculosis and cancer, which might delay competent medical treatment with fatal results. Many of the misbranded preparations, attempting to exploit war-weary and nervously exhausted persons, bore unwarranted claims for restoring vigour, preventing sluggishness, or providing nutritional elements that should be present in the normal diet.

Estimation of data accompanying new drug applications is becoming more complex as revolutionary new preparations and new uses for older compounds are proposed. Before applications are permitted to become effective, these data must demonstrate the safety for use of the new drug and the adequacy of manufacturing controls. In the fiscal year 1945, 132 new drugs were thus cleared for distribution.

The penicillin amendment to the Food, Drug and Cosmetic act was passed unanimously after recommendation to the congress by the federal security administrator and endorsement by the industry and interested scientific groups. It continues the predistribution testing by the administration of samples of every batch of penicillin manufactured, previously provided under wartime controls, to assure purity and standard potency. Samples of insulin and insulin-containing drugs tested under the insulin amendment, providing similar predistribution certification, numbered 578.

Drug regulations were amended to require labelling with ade-

OPIUM SMOKING equipment seized in a raid on a Los Angeles den during 1945. Improvised bowls, shown under inspection, were made of small vases in which holes had been drilled at the end, and stems were of rubber hose



quate directions and warnings on all drugs suitable for self-administration, limiting the use of the prescription legend to preparations that cannot be used safely without a physician's direction.

In the 595 drug and device seizure actions for 1945, involving 719 alleged violations, 12 charges were made of danger to health; 282 of false and misleading claims; 22 of failure to bear mandatory labelling; 25 of filth and decomposition; 295 of violation of official or professed standards; 82 of deceptive packaging or short measure; and 1 of containing a nonpermitted coal-tar colour. Nine injunctions were requested and 94 criminal prosecutions were instituted. (P. B. D.)

**League of Nations.**—*Western Europe including Spain and Italy.*—Directives to control the narcotic traffic were issued by Allied military authorities and these proved to be of great value at a time of much difficulty and confusion.

National controls in France and Belgium functioned throughout World War II and needed little reconstruction. Denmark, the Netherlands and Norway sent in full returns for 1944. Their controls functioned without interference. On the contrary, in Spain, a neutral country not exposed to the destruction of war, the situation was highly unsatisfactory. In spite of repeated reminders, the Spanish government, although a party to the 1925 and 1931 conventions, produced no actual statistics and persistently imported narcotic drugs in excess of estimates.

The Allied Civil Affairs divisions in Italy proceeded to place national controls in good order.

**Germany.**—As Germany imposed a special responsibility for the military governments, an attempt was made to institute uniform control in all zones to report to an inter-Allied control commission in order to meet the requirements of the international conventions. During the war Germany produced nearly all of its morphine by manufacture from poppy straw. This situation was viewed with concern, since to establish adequate domestic control, the growth of the poppy would have to be licensed. Poppy cultivation had spread throughout Germany.

Narcotic controls in the British, French and U.S. zones were organized. After World War I, the sudden and alarming increase in illicit traffic and addiction was believed to have been due partly to leakages from military supplies.

**Eastern Europe.**—The U.S.S.R., important as producer, manufacturer and consumer, controlled its narcotic traffic satisfactorily.

**Near and Middle East.**—Turkey, the largest producer of opium for medical needs, was the important source for the Allied nations for raw materials. Conditions in Iran, which had never ratified the 1925 convention, became worse. Addiction was reported to have reached the highest level in the history of the country. Sixty-six members of the lower assembly petitioned the government of Iran for complete prohibition of the production of opium. The Iranian government issued orders to remove all officials who were opium smokers.

**The Far East.**—The situation in India continued about the same with the production of opium around 350 long tons and with no figures available from the native states. This opium is sold through licensed government shops throughout India and became the source of considerable illicit traffic to the United States, the United Kingdom and Canada.

**Japan.**—Approximately 2,000 army and navy civil affairs officers were given lectures and briefed as to the necessity of bringing the opium traffic under control in Japan and in those areas formerly dominated by Japan. General MacArthur issued orders to the Japanese to account for production, distribution and consumption of all narcotic drugs after 1930.

The French government declared it would conform to the British and Dutch announcements that the sale of smoking opium be prohibited in all territories recaptured from the Japanese.

**Future Organization and Plans: The San Francisco Conference and the Preparatory Commission of the United Nations.**—At the San Francisco conference it was decided, as had been contemplated in the Dumbarton Oaks proposals, that specialized agencies operating under existing treaties of which the Permanent Central Opium board is one should be brought into relation with the new United Nations organization. In the appropriate committee of the conference a statement was made by the U.S. representative to the effect that the U.S. delegation wished to go on record as strongly favouring the bringing of such existing or future agencies into relationship with the Economic and Social Council. It was supported by the representatives of Canada, China and India, and embodied in substance in the rapporteur's report which was at later stage supported by the representative of the United Kingdom.

**BIBLIOGRAPHY.**—"Traffic in Opium and Other Dangerous Drugs for the Year Ended December 31, 1944," U.S. treasury dept., bureau of narcotics; "Permanent Central Opium Board Report to the Council," League of Nations Document No. C.84.M.84.1945.XI (Geneva, July 17, 1945); "Report to the President on the Charter of the United Nations," Committee on Foreign Relations, U.S. senate, 79th congress, first session. (H. J. A.)

**Drunkenness:** see INTOXICATION, ALCOHOLIC.

**Dumbarton Oaks:** see INTERNATIONAL LAW; UNITED NATIONS CONFERENCE ON INTERNATIONAL ORGANIZATION.

**Dust Storms:** see METEOROLOGY.

**Dutch Borneo:** see BORNEO.

**Dutch Colonial Empire:** see NETHERLANDS COLONIAL EMPIRE; NETHERLANDS INDIES.

**Dutch East Indies:** see NETHERLANDS INDIES.

**Dutch Guiana:** see SURINAM.

**Dyestuffs.** The efforts of the dyestuff industry in the U.S. for the first eight months of 1945 were concentrated upon the production of adequate quantities of military dyes to satisfy government requirements. Production of many of the restricted vat colours had to be maintained at a rate approximately 200 times the normal prewar demand. The industry recognized the fact that should the war end suddenly, there would be sizable stocks of these colours on hand which would be augmented considerably by material in process. This could not be avoided because of the time required in manufacturing a dye and the inability to change over once the operation is under way. That was the situation on Aug. 20, 1945, when the War Production board rescinded conservation order M-103. While this made material available for reconversion and civilian use the results could not be felt immediately and it left the industry with the problem of disposing of heavy inventories of military colours. Their exceptional fastness made them particularly desirable for heavy-duty fabrics and dyeing formulas for peace-time shades were developed incorporating these colours.

Reconversion did not present the difficulties confronting other highly specialized industries. No major mechanical changes were required since existing equipment could be used for the manufacture of civilian dyes. The colours most urgently needed were first put into production and by the end of the year practically all groups of colours were again being manufactured. However, production capacity for certain types of colours was insufficient to take care of the heavy demands of consuming industries resulting in shortages which could only be overcome by expansion of facilities. Research was continued in the development of new and improvement of existing colours. New application procedures were made available which simplified the dyeing and printing of multi-fibre and other materials with fast colours.

Figures for the year 1944 show that production of all types of dyes amounted to 151,651,000 lb. compared with 144,013,000 lb. in 1943 and 169,000,000 lb. in 1941, the year of highest production in the United States. Greater military requirements for dyes in 1944 accounted for the large increase in total production while civilian consumption was rigidly restricted. Two factors which influenced production in 1941, heavy civilian demand and stock-piling, were not present in 1944. Sales of all dyes were 150,049,000 lb., valued at \$110,748,000. The production of vat colours in 1944, exclusive of indigo, amounted to 40,837,000 lb., an increase of 4,503,000 lb. over 1943. Sales of vat dyes were valued at \$47,337,000, direct dyes at \$17,109,000 and acid dyes at \$13,293,000. Production of direct dyes declined 2,977,000 lb. and acid colours increased 2,724,000 lb. over 1943. Vat dyes accounted for 38.3% of the total 1944 dye production, direct dyes for 19.7%, sulphur dyes for 11.9% and acid dyes 11.4%. The remaining 18.7% was fairly equally divided among other miscellaneous dyes. The quantity

of dyes classified according to the colour index number reported by the U.S. tariff commission increased 2.6% compared with 1943; those dyes designated by foreign prototype number increased 31% while the unclassified dyes decreased 8%. The large increase in dyes having foreign prototypes was partly due to the manufacture in the United States in 1944 of certain types of dyes that were formerly imported. (A. G. BN.)

**EAC:** *see* EUROPEAN ADVISORY COMMISSION.

**Eaker, Ira C.** (1896— ), U.S. army air officer, was born April 13 in Field Creek, Tex. He studied at the University of the Philippines, Columbia and Southern California universities and was commissioned as second lieutenant in the infantry reserve in 1917. In 1929, he was co-pilot in an army plane which established an endurance flight record of 150 hr. and 40 min., and some years later he made a cross-continent "blind flight." In Jan. 1942, he was made brigadier general. He was appointed chief of the U.S. bomber command in the European theatre of war in the summer of 1942, and on Feb. 15, 1943, Eaker, having been advanced to the rank of major general, became commander of the 8th U.S. air force, succeeding Maj. Gen. Carl Spaatz. Promoted to lieutenant general, Eaker stated in Oct. 1943, that the task of the air force for the winter would be to destroy Germany's production and transportation facilities so that invasion could be carried out with fewer casualties. On Dec. 28, 1943, Gen. Eaker was appointed commander of all Allied air units in the Mediterranean theatre. On Jan. 2, 1944, he announced that the 8th air force had made 64,000 offensive sorties over Europe in 1943, dropping 55,000 tons of bombs and shooting down 4,100 German fighter planes. He estimated that German fighter plane production had been cut by nearly 40% during the year. Eaker disclosed (March 25, 1945) that his command lost more than 20,570 men and 2,050 heavy bombers in 1944. On April 24, it was announced that Eaker had been named deputy commander of the army air forces and chief of the air staff.

**Ear, Nose and Throat, Diseases of.** *Progress of the Surgical Treatment of Deafness.*—Success with the labyrinth fenestration or window operation for otosclerosis continued without a radical change in the operative technic. Lempert continued to use the cartilaginous plug or stopple in the fenestra in the majority of his cases with excellent results.

Cases must be properly selected to obtain hearing improvement to a practical level. The pre-operative deafness must not be of too great a degree to obtain results that are satisfactory to the patient. The high percentage of successful results make this procedure a practical means of improving an otherwise incurable condition.

**Penicillin Therapy in Otorhinology.**—Penicillin sodium was found to be of definite value in the treatment of sinus and ear infections. It was instilled directly into the maxillary sinuses in a series of cases, and in others displaced into the ethmoid sinuses. In the ear cases it was driven into the middle ear by pressure.

These methods hastened recovery of the acute cases, shortening the morbidity to three days instead of the usual week to ten days. It was not so striking in the chronic running ears, however.

The use of penicillin applied directly to infection in otorhinologic practice is a definite step forward though not as dramatic as in other types of fulminating infections where the drug is utilized intramuscularly or by vein.

Sinuses infected with penicillin sensitive organisms respond

dramatically to treatment with this drug, whether acute or chronic. The patients with undue sensitivity of their mucous membranes usually gave the poorest results; hence the outlook in such cases should be considered poor. Patients suffering with nasal polyps have also responded poorly.

The effect of noise and change of barometric pressure on the aviator are for the most part reversible. Despite the noise and aero-otitis media, where the injuries from these causes have not been too great, there was a great tendency for recovery. Vulnerability of the acoustic apparatus was found to be variable, though extreme vulnerability to noise is not great. The dips and notches found in the audiometer studies were found above the conversational range and did not produce subjective loss.

Hearing loss produced by anoxia was never found to be sufficient to constitute a problem. The auditory mechanism is extremely resistant to anoxia though the latter condition ought not to exist since every airman has his own oxygen supply and knows how to use it. Deafness in airmen thus does not offer a problem, and this augurs well in the selection, care and protection of air force personnel.

**BIBLIOGRAPHY.**—Edward H. Campbell, "Progress of the Surgical Treatment of Deafness," read before the combined meeting of the Section on Otolaryngology of the College of Physicians of Philadelphia and Philadelphia Laryngological Society, Dec. 19, 1945, to be published; F. Harold Krauss, "Penicillin Therapy in Otorhinology," *Arch. Otolaryng.*, to be published; E. P. Cardwell, "Penicillin Locally in the Treatment of Nasal Accessory Sinus Disease," *Arch. Otolaryng.*, to be published; Paul A. Campbell, "The Problem of Aviation Deafness," *Arch. Otolaryng.* 41; no. 5, pp. 319-321, (May 1945); C. M. Kos, "Effect of Barometric Pressure Changes on Hearing," *Arch. Otolaryng.* 41; no. 5, pp. 322-326 (May 1945); B. H. Senturia, "Effect of Aircraft Noise on Hearing," *Arch. Otolaryng.* 41; no. 5, pp. 327-332 (May 1945).

**FILMS.**—*Fundamentals of Acoustics; Sound Waves and Their Sources* (Encyclopædia Britannica Films Inc.) (G. M. C.)

**Earnings, Company:** *see* BUSINESS REVIEW.

**Earthquakes:** *see* SEISMOLOGY.

**Easley, Claudius Miller** (1891-1945), U.S. army officer, was born July 11, at Thorp Spring, Tex. After graduation from Texas A. & M. college in 1916, he entered the regular army and served at various camps in the U.S. In 1921, he was sent to the Philippines for a three-year period of duty in Manila. He was later graduated from the Army War college, 1940, and then was assigned to the war department general staff in Washington. In early 1942, he was assigned to Camp Claiborne, La., and was then transferred to overseas duty as assistant commander of the 96th infantry division. Brig. Gen. Easley, who participated in the Leyte and Okinawa campaigns, was killed in action on Okinawa, June 19, a day after Lt. Gen. Simon Bolivar Buckner, Jr., had been fatally wounded in the same area, according to a war department announcement.

**East Africa, British:** *see* BRITISH EAST AFRICA.

**East Indies, Dutch:** *see* NETHERLANDS INDIES.

**East Prussia.** Formerly the easternmost province of the German land of Prussia. Area 15,061 sq.mi., pop. 2,256,349. East Prussia was separated from the remainder of the German reich after World War I by the Polish province of Pomorze, generally known as the Polish Corridor. According to the official figures of the Prussian census of 1910 the population in the southern part of East Prussia showed a strong Slav admixture, and in some districts in the southeast even a Slav majority. In 1919 the Poles based their claims for East Prussia on these considerations of nationality, but also upon considerations of strategy. A plebiscite arranged by the peace conference in 1919 in the nationally mixed districts decided in favour of Germany. Yet the strategic considerations in favour of Poland retained their validity, as was clearly shown when the German armies ad-



vancing from East Prussia precipitated Poland's defeat in 1939 and made Poland's access to the Baltic sea militarily untenable. For these reasons Poland claimed East Prussia during World War II. An additional reason was the socio-political character of the land: East Prussia was regarded as the centre of the economic and political power of the militaristic Junker class. In the period of the German republic (1918-33) the Junkers succeeded in maintaining their former position and even in increasing their hold upon Germany after the election of Field Marshal Paul von Hindenburg as president of the German reich.

At the Berlin conference in 1945 Russia, the United States and Britain decided that Königsberg, the capital of East Prussia and an important port, and all the territory east and north of it were to be incorporated into Russia, while the southern part of the province was put under Polish administration. The German inhabitants of East Prussia were to be transferred to Germany and to be replaced by Slav settlers. (H. Ko.)

**Eclipses of the Sun and Moon, 1946:** see ASTRONOMY; CALENDAR, 1946 (page xxii).

**Economic Association, American:** see SOCIETIES AND ASSOCIATIONS.

**Economic Defense Board:** see FOREIGN ECONOMIC ADMINISTRATION.

**Economic Development, Committee for:** see COMMITTEE FOR ECONOMIC DEVELOPMENT.

**Economics.** Economic research in the United States throughout 1945 was focused predominantly upon public policy. The Committee for Economic Development was concerned chiefly with the economic impact resulting from the relaxation of wartime controls. The Brookings institution continued its integrated studies pertaining to postwar readjustment and reconstruction with a contribution on postwar fiscal requirements. The American Farm Economic association conducted a prize essay contest on the general topic of a price policy for agriculture consistent with economic progress and stable incomes from farming. The Cowles commission published a detailed case study of the impact of price controls on business. The special committees of the American Economic association surveying the undergraduate teaching of economics and the academic training of economists made significant forward strides during the year. Among the government economists, perhaps the most outstanding contributions were those made by the department of commerce in the determination of the component elements of factory pay rolls for purposes of wage-price policy. Somewhat less scientific economic studies were issued in reports of the War Production board justifying increased wage payments without increases in price ceilings. Economists of the Federal Reserve board contributed a series of studies related to price and monetary controls.

The National Bureau of Economic Research issued substantial studies in business financing, dealing with the pattern of corporate financial structure and corporate cash balances that were especially rich in information and provided a significant source of raw materials for further study. A group of scholars familiar with the economic development of southeast Europe presented for the first time a comprehensive analysis of regional co-operation in nutrition, food and agriculture, industrial development, transportation, marketing and finance, concluding that the chief cause of the low standards of living and production has been the serious state of agricultural overpopulation in Bulgaria, Greece, Rumania, Poland and Yugoslavia. This factual survey became especially timely as this area of sovietization again became a focal point of economic irritation. With the growth of postwar communism in Europe and Asia, many of the studies dealing

with the expansion of communism by annexation and creation of puppet governments assumed greater interest. Full employment as a central topic of study again assumed the importance held throughout the prewar depression years as threats of demobilization unemployment loomed more ominously after the end of World War II. Despite the numerous articles on this subject in professional journals, no outstanding contribution on the solution of postwar unemployment appeared during the year.

After the signing of the charter of the United Nations organization, a greater stimulus was given to explorations in the field of international trade. Out of the British loan negotiations issued much new information relating to the economic conditions within the United Kingdom following the war. The British White Paper on war finance contributed substantially to the understanding of British national incomes. Throughout Great Britain, the issues surrounding the extension of nationalization of industries contemplated by the Labour government after the elections received serious attention in economic circles, and aroused wide popular interest. The permission extended U.S. air lines to establish world routes of passenger travel became the basis for studies of rates, traffic and international economic co-operation.

In the field of economic theory, the greatest attention was devoted to mathematical analysis, economics of the individual firm, econometric studies and institutional theory. Numerous publications dealt with economic systems, but rare indeed was the study that showed lack of an emotional bias. With the exception of statistics, few new college textbooks in economics were published during the year.

FILMS.—*Distributing America's Goods; Distribution of Foods; Industrial Revolution; Property Taxation* (Encyclopædia Britannica Films Inc.). (E. H. HE.)

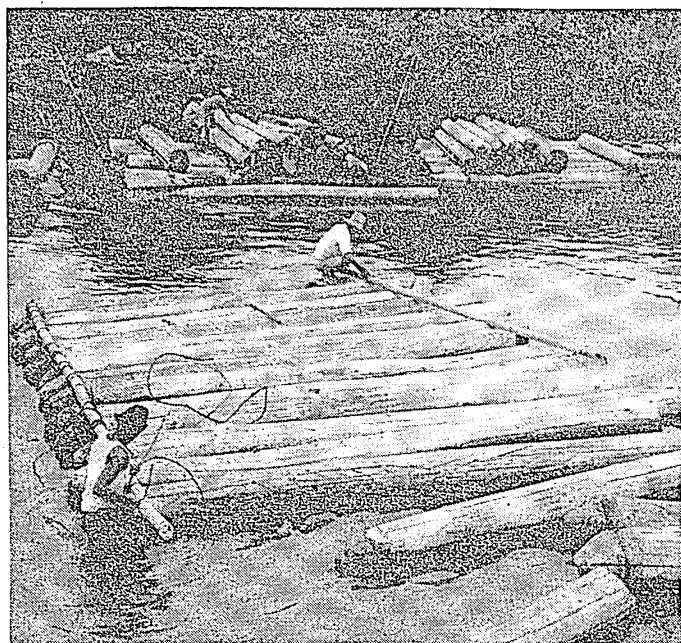
**Economic Stabilization, Office of:** see STABILIZATION ADMINISTRATOR, OFFICE OF.

**Economic Warfare, Office of:** see FOREIGN ECONOMIC ADMINISTRATION.

**Ecuador.** A west coast republic of South America, astride the equator, from which it is named. Area, 103,415 sq.mi.; the Galápagos Islands, a dependency in the Pacific, have an area of 3,029 sq.mi. Pop. (1944 est.) 3,171,367; about 30% are Indians, 40% mestizo and 28% white. The capital is Quito (pop., 1944 est., 165,924). Other important cities, with 1944 pop. estimates, are Guayaquil, the principal port (172,948); Cuenca (52,519); Riobamba (27,459); Jipijapa (22,097); Vinces (21,860); Chone (21,834); Ambato (21,692). President in 1945, José María Velasco Ibarra.

**History.**—Ecuador is governed by a new constitution, dated March 5, 1945, adopted by a constituent assembly elected after the revolution of May 28, 1944, which ousted Pres. Carlos Arroyo del Río. The constitution established a unitary republic with a president elected by direct, secret vote for four years (ineligible for the term following), a unicameral congress chosen in part on an elaborate basis of functional representation, and a judiciary headed by a supreme court of justice. The constitution contains several novel features, including representation in various bodies by the "political trends" of the right, centre and left. The bill of rights is elaborate and reflects a high degree of government regulation.

Members of the constituent assembly in mid-January sharply criticized U.S. Senator Kenneth McKellar's proposal that the United States buy or lease the Galápagos Islands for a naval base. Lt. Gen. G. H. Brett and Rear Adm. H. G. Kingman conferred in Quito March 15 with the president and foreign minister regarding postwar use of Galápagos bases. It was reported Sept. 17 that a preliminary agreement had been reached for U.S. use of the Galápagos in return for an Export-Import



BALSA RAFT made up by natives in Ecuador to be floated down the river

bank loan of \$20,000,000; on Sept. 25 it was reported that the U.S. would return the mainland base at Salinas to Ecuador. The foreign office announced Feb. 3 that Ecuador had considered itself at war with Japan from Dec. 7, 1941. Ecuador signed the United Nations pact Feb. 14 at Washington, D.C. The foreign office on Feb. 15 announced agreement with Peru over the last differences affecting their mutual boundary controversy. Officials formally occupied the border town of Vargas Guerra July 5 in accordance with the settlement. The presidents of Peru and Ecuador exchanged letters July 17 dealing with the settlement. The U.S.S.R. chargé in Mexico announced on June 28 that diplomatic relations between his country and Ecuador had been established. Domestic politics continued disturbed in 1945. Pres. Velasco threatened in late February to resign unless certain changes were made in the then pending constitution; he later declared his disapproval of the constitution and absented himself from Quito when it was promulgated. The president refused to accept a collective cabinet resignation March 11 and again July 30. An alleged attempt at revolt by army officers was suppressed Aug. 3. Amnesty was granted Aug. 14 to various former members of the administration. Ecuador had its first experience with woman suffrage in municipal elections, which reflected a conservative trend, on Nov. 25.

**Education and Religion.**—School enrolment in 1944 was reported at somewhat less than 300,000. The constituent assembly passed a bill Feb. 17 aimed to remove illiteracy, estimated at 62%, by 1950; the movement was begun in 1944 by the national newspapermen's union. Pope Pius XII on Jan. 8 received Manuel Sotomayor, new Ecuadorian envoy to the Vatican.

**Finance.**—The monetary unit is the sucre, valued in Dec. 1945 at 7.26 cents (U.S.). The 1945 budget balanced at 369,300,000 sucres as against an amended budget total for 1944 of 239,388,890 sucres. The chief increases were for highways, defense, agriculture and social welfare. It was estimated that a loan of 85,000,000 sucres would prove necessary to complete the financing. The government obtained a loan of 6,500,000 sucres May 15 from the Banco Central (alleged by the bank to be under pressure) for airport and other improvements. Government debt to the Central bank was consolidated by decree July 10 at 158,343,349 sucres with interest at 2% and amortization over 34 years. Central bank foreign exchange accounts June 30 were 121,684,876 sucres (Dec. 31, 1944, 178,737,303).

Bills in circulation June 30 were 321,995,770 sucres (Dec. 31, 1944, 312,994,595). Export-Import bank loans to Ecuador totalled \$15,200,000 by June 15, with \$4,900,000 outstanding. Total lend-lease advances to Ecuador were \$4,847,000.

**Trade and Communication.**—Total imports in 1944 were valued at \$23,500,000, of which 52% were supplied by the U.S.; total exports were valued at \$33,100,000, of which 57% went to the U.S. Chief imports, in order of value, were cotton and manufactures, foodstuffs and chemicals and pharmaceuticals; chief exports were rice, straw hats, cacao beans, rubber, coffee and balsa wood. Coffee exports in the first eight months of 1945 amounted to 3,234 short tons as against 6,864 short tons in the same period of 1944. Rice exports in the first half of 1945 were 11,407 short tons valued at \$1,527,405 (same period in 1944: 31,279 short tons valued at \$3,991,501). Rubber exports in the first half of 1945 were 1,465,303 lb. valued at \$657,962 (same period in 1944: 1,605,738 lb. valued at \$638,329). Total exports in the first four months of 1945 were down 32% as against the same period in 1944 but exports to the U.S. dropped only 12½%.

Railway mileage was 765 and had all been nationalized. Highway mileage was 4,280 of which 2,730 mi. were termed all-weather. Pan American Airways furnished international plane service. Railway freight and passenger rates were increased about 20% July 1 to provide for purchase of rolling stock and freight-handling equipment.

**BIBLIOGRAPHY.**—Lilo Linke, *Andean Adventure, A Social and Political Study of Colombia, Ecuador, and Bolivia* (1945). (R. H. FN.)

**Eden, (Robert) Anthony** (1897— ), British statesman, was born June 12, and was educated at Eton and at Christ Church, Oxford. After service in World War I from 1915 to 1918, he contested the Spenny-moor division of Durham in 1922, and in the following year he was elected for Warwick and Leamington, which he thereafter continued to represent. He was lord privy seal and a privy councillor, 1934, and in 1935 he entered the cabinet as minister without portfolio for League of Nations affairs, holding this post until the following December, when he became foreign minister. Disagreement with Prime Minister Chamberlain over the latter's appeasement policy led to his resignation Feb. 20, 1938. Upon the outbreak of war Sept. 3, 1939, he re-entered Chamberlain's cabinet as dominions secretary, and on Dec. 23, 1940, he was appointed to the foreign ministry in Winston Churchill's cabinet.

In Nov. 1944, he provoked a storm of controversy by voicing Britain's opposition to Count Carlo Sforza as Italian foreign minister. He told the house of commons in December that Great Britain was not trying "to impose a king with British bayonets on the Greek people," but added that neither was the government opposed to a regency. In 1945, Eden attended the Crimea, the San Francisco and the Potsdam (Berlin) parleys but yielded his place as foreign secretary at the latter conference to Ernest Bevin after the results of the British national elections were announced July 26.

**Education.** The end of hostilities in World War II was marked in the United States by the announcement within a few weeks of each other of the first use of the atomic bomb, of the report to the president on a program for postwar scientific research and of the report of the Harvard Committee on General Education in a Free Society. The atomic bomb was hailed as the fruition of teamwork in scientific research at government expense. At the same time, however, it was recognized in a resolution adopted by the Conference on Science, Philosophy and Religion at its meeting in New York in Aug. 1945 that the atomic age requires the collective thinking of

scholars, men of letters and leaders of the economic and philosophical and religious thought so that atomic power may become an asset rather than a liability in modern civilization. The report to the president presented a strong case for government aid for scientific research. The Harvard report emphasized the importance of general education which would balance the threatened overemphasis on the sciences in a technological age. To these three major concerns must be added the widespread interest in international educational and cultural relations. While these issues were outstanding there was the continued interest in educational problems which were in large measure, but not wholly, due to war conditions—teacher shortages and salaries, federal aid for education, child welfare, the future of the colleges, the education of returned veterans and compulsory military training.

**Teacher Shortages and Salaries.**—The prospects that the supply of teachers would be improved at the opening of the school year 1945-46 were not bright. According to a report issued by the United States office of education 300,000 teachers left the schools after Pearl Harbor. At the opening of the school year 1944-45, 168,000 or 20% of the teachers were new to the profession; in rural schools one in every three or four teachers was new as compared with about one in 18 in schools in the larger cities. The issuance of "emergency certificates" after very short periods of training rose in the four years after Pearl Harbor from 2,305 to 69,423. This situation became nation-wide when the New England states began to be affected by the shortage and when New York city for the first time in a quarter of a century was faced by the same condition.

Efforts were made to maintain the supply of teachers by increasing salaries, but the increase of about 15% after 1939 was incommensurate with the rise in the cost of living; 28,000 teachers received less than \$600 and 197,000 less than \$1,200. The averages for elementary and high school teachers in communities of different sizes were as follows: in those with 2,500 to 5,000 population \$1,537 and \$1,885; in the 10,000 to 30,000 group \$1,780 and \$2,235; and in cities of more than 100,000 \$2,602 and \$3,214 respectively. The Harvard committee in the report discussed later, recognizing that "everything finally depends on the teacher's quality of mind and spirit," also recognized that the improvement of education in schools and colleges depends upon higher salaries, smaller classes and "above all, perhaps, a more rounded, longer, more continuing education of teachers."

**Federal Aid for Education.**—Differences in the preparation and salaries of teachers were but one example of the failure to provide equality of educational opportunity throughout the United States. Added arguments for federal aid for education accumulated. The 1940 census listed 3,000,000 adults who had never been to school, more than 10,000,000 adults who were virtually illiterate and nearly 2,000,000 children aged 6 to 15 who were not attending any school. To these facts there was added the rejection under Selective Service of nearly 5,000,000 young men for educational, physical and mental deficiencies. The existence of widespread inequalities was revealed in the report of a study made under the sponsorship of the United States office of education, the American Council on Education, the National Education association and other organizations and financed by the General Education board. The report, *An Inventory of Public School Expenditures in the United States*, by John K. Norton and Eugene S. Lawler, published at the end of 1944, pointed only to one conclusion—the need of federal aid for education.

Bills to this end were introduced in congress in the first half of 1945. The Thomas-Hill-Ramspeck bills (S.181—H.R.1296) proposed a federal appropriation of \$300,000,000 annually of which a permanent contribution of \$100,000,000 was intended to equalize educational opportunities among and within the states, and \$200,000,000 were to be used for emergency aid for one or

more of the following purposes: payment of teachers' salaries, employing additional teachers to relieve overcrowded classes, adjusting salaries to meet increased cost of living and keeping schools open not less than 160 days a year. The equalization fund was to be apportioned to states according to financial need as measured by the number of persons 5 to 17 years of age and total income payment in each state. The emergency aid was to be apportioned according to the number of pupils in average daily attendance in the public schools of each state. The bills reserved the control of education strictly to the states and local systems.

To allay the fear of federal control as an accompaniment of federal aid, a report was issued on *Federal-State Relations in Education*, prepared under the sponsorship of the American Council on Education, the Educational Policies commission of the National Education association and the American Association of School Administrators.

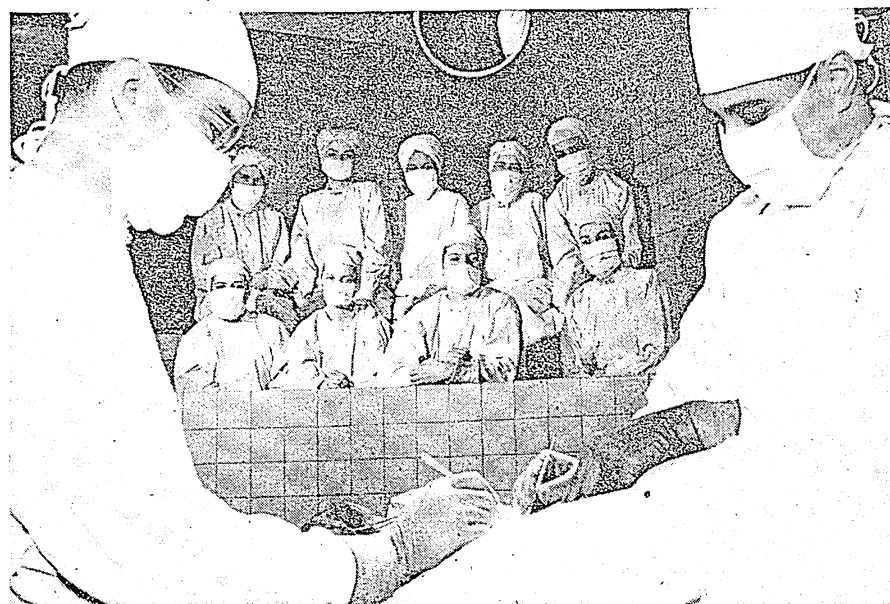
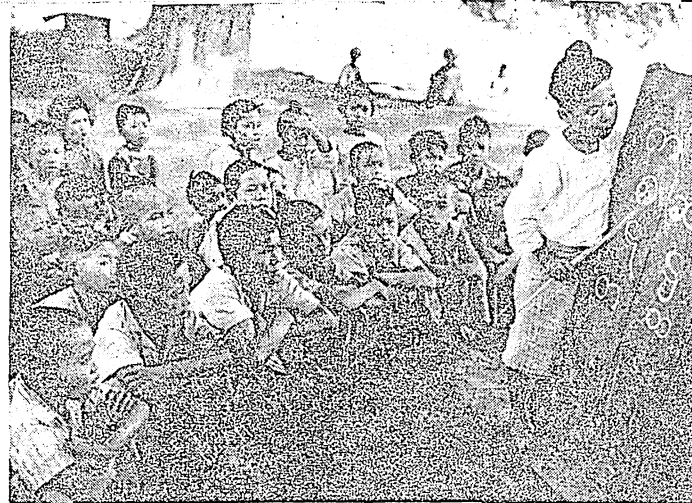
**The United States Office of Education.**—In line with a recommendation made by President Roosevelt in his last budget measure Dr. John W. Studebaker, U.S. commissioner of education, proposed in the *Annual Report of the United States Office of Education for the Fiscal Year 1944* a plan for the reorganization and expansion of the United States office of education which would raise the total personnel from 209 (105 professional and 104 clerical) to 1,353 (643 professional and 710 clerical) and the budget from \$1,001,577 to \$1,641,700. The report emphasizes the fact that the purpose of the reorganization is not to exercise control over education in the country but to use a larger and better prepared staff to collect information on education in the U.S. and abroad, to formulate and recommend standards for the improvement of all types of education, both public and private, to conduct surveys and furnish consultant services on problems of education (organization, administration, finance and curriculum) and to co-ordinate government activities in education. The necessary appropriations were made by congress and the reorganization was begun in the second half of 1945.

The end of hostilities brought to a close the war training programs in schools and colleges directed during the war years by the United States office of education and supported by federal funds; 12,000,000 men and women were trained for essential war jobs at a cost of \$500,000,000. The activities included the engineering, science and management war training program under which nearly 300,000 men and women were trained in colleges and universities both on the campuses and in co-operation with industrial concerns. At the high school level vocational training was offered in automotive services and aviation, electrical, machine shop, radio, shipbuilding and welding courses and in rural areas in improving food production.

A commission was appointed during 1945 to undertake a two-year study of educational techniques used in the army and navy. The study was to be directed by Dr. Alonzo G. Grace, commissioner of education of Connecticut, for the commission, appointed under the sponsorship of the American Council on Education with a grant of \$150,000 from the General Education board and the Carnegie Corporation of New York. The subjects to be studied included: the procedures used in the selection, classification and assignment of personnel; curriculum construction adapted to special jobs; teaching methods; use of visual aids; training programs for leadership and for teachers; and methods of physical and health training.

**Study of American History.**—The movement to emphasize the importance of the study of American history continued. In New Jersey two-year courses in the subject were made compulsory in public high schools by action of the state legislature. In the New York state legislature proposals were presented to make



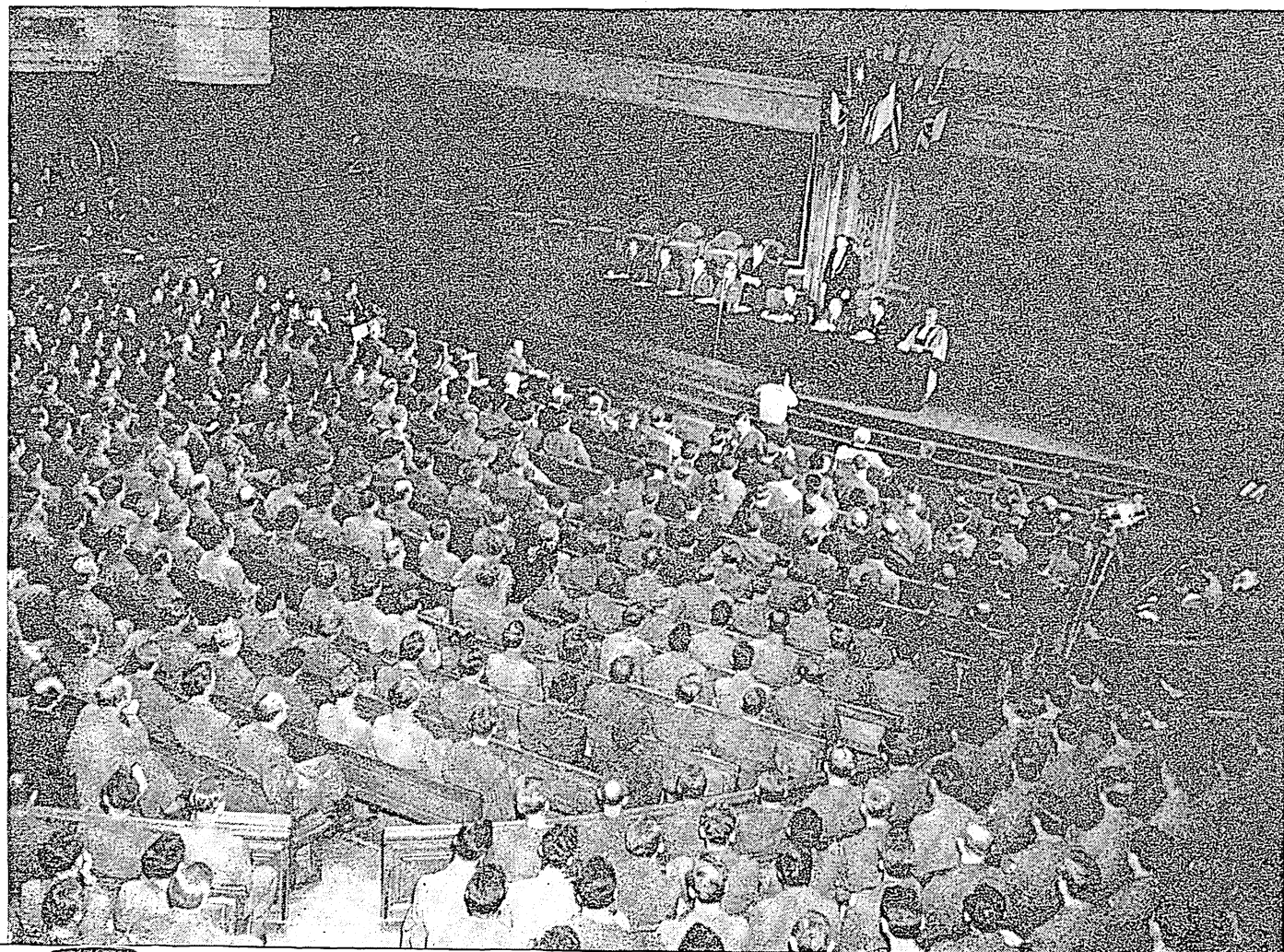


Above, left: GERMAN YOUTH attend a class in literature under the re-education program at a prisoner of war camp near Carentan, France. More than 17,000 students, enrolled in 1945, studied religion, languages, arts and commerce at the camp before returning home to Germany

Above, right: BURMESE CHILDREN watch with total absorption as a classmate goes through the alphabet. Classes were resumed in 1945 after three years of Japanese occupation during which primary education was ignored

Left: CADET NURSES of St. Joseph's hospital, Chicago, Ill., attending class in the operating theatre to observe actual surgery in 1945. They were part of a group registered for a three-year course sponsored by the U.S. public health service

Below: GRAND AMPHITHEATRE of the Sorbonne in Paris, filled with men and women of the U.S. army, who were being addressed by U.S. ambassador Jefferson Caffery. They studied the French language there under the army educational program in 1945



the study of prescribed courses in American history a requirement for graduation from public and private elementary and high schools. At the University of Maryland, College Park, Md., the study of American history, government and literature was made compulsory for all students in the first year of a new curriculum which went into effect in Sept. 1945. In the college of arts and sciences of Ohio State university, Columbus, O., special emphasis was placed upon the study of American civilization (history, political science, English and economics) throughout the four-year undergraduate course. During 1945 a survey was begun by the Committee on American Literature and Culture of the National Council of Teachers of English to discover the extent to which American literature is taught in colleges and universities in comparison with the literature of other countries.

**Child Welfare.**—See CHILD WELFARE.

**Higher Education.**—The war affected colleges and universities more seriously than any other branches of education. The result of a survey prepared for the committee on education of the house of representatives revealed the grave financial situation of these institutions because of the drop in enrolments and the abandonment of the army and navy training programs in many of them. The group recommended federal aid of \$25,000,000 a year as long as the emergency continued, the grants to be made to institutions when full-time enrolment dropped to 60% of the normal enrolment. Other proposals recommended were the payment of grants-in-aid for repair and replacement of permanent equipment and for construction of buildings, increased exemptions from income tax because of gifts made to colleges by corporations and individuals, and scholarship grants to students. The recommendations were embodied in H.R. 3116 under which aid would be given to public, nonsectarian and sectarian private institutions of higher education approved by the Association of American Colleges. The proposed appropriation of \$25,000,000 for the first year would be administered by a newly created Commission on Emergency Federal Aid to Higher Educational Institutions. While federal aid was favoured by college presidents as an emergency measure, 56% declared themselves opposed to government subsidies as a long-range policy when the question was discussed at a meeting of the Association of American Colleges held in Atlantic City.

**Curriculum Reforms at Harvard and Yale.**—An extensive report, prepared by a committee appointed by President James Bryant Conant in 1943 to consider the problem of general education in both the school and the college, was published by Harvard university, Cambridge, Mass., under the title *General Education in a Free Society*. The report is of the greatest significance for the future of secondary and college education in the United States, since it deals not only with issues affecting the college curriculum at Harvard but also with the pressing problems of education facing the United States in the postwar years. The committee discussed the meaning and importance of equality of opportunity, the relationship between specialistic education adapted to diversity of gifts and general education in a common heritage and toward a common citizenship, the importance of better preparation and improved status for teachers, and the reconciliation of the cultural heritage and the spirit of change. For the high schools the committee recommended that from 50% to 75% of the students' time be devoted to a program consisting of humanities, social studies, science and mathematics as the areas of general education. The program recommended for Harvard undergraduates was intended to limit the elective principle and to require all students to select a minimum of 6 of the 16 courses for the bachelor's degree in general education. The committee also recommended that the tutorial system be retained but limited to perhaps half the students in the junior and senior years and a smaller number in the sophomore year.

The committee's proposals were considered by the Harvard faculty in October.

At Yale university, New Haven, Conn., the committee, which had been studying the reform of the curriculum from 1940, recommended in its report a drastic restriction in the elective system and proposed three main plans: (1) The standard plan for the great bulk (perhaps 85%) of the undergraduates to include three basic requirements (English, systematic thinking and modern languages) and six distributional requirements (inorganic and organic sciences, the ancient world, studies of society, literature and the arts, and courses in integration) to give the student a broad view of the world in which he lives and to equip him with the means of understanding it. At the end of the sophomore year each student will elect a subject or field for his major work in the last two years. During the summer vacations reading of prescribed books or books related to the student's major will be required. The standard program was to go into effect in Sept. 1946. (2) The scholars of the house program is an honours plan dealing with juniors and seniors only and beginning after the standard program has been in force for two years. This plan, open only to selected students at the end of their first two years, will permit complete freedom to follow any reasonable combination of courses. (3) An experimental program, to be elected by students at the beginning of the freshman year, is to be an experiment in controlled and integrated education with completely required courses in the first two years and selection of one of five major fields in the last two years. Properly qualified students may pass from one program to another, especially at the end of their sophomore year.

Another committee appointed by President Charles Seymour of Yale university recommended that the role of religion in higher education be re-evaluated to offset the prevalent aimlessness and lack of purpose and to develop students as responsible bearers of spiritual values.

**International Studies.**—One of the important contributions of an educational experiment during the war was expected to be a broader approach to the study of foreign languages with emphasis on "area studies" or the culture and civilization of the people whose language is being studied. The methods of language teaching developed in the army specialized training programs must, however, be adapted to normal conditions in schools and colleges. Columbia university announced the creation of a Russian institute to be followed later by five other institutes dealing with the British commonwealth of nations, east Asia, Latin America, France and Germany. The formation of a school of international affairs was also announced at Columbia university to train graduate students for service in government service and in international agencies, as well as for foreign trade, international law and international cultural and civic agencies. At the University of Virginia, Charlottesville, Va., a school of foreign service and international affairs was created to train for foreign service in and out of government and to provide for the study of international affairs as the basis of a liberal education. Similar training is provided in the school of public and international affairs at Princeton university, Princeton, N.J., and in the Institute of International Studies at Yale university. Courses in international affairs and relations have been introduced in other universities, as, for example, the University of Illinois, Urbana, Ill., the University of Pittsburgh, Pittsburgh, Pa., and Stanford university; near Palo Alto, Calif. Latin-American studies have been provided in schools and colleges throughout the United States. At Stanford university courses in Chinese studies have been organized with Chinese cultural scholarships provided by the national government of China. The introduction of courses in far eastern studies (China, India, Japan and other oriental countries) in schools, teacher-training institutions,



colleges and universities was urged in an article in *Education for Victory*, Feb. 20, 1945, the organ of the United States office of education.

**Postwar Scientific Research.**—On Nov. 17, 1944, President Roosevelt requested Dr. Vannevar Bush, director of the Office of Scientific Research and Development, to submit recommendations: (1) on making known the contributions made during the war to scientific knowledge; (2) on continuing the work done in medicine and related fields; (3) on what the government can do to aid research activities by public and private organizations; (4) on discovering and developing scientific talent in U.S. youth to maintain the level of scientific research achieved during the war. In July 1945, Dr. Bush presented the recommendations in a report *Science, The Endless Frontier, Report to the President on a Program for Postwar Scientific Research*, based on the deliberations of committees on each of the topics listed. Basing his recommendations on the view that "new impetus must be given to scientific research in this country" Dr. Bush stated that, while private sources should continue to support research, the impetus could best be provided by government aid. The report recommended federal support for basic research and scientific education beginning with a grant of about \$33,000,000 a year and rising gradually thereafter to \$122,000,000 a year. A national policy for scientific research and education should be promoted by a national research foundation to be created by congress and to comprise five divisions: medical research, natural sciences, national defense, scientific personnel and education, and publications and scientific collaboration. Scientific research was declared to be of importance for improving the welfare of the U.S. people, since "scientific progress is one essential key to our security as a nation, to our better health, to more jobs, to a higher standard of living, and to our cultural progress." Shortly after the publication of the report a bill was introduced in the senate to create a National Science foundation to carry out the purposes suggested in the report. The recommendations of the report did not, however, escape criticisms, some from those who feared federal control of research in general, others from scientists who expressed some scepticism about directed research and the acceleration of scientific discoveries through teamwork; these felt that a distinction must be made between pure and applied science.

**Education of Veterans.**—Plans were being developed during 1945 for the education of returning veterans in colleges and vocational schools and special arrangements were made for counselling them. Many veterans began to take advantage of educational opportunities provided in the G.I. Bill of Rights. There was some uncertainty, however, both about the numbers who would ultimately continue their education and about the types of courses they would select. Proposals were made to amend the legislation and to increase the benefits provided in the original act.

In the European area provision was made for the education of members of the armed forces in the interval before their return home. Three universities, staffed by American teachers and others, were opened in Florence, Italy, Biarritz, France, and Shrivensham, England; a centralized vocational school was established at Warton, England, and in addition about 2,000 schools were provided in the various army units.

**Compulsory Military Training.**—Considerable debate was aroused by proposals, supported by President Truman, some cabinet members, General George C. Marshall and the American Legion, to enact a system of compulsory military training in the postwar period for youth over 18. The Association of American Colleges, meeting at Atlantic City, voted 210 to 35 against compulsory military training. In a poll conducted by the National Education association some 60% of the 3,800 superintendents,

principals and teachers polled were opposed to the idea, and in a poll conducted by the American Council on Education three-fourths of the college and university presidents voted in favour of postponing action and urged the creation by congress of a commission to study national defense, including universal military training. Further study of the whole issue was also advocated in an article by Hanson W. Baldwin ("Conscription for Peacetime?" in *Harper's Magazine*, March 1945) which attracted widespread attention. A small number of university presidents and the Citizens Committee for Military Training of Young Men, Inc., formed in 1945, campaigned actively in favour of immediate legislation. Early in September, however, President Truman in his message to congress included universal military training among the measures to be enacted.

**Correspondence Schools.**—The war years stimulated a new interest in the provision of education by correspondence not only for members of the armed forces but also for high school students. Introduced in 1873, education by correspondence spread rapidly and was provided in 1945: (1) by private organizations; (2) by extension divisions of colleges and universities providing courses for high school students; and (3) by extension divisions of state departments of education. Of the first type there were nearly 400 reaching about 1,000,000 students of all ages; the best known of the private organizations is the International Correspondence schools, Scranton, Pa. Of the second type 35 colleges and universities in 1942-43 offered supervised courses for high school students, usually in vocational fields in which regular classwork was not provided. The University of Nebraska, Lincoln, Neb., one of the leaders in the movement, organized correspondence courses in 285 high schools for 3,100 students in 1942-43; similar courses are offered in Colorado, Montana, Wisconsin, North Dakota, Ohio and a number of other states. The departments of education in Massachusetts, Montana and Pennsylvania publish manuals for correspondence education, while other states sponsor or co-operate in making correspondence courses available. In Wisconsin local school boards are authorized by law to contract and pay for such instruction out of public funds.

The most extensive development of education by correspondence took place during the war, when the program of education for members of the armed forces at home and abroad was organized in 1942. The program is administered by the U.S. Armed Forces Institute (U.S.A.F.I.) at the University of Wisconsin, Madison, Wis. Those who registered for the correspondence courses paid \$2 per course and received instruction and textbooks from the institute, which co-operated in 1945 with more than 80 colleges and universities. The courses offered were on the high school and college level and credit was obtained for them. More than 20,000,000 copies of texts were distributed; 230 texts were published of which about 80 were self-teaching and the rest reprints of standard texts. The work of the institute was being further expanded to meet the needs of troops in occupation areas for vocational, technical and professional education.

A movement to provide supervised correspondence courses for veterans was launched by the board of education of Benton Harbor, Mich., a pioneer in the provision of such courses for high school students. The movement promised to spread to other public school systems. (See Department of Supervision and Curriculum Development, N.E.A., *Education in the Armed Services*, 1944; U.S. office of education, *Correspondence Study in High School Wartime Programs*, 1943.)

**Education and the United Nations.**—Active steps were taken to ensure that specific reference be made to education in the United Nations charter. The campaign was successful and provision for United Nations co-operation in educational and cultural matters was included in the charter wherever references were made to economic, social and humanitarian affairs. A conference, held in London from Nov. 1 to 16 and attended by delegates and advisers from 44 nations, resulted in the adoption of a constitution of the United Nations Educational, Scientific and Cultural organization (U.N.E.S.C.O.). The constitution would come into force when it had been accepted by 20 of its signatories. Paris was selected as the seat of the organization.

**Academic Freedom.**—The dismissal of Dr. Homer P. Rainey from the presidency of the University of Texas, Austin, Tex., continued to be discussed. The Southern Association of Colleges and Secondary Schools placed the university on probation, while the American Association of University Professors in an interim report criticized the regents of the university for "a serious disregard of good academic practice" and demanded the reinstatement of Dr. Rainey.

**Educational Developments Abroad.**—The postwar reconstruction of education in European countries proceeded very slowly during 1945. In both the liberated and occupied countries many school buildings were destroyed, some were left unfit for use, equipment and school materials were lacking and above all there was a serious shortage of teachers. The story of "Education under Enemy Occupation" (in Belgium, China, Czechoslovakia, Greece, Luxembourg, Netherlands, Norway and Poland) was told in *Bulletin* 1945, No. 3, of the U.S. office of education (1945). The same conditions existed, but not to the same degree as on the continent, in England and in Scotland and prevented the implementation of the reforms of the Education acts passed in England in 1944 and in Scotland in 1945. The Conference of Allied Ministers of Education, organized in 1942, appointed a commission in 1945 to survey the educational needs of the liberated countries and to exchange information on plans for meeting these needs. In France the report of a Commission on the Postwar Reform of Education, prepared while the government was in Algiers and published in the *Bulletin du Ministère d'Éducation Nationale* in November 1944, furnished the basis for discussion, but the enactment of the proposed reform waited until after the constituent assembly had drafted its proposal for the reorganization of the political structure of France. In



Germany General Eisenhower announced at the end of 1944 that all specifically nazi institutions would be permanently closed and in the educational system the elementary schools would be the first to be opened, to be followed in time by the opening of secondary schools and universities; all nazi doctrine, the race theory and militaristic indoctrination to be eliminated. (For statistics of institutions see UNIVERSITIES AND COLLEGES.) (I. L. K.)

**Great Britain.**—Planning and preparation were the keynote of 1945. The cessation of hostilities brought little or no improvement of conditions in the schools and universities; if anything, the shortage of manpower and materials became more acute.

In England and Wales the bulk of the Education act, 1944, came into operation on April 1, 1945. The reorganized system of local administration began to function, all postprimary schools became officially secondary, and tuition fees ceased in secondary schools maintained by local education authorities. The same day new salary scales for teachers, with a basic minimum of £300 a year for qualified teachers, became operative.

In April the ministry of education was reorganized to meet the requirements of the new act, and from then on until the autumn a stream of regulations made by the minister under the act was issued. These, with the ministry's directive and advisory circulars and memoranda, enabled the local education authorities to get to grips with their "development plans" (due under the act for presentation by April 1, 1946) for the reorganization of primary and secondary education and to draw up their schemes of local administration.

The breakup of the coalition government ended R. A. Butler's term of office as minister of education. He had held this post for nearly four years (from July 1941), and by his creation and pilotage through parliament of the Education act, 1944, he had established a reputation for statesmanship equalled by few if any of his predecessors. His successor, the Conservative Richard Law, held office only until August, when the Labour party came into power and Ellen Wilkinson became the first woman minister of education.

In September the minister of education announced that the raising of the age of compulsory attendance at school from 14 to 15 years would be deferred until April 1, 1947, the latest date allowed by the act, but not later, though sufficient teachers and accommodation to meet minimum requirements could hardly be provided before mid-1948. To expedite the provision of accommodation the ministry of works would supply and erect for local education authorities prefabricated huts.

In September also, Miss Wilkinson announced that compulsory part-time education for young people would begin on a national basis in 1950, and appealed to industrialists to establish, in co-operation with local education authorities, interim voluntary schemes. In October the ministry of education published *Youth's Opportunity*, a valuable pamphlet of guidance on part-time education in county colleges.

In March the minister's central advisory council for education in England announced that it had begun an inquiry into the value of existing education in schools "as a preparation for a useful and satisfying life." During the year negotiations were begun to transform the Foundation for Educational Research, which had been functioning under the aegis of the University of London, into a national body. This change was to take place at the end of the year.

In February the Education (Scotland) bill was reintroduced into parliament. The controversial nature of the clauses dealing with local administration threatened delay, but when it became apparent that the Churchill government was nearing its end these were dropped, the bill was rushed through and made law on June 15. It came into operation on July 2, making the provision of public education in Scotland comparable with that in England and Wales. Revised salary scales for teachers in Scotland were made effective from April 1.

In February Sir John Anderson, then chancellor of the exchequer, announced that on the recommendation of the university grants committee the government had decided to increase the treasury grant to the British universities (previously £2,249,000 a year) by £2,000,000 a year for general university purposes, £1,000,000 for the medical schools and £500,000 for the teaching hospitals; the position to be reviewed after two years. A token grant of £250,000 for capital expenditure was also made. In May the government announced that the arts courses for men at the universities would be reopened in October to admit about 600 students from secondary schools, and in August that 3,000 arts and 1,500 theological students would be released from British forces to take up or resume university studies. Military requirements somewhat hindered the release of forces students, and the universities began their first peacetime term at about two-thirds prewar strength, including a number of U.S. servicemen.

In November was published the report of the committee appointed in 1944, under the chairmanship of Lord Eustace Percy, to consider the needs of higher technological education in England and Wales and the respective contribution to be made by universities and technical colleges. This recommended the establishment of a national council of technology and regional advisory councils to co-ordinate higher technological studies, and the selection of a few technical colleges in which should be developed courses of comparable standard with university degree courses.

After the end of the war the comprehensive scheme of general and prevocational education for men and women in British forces awaiting demobilization was begun, and by October had got well under way. The forces' educational work stimulated much discussion as to how to carry this over into civilian life, and projects for community centres and associations and for resident colleges for adult education were developed in many places. In October the Arts Council for Great Britain (formerly the Council for the Encouragement of Music and the Arts) announced plans for art centres throughout Great Britain. On Nov. 16 the conference endorsed the constitution of the United Nations Educational, Scientific and Cultural organization and approved the instrument establishing a preparatory commission. The latter immediately began work under the chairmanship of Ellen Wilkinson.

(See also CAMBRIDGE UNIVERSITY; LONDON UNIVERSITY; OXFORD UNIVERSITY.)

**FILMS.**—*Bringing the World to the Classroom; Using the Classroom Film* (Encyclopædia Britannica Films Inc.). (H. C. D.)

**Education, U.S. Office of:** see EDUCATION; FEDERAL SECURITY AGENCY.

**Education Association, National:** see NATIONAL EDUCATION ASSOCIATION.

## Edwards, Gus

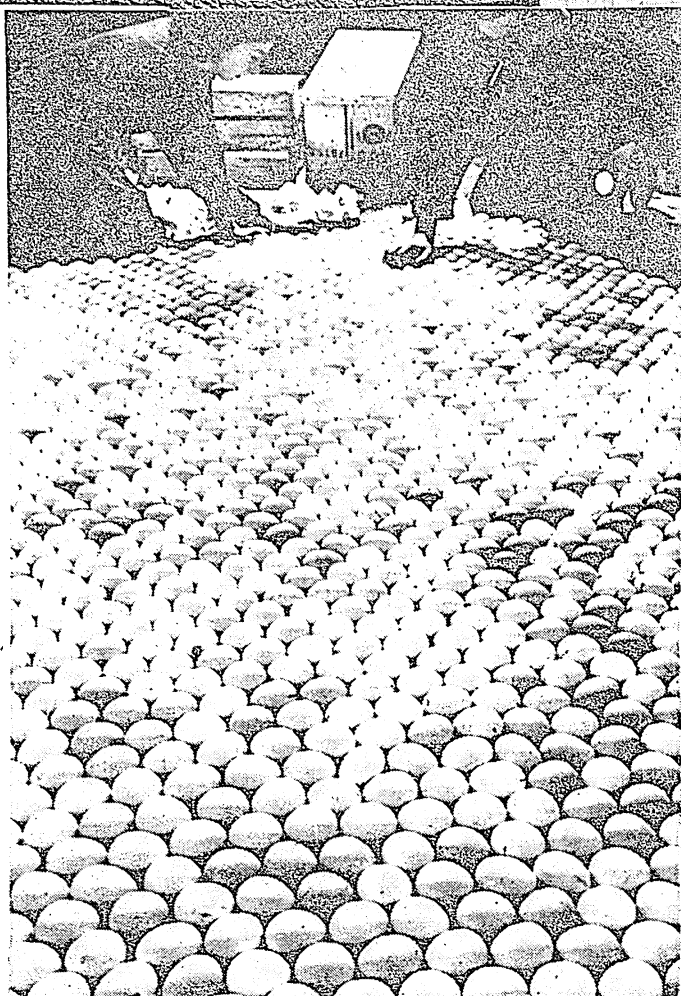
(1881–1945), U.S. song writer, actor and producer, was born Gustave Edward Simon, Aug. 18. Shortly after he reached the United States with his family, he went to work as a tobacco stripper. He sang at a Brooklyn saloon and was spotted by a showman who introduced him to vaudeville audiences. He met a lyric writer, Will Cobb, and the two teamed their efforts in writing "I Can't Tell Why I Love You" and "When the Roses Bloom Again Beside the River." Both tunes were popular and earned the writers handsome royalties. Edwards then went into the song publishing business for himself. In addition, he produced a number of stage plays. Meanwhile, his songs were squeaking incessantly from phonographs all over the U.S., and included such hits as "By the Light of the Silvery Moon," "Good-bye Little Girl, Good-bye," "Tammany," "School-days," "Wonderful," "Every Day Is Mother's Day for Me," "Orange Blossom Time," "I'm Gonna Meet Minnie Tonight," "In My Merry Oldsmobile," "Don't Cry Little Girl Don't Cry," "Way Down Yonder in the Cornfield," "I Just Can't Make My Eyes Behave," etc. He appeared in the motion pictures *The Doll Shop* and *The Song Writers Revue* in 1929 and a film based on his own life, *The Star Maker*, was produced in 1940. He died in Los Angeles, Calif., Nov. 7.

## Eggs.

Total production of eggs in the United States in 1945 was slightly below the record of 1944. The total in 1945 was 5,050,000,000 doz. as estimated by the U.S. department of agriculture compared with 5,305,000,000 doz. in 1944 and a prewar average of 3,335,000,000 doz. in 1935–39. The decline in egg production reflected the reduction in numbers of poultry on farms in 1944 which was indicated by the large slaughter of poultry for meat in 1944–45. The number of laying hens was increased late in 1945 indicating larger production of eggs in 1945–46. Egg production had increased each year from 1940 to the record in 1944 when the first signs of declining demand appeared. Stocks were high and domestic consumption higher than ever before, 351 eggs per capita.

The farm prices of eggs ranged higher through 1945 than in previous years and much above the prewar average. The average farm price ranged from 41 cents per dozen in January down to the seasonal low of 33 cents per dozen in April and up to 40 cents per dozen in August. Following the end of World War II the price declined again. The stocks of shell eggs were much below normal during the spring of 1945 and on July 1 were the lowest on record and 46% below 1944. Frozen eggs were in good supply above averages. Dried egg stocks were much lower than in 1944. With the decline of military and lend-lease demand for dried eggs this form of processing began to decline since the civilian uses for dried eggs did not increase as rapidly as expected. Such eggs are used principally by bakers and other food manufacturers rather than by housewives. A considerable export demand was expected to continue for some time for relief purposes. The growth of dried egg processing was one of the striking developments of World War II. From a total output of 7,487,000 lb. of dried eggs in 1940 the production increased to 320,742,000 lb. in 1944. It then dropped to about 100,000,000 lb. in 1945.

The domestic demand for eggs was maintained somewhat in 1945 by the shortage of meats. Per capita consumption of eggs reached a new high record of about 390 eggs per capita in 1945 compared with 351 in 1944, 316 in 1940 and a prewar average



EGGS ready for export from Denmark in the summer of 1945. After V-E day the country was able to resume export of butter, bacon and eggs, but in smaller quantities than before the war

of 298 in 1935-39. The increase in the raising of chickens for meat accounted for the use of about 200,000,000 doz. eggs for hatching and appeared to be likely to continue. Exports of eggs, mostly in the form of dried eggs, averaged about 550,000,000 doz. annually during the war years or more than 10% of the total supply. Most of these were shipped under lend-lease. A continued export outlet depended upon the extent of relief shipments. The military procurements which amounted to almost 500,000,000 doz. in 1944 and 1945 began to decline sharply in late 1945. The total production of eggs at around 430 per capita attained during 1943-45 was not expected to continue without a sharp reduction in prices. Under the Stabilization act egg prices were to be supported at not less than 90% of parity for two years after Jan. 1, 1946, following the official end of hostilities. Farm prices averaged above 90% of parity through 1942 to 1945.

The egg production of the United States is centred in the north central states with Iowa leading and Minnesota a close second. The 12 central states produce nearly half of the total of the country. The south central states follow with north Atlantic states third in order. Texas alone is a large producer in the south. The commercial egg plants, however, are concentrated on the Atlantic and Pacific coasts, but account for only about 10% of the total output compared with farm poultry. (See also POULTRY.)

(J. C. Ms.)

**Egypt.** An independent kingdom of northeast Africa; bounded N. by the Mediterranean, S. by the Anglo-Egyptian Sudan, N.E. by Palestine, E. by the Red sea, W. by Libya and the Sahara. Area c. 383,000 sq.mi. (arable land 13,600 sq.mi.); pop. (est. June 1943), 17,423,000. Chief towns (pop. 1937): Cairo (cap. 1,312,096); Alexandria (685,736); Port Said (124,749); Tanta (95,260); Mansura (69,036); Da-

manhur (61,962); Asyut (60,338). Ruler, King Farouk I; premier, Mahmoud Fahmy el-Nokrashy Pasha (Feb. 24, 1945); language, Arabic; religion, Mohammedan 91%; Copt 7%.

**History.**—A general election was held on Jan. 8, 1945. The opposition (the Wafd), following the precedent of opposition parties in former years, boycotted the election. There was a record number of voters and the results were: Saadists, 124; Liberals, 74; Makramists, 30; Independents, 29; Nationalists, 7. In compliance with King Farouk's wish, a coalition cabinet was formed by the Saadist prime minister, Ahmed Maher Pasha. There were demonstrations and strikes in Cairo from Feb. 6-9, but the Wafd denied the government's allegations that "opposition parties" were behind the disturbances.

Egypt was the setting for what were probably the most important conversations ever held on the future of the middle east when President Roosevelt and Prime Minister Churchill, on their way home from the Crimea conference, had discussions with King Farouk, King Ibn-Sa'ud and the emperor of Ethiopia. Roosevelt, on board a U.S. destroyer in the Great Bitter lake near Suez, on Feb. 13 and 14 received in turn King Farouk, the emperor of Ethiopia and King Ibn-Sa'ud. The destroyer then sailed for Alexandria harbour, where the president and Churchill held their last conference. Churchill proceeded to Cairo where on Feb. 16 he conferred with the emperor of Ethiopia; on the morning of Feb. 17 he had a discussion with King Ibn-Sa'ud and in the afternoon met the king of Egypt. He subsequently saw also the president of the Syrian republic. Apart from an announcement from the White House on Feb. 20, which stated that the future of U.S.-Egyptian trade was stressed in the conversations between the president and King Farouk, official statements gave little information about the subjects discussed at these meetings between the leaders of the middle east and western powers. It is significant that the meetings took place at the same time as the conference of Arab foreign ministers to draw up a constitution for a league of Arab states, which was held in Cairo, Feb. 14 to March 3.

The Egyptian prime minister, Ahmed Maher Pasha, was assassinated in parliament on Feb. 24 after reading a royal decree declaring war on Germany and Japan. The assassin, an extremist young lawyer with pro-nazi sympathies, was immediately arrested and subsequently executed. Mahmoud Fahmy el-Nokrashy Pasha, Saadist foreign minister, became premier, the cabinet otherwise remaining unchanged, and the premier's powers were extended by royal decree. On Feb. 26 parliament approved a state of "defensive war" against Germany and Japan by 214 votes to 2 in the chamber of deputies and 66 to 41 in the senate. Egypt was not qualified to take part in the San Francisco conference.

The end of the war in Europe brought a relaxation of press censorship and with this a flaring up of the old political warfare. An increased national consciousness had made inevitable the demand for the revision of the Anglo-Egyptian treaty of 1936, particularly as the military dangers which helped to shape Anglo-Egyptian relations from 1936 onward had, in the eyes of Egyptians at any rate, ceased to exist. The government showed considerable moderation, however, and refused to be dragooned by extremists into countenancing street demonstrations and the old methods of political warfare to force the issue with the British government. Cairo students, who had in the past shown themselves to be willing agitators, seemed to be reluctant to embarrass the government. By October it was clear that the Egyptian government was anxious for early revision of the treaty and for the immediate evacuation of British troops, but that at the same time it wished to maintain and develop friendship with Great Britain.

The government also made an effort to improve the state of home affairs and in the autumn considered proposals for a five-year plan to improve the country's social and educational services and internal transportation.

The state of siege, which had been declared early in World War II and approved by parliament on Oct. 12, 1939, was lifted on Oct. 8, 1945. (J. R.A.)

In his speech from the throne on Nov. 12, King Farouk announced far-reaching economic reforms: these included the distribution of 500,000 ac. of land to small cultivators, the raising of excess profits duty to 50%, and the introduction of income tax on a sliding scale, by which means the rich would aid the poor. The import permit system on all goods from the sterling area was to be abolished.

Demonstrations against the Balfour declaration on Palestine led to widespread rioting in Cairo and Alexandria on Nov. 2 and 3.

**Education.**—(1938–39) Elementary and secondary schools 4,065; scholars 1,064,209; colleges 8; scholars 1,980; Fuad I university: scholars, male 8,393; female 7,043; foreign schools (1936–37) 410; scholars 76,750.

**Banking and Finance.**—Revenue (est. 1945–46) \$349,661,000; expenditure (est. 1945–46) \$359,178,400; public debt (Oct. 31, 1944) \$380,696,000; notes in circulation (Aug. 1944) \$416,696,600; gold reserve (Aug. 1944) \$25,655,600; foreign assets reserve \$414,213,800; exchange rate (£Ei = 100 piastres): (1944) £Ei = 413.8 cents U.S.

**Trade and Communication.**—External trade (merchandise): imports (1943) \$156,002,600; exports \$103,350,000. Communications and transport (1938): roads, main 1,240 mi.; secondary 3,430 mi.; railways (1941), state 3,686 mi.; agricultural 862 mi.; shipping (1939) 110,000 tons gross; entered ports 35,390,325 tons gross; passed through Suez canal 25,827,977 tons gross; motor vehicles licensed (Dec. 31, 1938): cars 29,382; commercial 4,074; cycles 2,051; wireless receiving set licences (Dec. 31, 1938) 76,823; telephone instruments in use (April 30, 1938) 59,922.

Aerial Navigation in Egypt, 1938

	Misr Airways Company	Imperial Airways Ltd.	"K.L.M." Royal Dutch Air Lines
Passengers	18,559	6,056	2,450
Freight and baggage (short tons)	70.2	125.6	49.6
Mails (short tons)	18	1,630	145
Miles flown	1,011,104	6,967,935	2,795,180
Regularity of service	96.1%	99.9%	98.2%

**Agriculture and Minerals.**—Production (1943) (in short tons): cotton, ginned 176,500; maize 1,514,700; wheat 1,402,900; rice 745,250; petroleum 1,413,500; barley 345,850; groundnuts 18,480. (See also ANGLO-EGYPTIAN SUDAN.)

**Eichelberger, Robert Lawrence** (1886– ), U.S. army officer, was born March 9 in Urbana, Ohio. A graduate of West Point, he was commissioned a 2nd lieutenant in 1909, saw service on the Mexican border and the Panama Canal Zone and in 1918 was awarded the D.S.C. and D.S.M. while serving with the army of occupation in eastern Siberia. After World War I, he was stationed in the orient. On returning to the United States, Eichelberger was attached to the general staff for several years in the early 1920s. In 1940, he was reassigned to West Point, where he streamlined the entire curriculum of training. Made a brigadier general in 1940, Eichelberger was promoted to the rank of major general in July 1941 and to lieutenant general in Oct. 1942. In Jan. 1943, Gen. Douglas MacArthur revealed that Eichelberger had been placed in command of U.S. troops in Papua. In 1944, as field commander in Netherlands New Guinea,

he took part in the invasion of that territory in April, landing with U.S. troops at Tanahmura bay.

In 1945, as head of the U.S. 8th army, he commanded the U.S. forces that established beachheads at Zambales province on Luzon (Jan. 29). Eichelberger commanded 8th army occupation troops that landed in the environs of Yokohama and Tateyama, Sept. 2.

**Eire.** Eire is the southern portion of an island to the west of Great Britain, extending from 51° 26' to 55° 21' N. and from 5° 25' to 10° 30' W. Under the constitution, operative from Dec. 29, 1937, the name "Irish Free State" was replaced by that of "Eire," or Ireland. President: Seán T. O'Kelly (Ó Ceallaigh). National flag: the tricolour of green, white and orange.

Area 26,601 sq.mi.; pop. (est. June 30, 1944) 2,938,000. Chief towns (pop. register 1943): Dublin (cap. 495,074); Cork (75,484); Limerick (42,070); Dun Laoghaire (42,105); Waterford (27,825). Languages: Irish and English; religion: Christian (Roman Catholic 93%).

**History.**—It was hoped that on retirement from the presidency of Dr. Douglas Hyde after seven years of office (1938–45) an agreed successor might be found. Three candidates, however, were nominated, and polling took place on June 14, 1945, after a vigorous campaign. Seán T. O'Kelly, Tánaistè (deputy prime minister), and minister for finance, received 537,965 votes; General Seán McKeon, an opposition leader, 335,539; and Dr. Patrick McCartan, an Independent, 212,791. On McCartan's elimination O'Kelly was elected with 565,165 votes to McKeon's 453,425. Seán Lemass, minister of industry and commerce, took O'Kelly's place as Tánaistè, and Frank Aiken, formerly minister for co-ordination of defensive measures, as minister for finance.

In the elections for local councils held on the same day as that for the president, Fianna Fáil secured 280 seats and other parties 356.

Principal legislation of the year was the Emergency Powers (Continuation and Amendment) bill, passed on July 5. This repealed postal censorship and power to detain and try civilians before military courts. It was found necessary simultaneously to enforce the Offenses Against the State act of 1940 in order to

"A VERY QUIET FUNERAL." Jim Berryman of the *Washington Evening Star* doubtless had in mind Pres. de Valera's condolence call on the German embassy following reports of Hitler's death on May 2, 1945





cope with Irish Republican army activities. On Dec. 1, 1944, a reprieve was refused to C. Kerins, sentenced to death for political murder of a detective.

On May 3, 1945, Eamon de Valera paid a condolence call on the German minister on Hitler's reported death. He later defended his action in the Dáil as normal diplomatic practice.

Churchill's broadcast on the end of the war (May 13) contained some references to Eire. De Valera made a conciliatory reply (May 18). Slight disturbances occurred in Dublin on May 7. Next day the German legation was handed over to the U.S. minister.

The status of Eire was debated in the Dáil from July 11-18. De Valera declared Eire to be a republic linked with the British commonwealth only by the External Relations act, 1936.

An air agreement with the U.S. was signed on Feb. 4, giving right of commercial entry at Shannon airport. The first transatlantic commercial land plane arrived at Rineanna on Sept. 16.

(M. T.)

**Education.**—Elementary schools (1943-44) 5,032; scholars 454,647; secondary schools (1943-44) 371; scholars 39,787; universities (1943-44), National (excluding St. Patrick's college, Maynooth) 4,538 students; Trinity college, Dublin, 1,400.

**Banking and Finance.**—Revenue, ordinary (1944-45) \$186,000,000; expenditure, ordinary (1944-45) \$196,000,000; revenue (est. 1945-46) \$193,000,000; expenditure (est. 1945-46) \$212,000,000; public debt (March 31, 1945) total, \$320,500,000; notes in circulation (June, 1945) \$148,300,000; reserve, gold (March 31, 1945) \$10,620,000; securities reserve (March 31, 1945) \$114,000,000; exchange rate (1945) £1=403.5 U.S. cents.

**Trade and Communication.**—Foreign trade (merchandise): imports (1944) \$113,600,000; exports (1944) \$118,700,000; re-exports (1944) \$475,000; roads, main (1943-44) 10,600 mi.; secondary, 38,300 mi.; railways, total track mileage (1944) 2,493 mi.; shipping (1943): vessels 476; net tonnage 45,184; motor vehicles licensed (Aug. 1944): private cars 6,566; other vehicles 20,916; wireless receiving set licences (1943-44) 173,300; telephones, installations (1943-44) 31,168.

**Agriculture, Manufacturing, Mineral Production.**—Production (1944) in short tons: oats 871,500; wheat 610,400; potatoes 3,360,800; barley 170,500; beet sugar 89,100; coal 226,600; wool 7,929. Livestock, number (June 1, 1944): cattle 4,245,936; sheep 2,663,062; pigs 380,824. Agriculture and fisheries, net output (1943-44) \$369,000,000. Number of insured workers (1943-44) 408,896; number of unemployed, average (1944) 60,310; (July 29, 1944) 45,953.

**Eisenhower, Dwight D.** (1890- ), U.S. army officer, was born Oct. 14 at Denison, Tex. He was admitted to West Point, graduating in 1915, and during World War I was an instructor at several U.S. army camps. After graduating from the Army War college, he served in the office of the chief of staff, Washington. In 1935, he served in the Philippines as Gen. MacArthur's chief of staff. In June 1942, he was given command of the U.S. headquarters in England and was promoted to the rank of lieutenant general. He commanded U.S. forces that landed in North Africa, Nov. 8, 1942, and on Feb. 6, 1943, he was made commander of all Allied forces in North Africa; five days later, he was made a full general. Under his leadership, Allied armies destroyed the axis armies in Tunisia, conquered Sicily and invaded Italy. These impressive victories led to his appointment as commander in chief of Allied invasion armies, announced Dec. 24, 1943. Eisenhower shifted his headquarters to England, and launched the invasion of France, June 6, 1944. By the end of the year his armies had retaken virtually all of France and Belgium and part of Holland, and had penetrated Germany. On Dec. 15, 1944,

Eisenhower was promoted to the newly established five-star rank of general of the army.

The Allies suffered a temporary setback in Dec. 1944 when the German counteroffensive in the Ardennes forest ripped a 60-mi. hole in the Allied line. His forces subsequently recemented the line, and Eisenhower then launched the grand offensive, Feb. 23, 1945, that collapsed the wehrmacht by May 7. Eisenhower, who had been designated chief U.S. representative in the Allied military government for the rule of Germany (March 29), moved his headquarters to Frankfurt-on-Main (May 26). He journeyed to Moscow (Aug. 11) where he was feted and received by Premier Stalin. In September, criticism of U.S. laxity in enforcing the de-nazification program led Eisenhower to order an intensification of the program toward that end. Eisenhower, who favoured a unified command for the armed services, was named chief of staff of the U.S. army, succeeding Gen. George C. Marshall, Nov. 20.

**Elections.** Although off-year elections in the United States in 1945 were scattered and confined principally to local battlegrounds, national political observers thought that they detected several significant trends which might affect future alignments or realignments in larger fields. They scanned every result, no matter how seemingly trivial, for the light it might throw on the presidential sweepstakes in 1948.

Their tentative conclusions from the 1945 demonstrations of changing popular sentiment were:

(1) There had been a slight defection from the Democratic party as represented by the Truman administration. They considered this to be a normal reaction to a political regime which had held power for so long, to the end of patriotic and emergency pressures of World War II and to the disappearance of such a popular leader as Franklin Delano Roosevelt, whose death in April turned the reins of politics and government over to Harry S. Truman of Missouri.

(2) The voters were beginning to show less respect and loyalty for old-fashioned partisan and clubhouse affiliations. The late Roosevelt's gay spirit of organization irresponsibility, as well as the emergence of postwar problems which transcend party lines and formulae, was held largely responsible for this development.

(3) Organized labour, as embodied by the C.I.O.'s membership in mass and aggressive unions, became a new, vigorous and self-conscious factor in U.S. politics and public life which the major parties and politicians, including a president, could neglect only at their peril. It achieved a balance-of-power position in numerous populous, industrial centres where, as they did for Roosevelt in at least the 1940 and 1944 struggles, the majorities could determine the outcome in electorally strategic states, and, therefore, in the nation.

The November mayoralty elections in Detroit and New York city supported the politicians in these deductions. As great cosmopolitan and industrial centres, they served to supply some insight into the mental and emotional processes and reactions of the postwar voter.

In the automobile capital Mayor Edward J. Jeffries was re-elected after what he called a "nasty fight" for his fourth two-year term. He defeated Richard T. Frankenstein, the vice-president of the United Automobile Workers of America, in the C.I.O.'s first major attempt to elect a union official to such a high municipal office. Previously, the C.I.O. and other labour organizations were content to endorse, support and finance candidates whose labour views they approved, regardless of their partisan tieups.

Mayor Jeffries won by approximately 57,000 majority in a total vote of 501,047, the largest number of ballots ever cast in

a municipal election in that city. Although Detroit's local contests are supposed to be conducted on a nonpartisan basis, Republicans and conservatives united behind the mayor, while Democratic national chairman, Robert E. Hannegan and the Wayne county (Detroit) Democratic committee backed Frankenstein. The Political Action committee, the C.I.O.'s ballot-box auxiliary, contributed \$100,000 to their candidate's campaign chest.

It was generally believed that labour's candidate suffered because of a "white collar and middle-class revolt," which included many unorganized workers, tradesmen, small business men and even members of the U.A.W. For months before the election Detroit had been the scene of violent labour difficulties that jeopardized jobs and nation-wide reconversion, and Frankenstein apparently became the victim of popular resentment when he ran for office.

Some observers interpreted the outcome as a setback for organized labour's effort to exert a direct and controlling influence in U.S. politics. Noting the large turnout for Frankenstein in the face of obvious handicaps, however, other onlookers preferred to withhold judgement on the long-range significance of the result. They pointed out that a labour vote of 215,000, which the C.I.O. entry obtained, could easily become the deciding factor in state and national contests. There have been many major battles in Michigan and in other labour-conscious communities where the allegiances of 215,000 or even fewer voters determined the outcome.

Frankenstein himself gave no sign of dejection. "In and for itself," he said, "this election was not, perhaps, of great and lasting importance. But in a few years there will be many others which will resemble it in the sense that candidates coming out of the ranks of organized labour or receiving the support of organized labour will be standing for office. Progressive forces do not look upon the election results as a defeat. We have polled the largest vote ever given a Progressive candidate, even a winning candidate."

New York city had a scrambled affair in the mayoralty struggle, but its pattern resembled Detroit's in some respects. Moreover, more national issues and personalities were present than in Detroit's trial at the polls.

The Democrats, who closed ranks so as to include New Dealers and Tammany Hall's hierarchy, recaptured city hall after 12 years of exile. They named William F. O'Dwyer, erstwhile Brooklyn policeman and famed prosecutor of Murder Syndicate Inc., as their candidate. Largely at the behest of Governor Thomas E. Dewey, the Republicans selected Judge Jonah Goldstein, a former Democrat. In personal protest against both the regular slates, which he denounced as "reactionary," Fiorello H. La Guardia, the retiring mayor, entered Newbold Morris, a brilliant, civic minded member of the La Guardia cabinet.

It was a walkaway for the Tammany-New Deal office seeker. O'Dwyer polled a total of 1,119,225 votes as against 434,050 for Judge Goldstein and 399,437 for Morris. It was the largest plurality a Democratic candidate had ever achieved. The Republican vote was the smallest after 1917. It was estimated that at least 100,000 Republicans voted for the La Guardia protest entry.

Nevertheless, the O'Dwyer sweep caused some chagrin among his Tammany Hall backers. Of about 2,000,000 votes cast, he received only 840,000 under the Democratic emblem, or only a few thousand more than the combined Goldstein-Morris total. He owed his unprecedented over-all lead to 259,268 American Labor party ballots—another demonstration of labour's growing power at the polls.

Close analysis of the final figures suggested that Tammany Hall no longer rules the metropolitan roost, because of the

growth of more independent and intelligent thought among the electorate.

The Morris "No Deal" ticket's performance likewise testified to a more enlightened public attitude. His surprising showing, which was achieved without organization or financial backing of any substance, was attributed chiefly to popular appreciation of Mayor La Guardia's excellent, public-spirited, 12-year administration. Even hostile newspapers conceded that the "Little Flower" had given New York the best administration in its chequered history.

Mayor La Guardia interpreted the vote as a sentence of death on machine politics and control. Hailing the Morris demonstration as a mandate for "good government," he promised his support to mayor-elect O'Dwyer "so long as he keeps straight, and keeps aloof, apart and away from political bosses and party machines."

President Truman and the administration's record played only a minor role in the campaign. He let it be known in diverse ways that he endorsed O'Dwyer's candidacy, but he made no speeches and issued no formal statements. When the chief executive reviewed the U.S. fleet in New York harbour a few weeks before the election, he had O'Dwyer as a breakfast guest aboard the presidential train. The president gave out no public endorsement, but O'Dwyer told the press after his talk with Truman that the latter had expressed hope and confidence that the Democratic ticket would win.

The Tammany nominee's principal vocal support came from Roosevelt New Dealers, including Mrs. Eleanor Roosevelt, Secretary of Commerce Henry A. Wallace and Henry Morgenthau, Jr., former secretary of the treasury. Democratic national chairman Hannegan took an active part, as did his predecessor in the national chairmanship and the post office—James A. Farley. The so-called "idealists" and the practical politicians buried their differences and rallied around O'Dwyer.

Governor Dewey's enemies seized on Judge Goldstein's miserable showing to proclaim that it marked the political death of the G.O.P.'s 1944 presidential nominee. He was held to have been instrumental in forcing the jurist's nomination, and thus the latter's small Republican vote was interpreted as a rebuke to the governor and as evidence that he had lost popularity even with Republican voters.

Although the two major parties broke about even in the mayoralty contests in other large cities, the Republicans had a slight edge. In several centres where the Democrats retained control, their previous majorities were reduced sharply. In several cities, notably Pittsburgh, Pa., they were kept in office only with the reinforcement of organized labour.

The G.O.P. scored possibly significant triumphs in the mayoralty elections in Buffalo, N.Y., and in Hartford and New Haven, Conn., three populous, industrial and prophetic voting laboratories. In Buffalo and New Haven they terminated two Democratic reigns which were established almost simultaneously with the late President Roosevelt's appearance on the national political stage—a 12-year-old Democratic rule in New Haven and one of 14 years in Buffalo. In Hartford the Republicans re-elected a mayor who, two years before, had won back the municipal government after ten years of Democratic control.

The mayoralty results in these three key cities, as well as in Detroit, cheered the G.O.P. strategists. In their opinion, the balloting in these places was a hopeful prophecy for the 1948 presidential contest. Their task then would be to hold down or wipe out Democratic majorities in the large industrial centres and to retain their demonstrated supremacy in rural areas—a combination which might lead the minority to the White House and control of congress.

Like the New York and Detroit results, the outcome in

Bridgeport, Conn., reflected a breakup in old-line ties and some instability in voting instincts. Jasper McLevy, Socialist, was re-elected for his seventh two-year term. Campaigning only on the issue of "honest, efficient and economical government," the house-roofer rolled up a majority of 9,690 over his two rivals and a plurality of 15,195 over his Democratic opponent.

The Republicans carried all three special congressional elections which were held after President Truman entered the White House. They put their best foot forward in the 2nd Montana district, where a house vacancy was filled on June 5. The G.O.P. nominee won by 4,032 votes, although the deceased Democratic candidate had been victorious in the regular 1944 contest by 9,751 votes.

The only off-year congressional election in the east was staged on Nov. 6 in the 4th New Jersey district. In a three-cornered battle the Republican held the seat by a substantial majority. His victory was expected, since this district had been Republican for many years. The voting was light, although the C.I.O., which put up an independent candidate against both Democrats and Republicans, tried to promote a heavy turnout in this industrial area.

In the 24th Illinois district the Democrats did not even name a candidate. The Republicans won by default.

Herbert E. Brownell, Republican national chairman, derived satisfaction, so he said, from the Montana and New Jersey results because in each instance the Democratic standard-bearers ran on a platform of "Support Truman." Commenting on the general outcome of the 1945 off-year tests in congressional and municipal elections, he said: "When the votes were counted, our party retained practically everything it had before and gained several strategic offices previously held by the Democrats." (See also SOCIALISM.) (R. Tu.)

**Electrical Industries.** Utility Operations. — Starting at a lower point at the opening of 1945 than in 1944, the curve of weekly outputs of electricity in the United States shot up in Jan. 1945 to 4,614,000,000 kw.hr., 75,000,000 higher than the corresponding week in 1944. Then it turned down and although for some weeks in April, May and June, it remained respectably above 1944, the trend was definitely downward, ending in the last week of the year 500,000,000 kw.hr. below 1944.

Despite the behaviour of the output curve, the production of energy in 1945 was not as much under the previous year as was generally expected would result from the ending of World War II, 222,000,000,000 kw.hr. as against 228,000,000,000 in 1944, only about 3%.

The year was a good water year. Hydrogeneration of energy increased from 74,000,000,000 in 1944 to 80,000,000,000 kw.hr. in 1945, 8%, while fuel power generation declined from 157,000,000,000 to 142,000,000,000, 9%, three times the percentage of decrease in total output for the year. In terms of average production per unit of capacity, hydrogeneration showed an increase from 5,109 kw.hr. per kw. in 1944 to 5,437 in 1945, while the corresponding figures for fuel power generation decreased from 4,526 to 4,023.

It was fortunate that water for hydrogeneration was plentiful in 1945, otherwise quite serious difficulties of fuel shortage might have occurred. The increase in hydroproduction of electricity saved about 4,000,000 tons of coal. This is not a large figure in comparison with national coal production nor very large in relation to coal consumption by electric utilities, but bearing in mind that national bituminous coal production dropped from about 620,000,000 tons in 1944 to around 575,000,000 in 1945 and that because of this decrease the government prohibited use of electricity for advertising and all other display lighting, the

saving of 4,000,000 tons of coal by plentiful rainfall became important.

Increase of 712,000 kw. in generating capacity in 1945 was the least of any in the war years, corroborating something that had been indicated by other data previously, the reaching of a plateau in war production. Expansion of production facilities, heretofore rapid, was definitely slowing up and the job was more and more becoming one of grinding out the goods of war. Then the war ended.

Predictions had been freely made that the war's end would find the electric utilities with a huge surplus of generating capacity. Proof that this idea was not shared by utility management appeared in announced plans for the addition of 1,462,311 kw. in new generating capacity in 1946. Of this amount about five-sixths was for power company systems, the remainder for federal and municipal power plants.

The addition to generating capacity takes about 35% of the projected expenditures for capital construction by the utilities in 1946. The total 1946 construction budget of utilities serving the public directly, exclusive of rural electric co-operative systems, was estimated at \$895,000,000. This budget was topped by that of only one other year in the history of the industry, \$919,000,000 in 1930, when the utilities in response to the direct request of the president of the United States went all out in a building program in an effort to stem the then beginning tide of business depression.

Previous reporting of generating capacity had arrived at a figure of 50,524,000 kw. for 1944. As of Nov. 1, 1945, capacity was given as 49,901,000 kw., which is at variance with the earlier statement in this article that 712,000 kw. had been added in 1945. The discrepancy is explained by the fact that during the year the Federal Power commission revised its classification of utility plants to take out certain mining and manufacturing and railway power plants previously included.

Sales of electricity declined from 198,000,000,000 kw.hr. in 1944 to 194,000,000,000 in 1945, a much smaller decrease than might have been expected following the end of the war and the consequent drop in industrial activity. Actually the reduction in sales to large industrial customers was comparatively small, from 115,000,000,000 kw.hr. to 108,000,000,000, or 7,000,000,000. Sales to residential, rural and commercial customers increased about 3,500,000,000 kw.hr., thereby cutting the reduction in total sales to 4,000,000,000.

Although total sales of energy dropped slightly from 1944, revenue showed a slight increase from \$3,277,000,000 in 1944 to \$3,334,000,000 in 1945. This increase was caused by differences in rate schedules. Because of very large usages per customer, industrial rates are lower than for customers in other classifications who buy energy in much smaller quantities. This difference caused the decline in revenue from large industrials to be more than cancelled out by increases in revenue from other classes. The increase in energy usage by residential customers brought their average annual consumption up to 1,225 kw.hr. and their average cost per kw.hr. down to 3.42 cents. Illustrating the effect of increased consumption on cost of electricity to the user is the fact that the average residential customer paid only 2 cents per kw.hr. for the additional energy he used in 1945. In 1944 he used 1,150 kw.hr. for which he paid \$40.40; in 1945 he used 1,225 kw.hr. for which he paid \$41.90. The additional 75 kw.hr. cost him \$1.50.

Upward trend in operating expenses continued through 1945. Operating ratio, expenses over revenue, rose from 41% in 1944 to 41.3% before payment of taxes. After taxes, the rise was from 63.6% to 64.2%. Ten years before, the proportion of revenue available for dividends and surplus was about 20%. That ratio was down to 15%, principally because of increase in taxes



which in the same period rose from 15% to 23%.

A significant condition is indicated in the 1945 data on electric utility customers. In the first two war years the number of commercial and small industrial customers decreased. That trend reversed in 1944 as war production spread out to include more of the smaller industrial plants and in 1945 it turned more sharply upward. At the end of the year the total of these customers was 2% more than just before the war. Thus an observable increase in small business enterprises in 1945 is indicated. Total number of customers kept on growing through the war years and at the end of 1945 stood at 33,900,000; of these, 29,220,000, about 86%, were residential and rural customers, home users of electricity.

**Regulation and Rates.**—Rate reductions were numerous during the year. About 60 utilities announced rate changes that effected revenue decreases of around \$18,000,000. In about 30 more cases reductions were announced without money estimates being given.

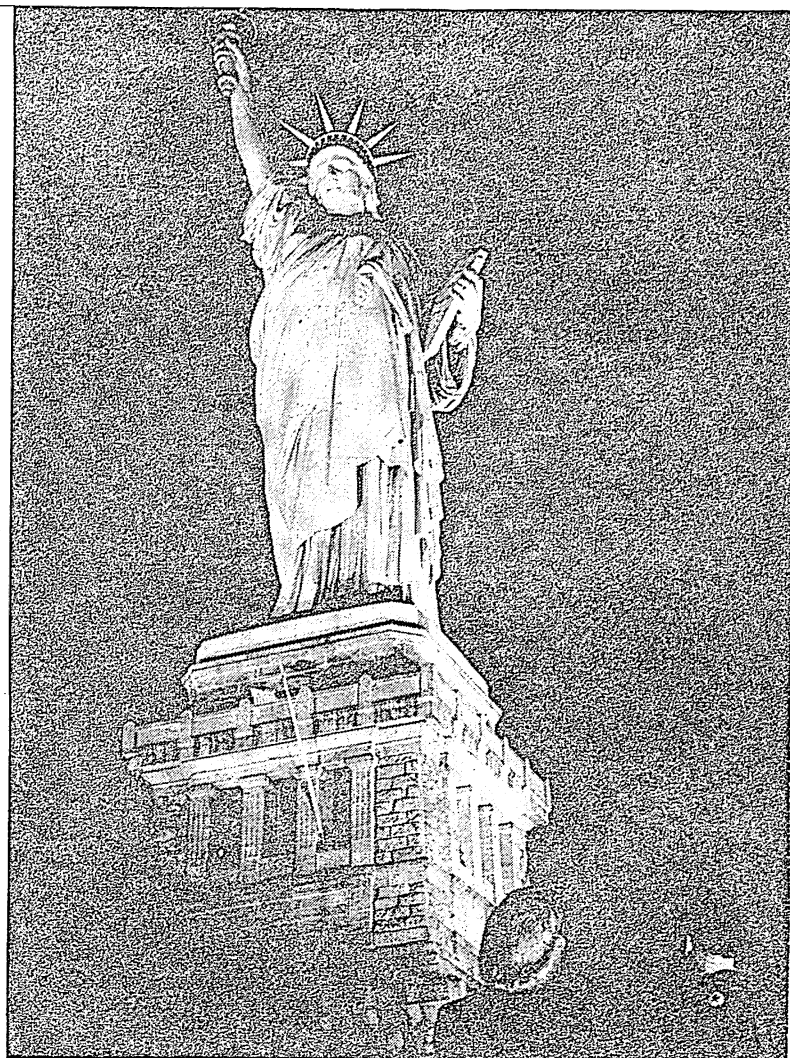
Friction between state and federal regulation of utilities persisted through 1945. The Arkansas Power and Light Co. asked a U.S. district court to decide between orders issued on it by the Federal Power commission and by the state public service commission. The Arkansas legislature endorsed action taken by the state service commission against FPC. The chairman of the New York commission charged the FPC with usurpation of authority in attempting to assert jurisdiction over several utilities in the state. In Maryland the state commission rejected FPC's theory of "original cost" in favour of determination of fair value in a rate case. The Montana commission attacked conduct of FPC in regard to a rate case of the Montana Power Co. Efforts of FPC to bring the Connecticut Light and Power Co. into its jurisdiction as an interstate utility were stopped by a supreme court decision.

**Public Power.**—Soon after taking office, President Truman announced he would continue the power policy of his predecessor, but he did not press the policy as hard as Roosevelt. Truman extolled the Tennessee Valley authority in a speech dedicating the last of the authority's main river plants, but he failed to state clearly the administration's policies on river control and development. A bill for nine regional authorities patterned after TVA was introduced in congress but made no headway. The proposal for a Missouri Valley authority which had been in congress for a year or more aroused considerably less than enthusiasm in senate committees. Novelties appeared in bills for a Columbia Valley authority which provided for a large measure of local control and for an Ohio Valley authority which contained no provision for power. Both the MVA and CVA proposals encountered opposition from local groups, "weary and wary," as one spokesman put it, of domination from Washington. Efforts to revive the St. Lawrence project foundered on the perennial question of treaty or no treaty with Canada. Indignant citizens of Maryland, Virginia and West Virginia forced abandonment of elaborate plans by the corps of engineers, U.S. army, for power dams on the Potomac river. Late in 1945 the deficiency appropriations bill was shorn of much power project money in the house. The senate restored some of the cuts, but compromise in conference left power appropriations much less than was desired by the government power interests.

**Electrical Manufacturing.**—Termination of contracts for war goods imposed no great problem of reconversion on manufacturers of electrical apparatus and materials. The war had simply imposed on them a much higher demand for goods of their regular production. The case of makers of electrical appliances was much different. Production of appliances was discontinued almost entirely during the war years as is shown by the index of manufacturers' sales of these goods which dropped from 212 in 1941 to a low of 12 in 1943 and reached 60 in 1945 in a slow struggle back. These manufacturers found conversion difficulties greater than had been anticipated; increased costs which bumped against ceiling prices and recalcitrant labour joining to prevent production from reaching expected levels.

The index of electrical manufacturing production dropped from 553 in 1944 to 430 in 1945, a greater decrease than was indicated by the contemporary drop in the Federal Reserve board production index from 258 to 231.

It was not likely, however, that the index of electrical goods production would continue downward for very long or very far. A tremendous backlog of demand for electrical apparatus and materials accumulated during the war years. Evidence of that demand was seen in the estimated expenditure of the electric utilities for new construction in 1946, earlier mentioned in this report. To the utility requirement must be added an even greater demand for electric facilities in reconverted and new industrial plants. Another factor to raise demand on makers of electrical goods was the intensive promotional activity well under way in the various sections of the National Electrical Manufacturers association. Programs on adequate wiring, farm electrification, street and highway lighting, rural and suburban market development, electric fans, ranges and water



ILLUMINATION of the Statue of Liberty, resumed after V-E day in 1945, was redesigned to approach daytime effects. Mercury vapour and incandescent floodlights accentuated the sculptured appearance and made the torch seem more fiery

heaters, and home freezers were a few already organized or in immediate prospect at the close of 1945.

**New Developments.**—Provision of the immense quantities of electrical equipment for production of the atomic bomb interfered greatly with the scheduling of utility requirements during the war years. This was the first impact of atomic fission on the utility industry although not known then for what it was. Then when the bombs dropped on Hiroshima and Nagasaki, atomic energy loomed up immediately as a possible power producer and had its to-be-expected extravagant day. A bill for an Atomic Power authority was offered in congress and the public was regaled with uninhibited prophecies of automobiles and aeroplanes running for ten years on half a pound of U-235 and available tomorrow or next week at the latest. More reasonable ideas soon prevailed as testimony of scientists showed that practicable utilization of atom splitting for power production was still quite distant in the future.

Less spectacular but more immediately useful technical advances were made during 1945. An important forward step in the prime mover art was made in the completion and testing of a 2,500-h.p. gas turbine designed for ship propulsion. This was important to the electric utilities in a rather negative way as it demonstrated an idea quite generally held by utility engineers, that the direction of development of the gas turbine was more logically toward power for transportation than for large unit production of electricity. To study the problems of transmitting power at potentials as high as 500,000 volts, the American Gas and Electric Service corporation, in co-operation with three utilities and nine manufacturers, announced the erection of two test lines each one and one-half miles long. The highest potential in operation in 1945 was 287,000 volts. Reports of U.S. engineers sent into Germany to study technical advances in that country before and during the war disclosed little that could be considered improvement on U.S. practices. However, certain German air circuit breakers, rated 100,000 volts and up and that were said to have performed excellently under severe conditions, were brought over and were being tested in the United States. Fluorescent lighting in spite of its wide application had been feared by many as harmful to human eyes. This fear was dispelled officially by an opinion published in the *Journal of the American Medical Association*. (See also PUBLIC UTILITIES; TENNESSEE VALLEY AUTHORITY.)

**FILMS.**—*Electrodynamics; Elements of Electrical Circuits; Home Electrical Appliances; Primary Cell; Series and Parallel Circuits* (Encyclopedia Britannica Films Inc.). (F. R. I.)

**Electric Lighting:** see ELECTRICAL INDUSTRIES.

**Electric Transmission and Distribution:** see ELECTRICAL INDUSTRIES.

## Electric Transportation.

More progress was made in electric transportation in 1945 than in any other recent year. Notable innovations took place in vehicle design. Orders were placed for a substantial amount of new equipment. Extensions and improvements to existing facilities were planned in many cities in the United States and Canada. Renewed activity appeared also in the field of heavy electric traction.

**Urban Electric Transit.**—The unusual interest and activity in the field of urban electric transportation was part of a general increase of interest in public transportation. When the operation of private automobiles had to be curtailed because of war conditions, it was found that public transportation facilities were able to handle a large increase in riding with a noticeable decrease in street traffic congestion. From this experience there developed a widespread feeling that public transportation should be given a prominent place in postwar city planning. The ability of electric transportation to handle satisfactorily a maximum number of passengers per vehicle focussed special attention on this type of service.

**Volume of Riding.**—All forms of local public transportation showed substantial increases in patronage until the end of the war. Thereafter, riding declined moderately. For the year 1945 as a whole the number of passengers carried was slightly greater than during the record-breaking year of 1944.

*Ten-Year Record of Passengers Carried by Electric Transportation in the United States 1936-45*

Year	Surface Railway*	Subways and Elevateds	Trolley Coach Lines	Total†
1936	7,501,000,000	2,323,000,000	143,000,000	9,967,000,000
1937	7,161,000,000	2,307,000,000	289,000,000	9,757,000,000
1938	6,545,000,000	2,236,000,000	389,000,000	9,170,000,000
1939	6,171,000,000	2,368,000,000	445,000,000	8,984,000,000
1940	5,943,000,000	2,382,000,000	534,000,000	8,859,000,000
1941	6,081,000,000	2,421,000,000	652,000,000	9,154,000,000
1942	7,290,000,000	2,566,000,000	899,000,000	10,755,000,000
1943	9,150,000,000	2,656,000,000	1,175,000,000	12,981,000,000
1944	9,520,000,000	2,620,000,000	1,230,000,000	13,370,000,000
1945	9,600,000,000	2,640,000,000	1,250,000,000	13,490,000,000

(Data from American Transit Association; 1945 figures based on preliminary reports.)

\*Figures include riding in both urban and suburban areas, but the suburban riding represents only a very minor part of the total.

†Statistics of passengers carried by electrified suburban and trunk line railroads not available for presentation in this form.

Electric transportation continued to be the most important element of public transportation in urban areas throughout the U.S., carrying well over 60% of the total number of passengers. Street railways handled about 9,600,000,000 riders during the year, subway and elevated rapid transit lines about 2,640,000,000 and electric trolley coaches about 1,250,000,000. In contrast to this total of more than 13,000,000,000 passengers carried by means of electric transportation, motorbuses carried only some 8,500,000,000 riders in urban areas.

To handle this huge volume of riding there were in operation 118 electric railway and electric trolley coach companies and 379 motorbus companies. Many of the electric transit systems also operated motorbus service, but it is significant that the largest part of the bus riding was in the smaller cities, and that two-thirds of the all-bus companies were in cities of less than 50,000 population.

**New Rolling Stock.**—Because of war conditions the electric transportation industry was able to secure only a limited amount of new rolling stock. No new rapid transit cars were placed in service after 1940. During this period a little more than 1,200 new streetcars were put in operation in the U.S. and about the same number of electric trolley coaches. Restrictions imposed by the War Production board on the building of new transit vehicles were lifted in May 1945, but this did not allow sufficient time for any large number of new vehicles to be built and actually placed in operation during the year. A total of more than 2,000 new streetcars and an even larger number of

electric trolley coaches were ordered during 1945 or included in modernization plans under consideration in numerous cities in the United States and Canada.

**Modernization Plans.**—The City of New York laid out a \$1,000,000,000, six-year transit improvement plan, including new subway construction, extensions to existing rapid transit lines and notable expansion of electric trolley coach operation. At Chicago, Ill., it was proposed to purchase 400 new streetcars and 210 trolley coaches. Completion of the remainder of the subway system in that city was also being urged.

Philadelphia, Pa., announced a five-year program involving the purchase of 300 cars and 250 trolley coaches. San Francisco, Calif., was considering the purchase of 313 cars and 223 trolley coaches. Cleveland, O., had a transit improvement plan involving the construction of a rapid transit subway in the heart of the city and the use of a large number of trolley coaches as feeders on the surface.

Of special interest is the plan proposed for the Boston area by a special commission of the Massachusetts legislature. This contemplates the extension of the rapid transit system by the conversion of about 70 mi. of steam railroad track to electric operation and the establishment of connections at or near the ends of the existing subway and elevated railway lines. A total of nearly 500 new cars was proposed for this operation as well as a large number of trolley coaches as feeders. Independently of this, the Boston elevated railway was planning to install 128 new trolley coaches in the near future.

**Trolley Coach Expansion.**—In addition to the cities already mentioned, many others were planning extensions or improvements to their electric transportation systems, particularly by means of trolley coaches. In some instances the trolley coaches were to take the place of streetcars. In others they would replace motorbuses. The success that attended the establishment of many new trolley coach systems established just prior to World War II is undoubtedly the reason for the upsurge of interest in this type of operation. The quiet rapid operation of the electric trolley coach together with its ability to pick up and discharge passengers at the curb appealed strongly to the riding public. Polls taken among transit riders in a number of cities indicated that the electric trolley coach was the most popular of all transit vehicles. From an economic standpoint it is significant that trolley coaches carry more passengers in proportion to the investment in plant and equipment than does any other form of transit service.

**Improvements in Design.**—Notable improvements were made in design of electric transportation vehicles. The outstanding features of rubber springing and high acceleration that characterized the original P.C.C. type (basic features of design determined by the Electric Railway Presidents' Conference committee) streetcars were retained in the most recent types, while all-electric braking and standee windows were added. Better ventilation was also arranged. The desirability of air conditioning city transportation vehicles was widely recognized, but the frequency of door opening for passengers boarding and alighting resulted in such a great interchange of inside and outside air that the provision of air-conditioning equipment of adequate capacity presented a serious problem. In 1945, however, a special type of equipment was developed and installed on an experimental trolley coach built for service in Atlanta, Ga. In this respect electric transportation vehicles possess special advantages as compared with motor buses because an ample supply of electrical energy is always available from the overhead wires.

Operation of this air-conditioned vehicle proved so satisfactory that 30 more were ordered within a short time.

**Heavy Electric Traction.**—No extensions were made by the

electrified trunk line railroads in the U.S. during 1945, but equipment buying was resumed on a modest scale. Most unusual from the standpoint of design were four 8,000 horsepower electric locomotives for the Virginian railway. They were to be the heaviest and most powerful locomotives ever built. Two 5,000 horsepower electric locomotives were also ordered by the Great Northern railroad. In Brazil the Sorocabana and Paulista railroads, which were expanding their electric operations, placed orders for a total of 33 new locomotives to be built in the United States.

FILMS.—*Arteries of the City; Development of Transportation* (Encyclopædia Britannica Films Inc.). (J. A. M.)

**Electrification, Rural:** see RURAL ELECTRIFICATION.

**Electrons:** see ATOMIC BOMB; CHEMISTRY; PHYSICS.

**Elementary Education:** see EDUCATION.

**Elks, Benevolent and Protective Order of:** see SOCIETIES AND ASSOCIATIONS.

**Ellice Islands:** see PACIFIC ISLANDS, BRITISH.

**El Salvador:** see SALVADOR, EL.

**Embassies, Great Britain:** see AMBASSADORS AND ENVOYS.

**Embassies, United States:** see AMBASSADORS AND ENVOYS.

**Emery:** see ABRASIVES.

**Emigration:** see IMMIGRATION AND EMIGRATION, U.S.

**Employment.** United States.—The civilian labour force (people available for gainful employment) numbered 52,900,000 in Sept. 1945; 130,000 less than in Sept. 1944, according to bureau of the census figures. The number of these who were unemployed was approximately 1,650,000 (3.1%) in Sept. 1945; and 790,000 (1.5%) in Sept. 1944. Within a month of the Japanese surrender, layoffs in war industries displaced about 820,000 workers—500,000 men and 320,000 women. This made the male unemployment 2.2% and female unemployment 3.5%.

Males still in employment numbered 33,320,000 and females 17,930,000. Females constituted 35% of the gainfully employed persons.

Employees in nonagricultural establishments numbered 35,268,000 in Sept. 1945; 1,500,000 less than in mid-August and almost 3,500,000 less than in Sept. 1944. The net decline from Aug.—Sept. 1945 reflected almost wholly the decline of 1,688,000 in the number of employees in manufacturing, nearly all of it being in war industries.

Table I.—Number of Production Workers and Indexes of Production-Worker Employment in Manufacturing Industries, by Major Industry Group, United States (Sept. 1945 and Sept. 1944) \*

Industry group	Number of production workers (estimated) in thousands		Production-workers indexes (1939 = 100)
	Sept. 1945	Sept. 1944	Sept. 1945
All manufacturing . . . . .	10,121	13,602	123.5
Durable goods . . . . .	5,112	8,100	141.6
Nondurable goods . . . . .	5,009	5,502	109.6
Iron, steel and their products . . . . .	1,204	1,686	121.5
Electrical machinery . . . . .	452	739	174.4
Machinery, except electrical . . . . .	887	1,189	167.9
Transportation equipment, except autos . . . . .	804	2,216	506.6
Automobiles . . . . .	387	703	96.2
Nonferrous metals and products . . . . .	333	412	145.3
Lumber and timber basic products . . . . .	443	487	105.4
Furniture and finished lumber products . . . . .	292	339	89.0
Stone, clay, glass products . . . . .	310	329	105.7
Textile-mill products and other fibre . . . . .	1,035	1,091	90.5
Apparel and other finished textiles . . . . .	787	871	99.7
Leather and leather products . . . . .	303	313	87.4
Food . . . . .	1,121	1,184	131.2
Tobacco products . . . . .	84	82	90.0
Paper and allied products . . . . .	303	310	114.1
Printing, publishing and allied products . . . . .	318	319	97.0
Chemicals and allied products . . . . .	438	593	151.9
Products of petroleum and coal . . . . .	133	133	125.8
Rubber products . . . . .	170	194	140.6
Miscellaneous industries . . . . .	317	412	129.5

\*These are preliminary figures compiled by the Monthly Labor Review, and subject to final adjustment.

Table II.—Number of Employees in Nonagricultural Establishments, by Industry Division, United States (Estimated)

Industry division	Number of employees (estimated) in thousands			
	Aug. 1945	July 1945	June 1945	Aug. 1944
Total employment* . . . . .	36,894	37,229	37,549	38,744
Manufacturing . . . . .	13,837	14,130	14,534	16,023
Mining . . . . .	784	784	794	834
Contract construction and federal force-account construction . . . . .	951	911	845	700
Transportation and public utilities . . . . .	3,836	3,836	3,830	3,818
Trade . . . . .	6,963	6,975	7,004	6,918
Finance, service and miscellaneous . . . . .	4,605	4,672	4,589	4,582
Federal, state, local government, excluding federal force-account construction . . . . .	5,916	5,921	5,953	5,869

\*Compiled from reports of Bureau of Labor Statistics (Washington). Estimates include all full- and part-time wage and salary workers in nonagricultural establishments employed during the pay period ending nearest the 15th of the month. Proprietors, self-employed persons, domestic servants and personnel of the armed forces are excluded.

In durable goods the shrinkage of the index of employment was from 181.1 to 141.6; in nondurable goods it was from 112 to 109.3 (1939=100). The numbers and indexes of manufacturing employment in Sept. 1945 and Sept. 1944 are shown in Table I.

Employment on construction work moved in the opposite direction (Sept. 1944 to Sept. 1945). There were 1,100,800 employed in Sept. 1945, 260,400 above the number employed in Sept. 1944.

Table II shows the numbers employed in nonagricultural employment in Aug. 1944 and in three months of 1945.

There were 12,090,000 women in the labour force in Dec. 1941 in the United States; 16,480,000 in March 1944; and 18,650,000 in Sept. 1945. The increase of 6,560,000 was approximately 5,000,000 more than the growth of female labour supply expected on the basis of prewar experiences.

Table III gives indexes of employment and pay rolls of selected nonmanufacturing industries in 1944 and 1945. The wide variation in degrees of change from one year to the other in the mining as compared with the other industries is a striking feature of the table.

"TAG." A reversal in the labour market toward the end of 1945, pictured by Shoemaker of the *Chicago Daily News*, followed the end of war contracts and the start of reconversion, easing a four-year manpower shortage







UNEMPLOYED, queued up to apply for work at the U.S. Employment service in Detroit, Mich. WMC director Paul V. McNutt estimated a decline of 600,000 jobs in munitions plants between March 15 and June 1, 1945

Table III.—Indexes of Employment and Pay Rolls in Selected Nonmanufacturing Industries, United States (1939 = 100)\*

Industry	Employment indexes		Pay roll indexes	
	Aug. 1945	Aug. 1944	Aug. 1945	Aug. 1944
Mining				
Anthracite	77.4	77.9	148.0	145.8
Bituminous	87.1	95.0	188.0	215.6
Metal	73.1	85.5	114.2	136.6
Iron	119.4	134.6	200.8	219.9
Copper	81.3	100.0	120.8	161.5
Lead and zinc	85.0	98.9	157.2	182.8
Gold and silver	21.2	22.7	26.1	29.9
Miscellaneous	66.8	87.6	106.1	148.6
Quarrying and nonmetallic	81.7	86.7	155.9	165.3
Crude petroleum production	84.1	84.1	137.2	132.7
Public utilities				
Telephone	↑	↑	↑	156.6
Telegraph	119.4	200.4	200.4	177.9
Electric light and power	84.1	120.7	120.7	115.4
Street railways and buses	117.3	178.7	178.7	171.5
Wholesale trade	95.8	141.3	141.3	136.3
Retail trade	93.8	132.1	132.1	126.8
Hotels (year-round)	109.9	172.0	172.0	158.8
Power laundries	106.1	160.5	160.5	159.8
Cleaning and dyeing	117.3	179.9	179.9	178.6
Class I steam railroads	146.7	↑	↑	↑
Water transportation	313.4	664.0	664.0	585.2

\*Compiled from statistics issued by *Monthly Labor Review* (Washington); Interstate Commerce Commission and U.S. Maritime Commission.

†Not available.

**Great Britain.**—The total working population of Great Britain increased from 19,750,000 in mid-1939 to 21,337,000 in Sept. 1945; as indicated in Table IV.

Table IV.—Total Working Population (exclusive of domestic servants) Great Britain: Mid-1939 and Sept. 1945

	Mid-1939	Sept. 1945
Males	14,656,000	14,831,000
Females	5,094,000	6,506,000
Total	19,750,000	21,337,000

By Sept. 1945, 260,000 returned service men were in the labour supply. Of these, 4,482 were not in jobs in Oct. 1945. Unemployment was at a low level up to the end of 1945. In 1939 there was an average of 1,480,324 unemployed who were registered for insurance benefits. Table V shows the contrast in 1945.

Table V.—Unemployed, Registered for Insurance Benefits, in Great Britain, in Three Months of 1945, by Sex\*

	April 1945	July 1945	Oct. 1945
Males	56,322	68,469	131,832
Females	22,721	34,894	101,494
Total	79,043	103,363	233,329

\*These figures, which included 45,864 married women (October) are amazingly low unemployment figures for a labour supply of more than 21,000,000.

The labour supply increased 2,500,000 from 1939 to mid-1943; then decreased 944,000 to Sept. 1945. The reduction resulted largely from the retirement of women from employment

Table VI.—Employment, by Industry Groups, Great Britain (Sept. 1945)

Manufactures	3,658,000
Metals and chemicals	1,653,000
Other manufactures	2,005,000
Basic industries and services	5,118,000
Building and civil engineering	790,000
Distributive trades	1,990,000
Other services	1,495,000

to domestic life and the decline in intake of new labour supply from the nonindustrial section of the population as the war emergency passed. The ministry of labour forecast (Oct. 1945) that, by the end of 1945, the decline in labour supply which started after the peak employment of 1943 would amount by Dec. 31, 1945, to 641,000 men and 1,555,000 women; a total of 2,196,000.

The distribution of the employed population of Great Britain among the industry groups is shown in Table VI.

**Canada.**—The general employment index (1929=100) was 151 in Aug. 1945, compared with 155.9 in Aug. 1944. The British ministry of labour reported that manufacturing employment in Canada was 9.3% lower in Aug. 1945 than in Aug. 1944.

**South Africa, Union of.**—The South Africa general employment index (1929=100) was at 160.7 in April 1945 and 159.8 in June 1945, about three points higher than throughout 1944.

**Australia.**—The employment index dropped 3% from April 1944 to April 1945; to approximately 130 (1930=100). The trade union unemployment figures were below 10,000 persons throughout 1944 and the summer of 1945.

**South America.**—Argentina's statistics showed that industrial employment had remained at 31% to 33% above 1937 after Sept. 1944. Very little change occurred in the index of Argentine employment throughout 1942-44. The index for Chile was 126.4 in March 1945 (1937=100). Employment had remained at approximately that level after 1941.

**Sweden.**—The Swedish index of industrial employment, contrary to those of other countries, showed lower employment in 1945 than obtained from 1935 through 1944. The index dropped from 116.9 in Dec. 1944 to 92.8 in Jan. 1945 and was only 95.2 in April 1945 (1929=100). It was 99 in August. This was the lowest level of employment in Sweden after 1934. The trade unions reported 3.5% of their members unemployed in July 1945.

None of the other countries published employment statistics in 1945.

(D. D. L.)

**Enderbury Island:** see PACIFIC ISLANDS, U.S.

**Endocrinology.** **Thyroid.**—Using the heart rate and O<sub>2</sub> consumption as indices of thyroxine action, P. E. Kellaway *et al.* showed that the same amount of this hormone is more effective after hepatectomy than when the liver is present. Tying the bile ducts did not have the same effect as hepatectomy. The liver therefore does not inactivate excess thyroxine by excretion into the bile. There is suggestive evidence that the "tyrosine" rings of thyroxine may be broken by the action of liver enzymes. This emphasizes again the necessity of an adequate protein, carbohydrate and vitamin intake in hyperthyroidism, to protect the liver which can then help in destroying excess thyroid hormone.

**Adrenal Cortex.**—A. White and associates studied the role of the adrenal cortex in the control of lymphoid tissue. They had shown that adrenalectomy caused an increase in the number of circulating lymphocytes and in the amount of lymphatic tissue. A decrease in circulating lymphocytes and shrinkage of lymphatic tissues followed stimulation of the adrenal cortex, by the adrenotropic hormone of the pituitary. These investigators

found that simultaneously with the decrease in lymph tissue there occurred a rise in plasma globulin. They also found that extracts of lymphocytes contained a protein identical with the  $\gamma$ -globulin of blood plasma. They concluded that lymphatic tissue is a storehouse and perhaps the site of manufacture of globulins and that the release of these plasma proteins is under adrenal control. Since the globulins play a role in antibody formation, this finding has significance in the understanding of immunity reactions and implicates the endocrines for the first time in body defenses against micro-organisms.

It has been generally assumed that the medulla and the cortex of the adrenal are related only in an anatomical sense. Functionally, these endocrine glands were supposed to be distinct entities. However, newer work tended to show that there is a close functional relation between adrenalin, the internal secretion of the medulla, and the steroid hormones of the cortex. M. Vogt demonstrated that the injection of adrenalin caused a release of cortical hormones into the blood (as determined by bio-assay). Stimulation of the splanchnic nerves produced the same results, despite the fact that no nerve elements are found in the adrenal cortex.

C. N. Long and E. G. Fry showed that the cholesterol and ascorbic acid contents of the adrenal cortex were decreased following adrenalin injection into normal animals. Such an action is typical of adrenotropic activity of the pituitary. This was substantiated by the fact that adrenalin did not exert its effect in hypophysectomized animals.

These studies demonstrated the functional relationship between medulla and cortex and threw light on the mechanism of adrenal cortical reaction to such stresses as cold, burns, haemorrhage, surgical procedures, etc. The pathway is probably:

stress  $\rightarrow$  adrenalin  $\rightarrow$  (pituitary?)  $\rightarrow$  adrenal cortex  $\rightarrow$  increase of corticosteroids in blood and urine.

**Pancreas.**—In 1943, J. S. Dunn and his co-workers discovered that alloxan injected into rats will produce a necrosis of the beta cells of the islets of Langerhans. This resulted in a permanent diabetic state in their animals. Afterwards this phenomenon was studied in many species under a variety of conditions. In all cases the alpha cells of the islets were not affected. Recently E. Thorogood and B. Zimmermann compared the diabetic syndrome of alloxanized dogs before and after surgical removal of the pancreas. They found that before the pancreatectomy there was intense glycosuria and little ketosis, and these animals survived several weeks without insulin therapy. After the pancreas was removed the syndrome changed so that the glycosuria was less intense, there was more ketosis and the animals needed insulin even in short survival experiments. The authors postulated the existence of a hormone in the alpha cells of the islets which induces more ketone production and lessens the sugar output. If this work were further confirmed and extended it might throw considerable light on human *diabetes mellitus* which shows variations from patient to patient, and at different age periods. If the alpha cells are implicated in certain aspects of the diabetic syndrome, a better correlation between the clinical picture and pathological findings in the pancreas may be established.

**Ovary.**—The onset of menstruation is preceded by a decrease in the secretion of the sex hormones by the ovary. Following the withdrawal of hormonal support the uterine mucous membrane or endometrium is shed. The separation of the endometrium is probably due to vascular changes (in the so-called spiral arteries) which produce anoxaemia and cell necrosis. O. W. Smith and G. V. Smith showed that in the blood of menstruating normal women and of patients with toxæmia of pregnancy (a condition also associated with ovarian hormone withdrawal) there was a substance closely related to the "necrosin"

found in experimental pleural exudates. This material, when injected into experimental animals, caused local dissolution of tissue and general malaise and fever. They suggested that this substance plays a role in the uterus during normal menstruation, and that it may be involved as an aetiological factor in the toxæmias of pregnancy.

Because of structural relationships, cholesterol was assumed to be the parent substance of the steroid hormones secreted by the gonads and the adrenal cortex. However, there was no direct proof of this assumption. K. Bloch demonstrated that when cholesterol containing heavy hydrogen atoms (deuterio cholesterol) was ingested by a woman in the third trimester of pregnancy, the pregnandiol excreted in the urine could be shown to have been derived from the fed cholesterol. Since pregnandiol is a metabolic derivative of progesterone, cholesterol was shown to be the precursor of this hormone. This demonstration added more functional significance to the reported changes in cholesterol concentration of endocrine glands under varying experimental and clinical conditions. (See also *PHYSIOLOGY*; *ZOOLOGY*.)

**BIBLIOGRAPHY.**—Konrad Bloch, "The Biological Conversion of Cholesterol to Pregnanediol," *J. Biol. Chem.*, 157:661-666 (1945); Peter E. Kellaway, Hebbel E. Hoff and Charles P. Leblond, "The Response to Thyroxine After Subtotal Hepatectomy," *Endocrinology*, 36:272-279 (1945); C. N. H. Long and E. G. Fry, "Effect of Epinephrine on Adrenal Cholesterol and Ascorbic Acid," *Proc. Soc. Exper. Biol. & Med.*, 59:67-68 (1945); O. Watkins Smith and George V. S. Smith, "Evidence for Circulating Menstrual 'Toxin' During Menstruation and Toxemia of Late Pregnancy," *Proc. Soc. Exper. Biol. & Med.*, 59:119-121 (1945); Elizabeth Thorogood and Bernard Zimmermann, "The Effects of Pancreatectomy on Glycosuria and Ketosis in Dogs Made Diabetic by Alloxan," *Endocrinology*, 37:191-200 (1945); M. Vogt, "The Effect of Chronic Administration of Adrenalin on the Suprarenal Cortex," *J. Physiol.*, 104:60-70 (1945); Abraham White and Thomas F. Dougherty, "The Pituitary Adrenotropic Hormone Control of the Rate of Release of Serum Globulins from Lymphoid Tissue," *Endocrinology*, 36:207-217 (1945).

**FILMS.**—*Endocrine Glands; Foods and Nutrition* (Encyclopædia Britannica Films Inc.). (R. A. L.; S. So.)

**England:** see GREAT BRITAIN AND NORTHERN IRELAND, UNITED KINGDOM OF.

**English Literature.** The year which brought peace back to England and the world did not, unfortunately, bring peacetime conditions back to English literature. It was indeed in 1945 that war's ravages and the difficulties both of authors to write books and publishers to produce them were more severely felt than ever before. Nevertheless, it is remarkable how, in a reduced output, a high proportion of books of interest and real literary value was maintained.

In poetry, there were at least a half-dozen books that would have been outstanding under any conditions. Louis MacNeice's collection *Springboard* showed the maturing of a talent, always accomplished, imaginative and saltily individual. George Barker's *Eros in Dogma* was also a highly original work by a young poet who was evolving a new eloquence from what seemed at one time an overelaborate and mannered style. Both these books were more human in their appeal than the book of their contemporary, in America in 1945, W. H. Auden; *For the Time Being* was nevertheless an intellectual tour de force of the first order and a searching analysis of the spiritual needs of our time. From a rather older generation, Walter de la Mare's *The Burning Glass* claimed attention for a number of lyrics in which the sufferings of today were poignantly expressed with all the technical and imaginative resources of an assured, individual artist. The younger generation in uniform contributed two volumes which were, tragically enough, epitaphs as well as milestones of progress: in both Sidney Keyes's *Collected Poems* and Alun Lewis's *Ha! Ha! Among the Trumpets* what is striking is the sense of desolation and the ruin of love and happiness in our time; Keyes is probably the more natural poet of the two, Lewis the more human and affecting. An anthology

of note was Robin Fedden's *Personal Landscape*, selected from the work of a group of young writers isolated in the middle east by the circumstances of war. Two poetic plays also deserve mention: Peter Yates's interpretation of the tragedy of John Wilkes Booth in *The Assassin*, and Edward Sackville-West's *The Rescue*, an essay in radio drama of importance to all who are interested in the development of this medium.

In fiction, two works stood out both for their craftsmanship and for their mordant comment on the world in which we have lived for the last quarter of a century: Aldous Huxley's *Time Must Have a Stop* and Evelyn Waugh's *Brideshead Revisited* were alike for their display of abundant gifts of wit and comic invention, alike too for the picture of spiritual dedication in an evil world which supersedes the comedy before the end. Rosamond Lehmann's *The Ballad and the Source* and L. P. Hartley's *The Shrimp and the Anemone* were both sensitive re-creations of the mysteries and terrors of childhood by experienced craftsmen, the former being especially notable for the richness of orchestration in its style. Henry Green's *Loving* marked a further progress in that combination of poetic symbolism and satiric comedy which has been the peculiar achievement of a difficult but highly talented novelist. A novel apart from the main stream was *All Hallows E'en*, a strange, absorbing study of life after death, by the poet Charles Williams whose death was a serious loss to English literature during 1945. One of the most gifted of the younger generation of writers, Denton Welch, published a further instalment of semi-fictional biography with *In Youth is Pleasure*, and Elizabeth Bowen in *The Demon Lover* proved herself again without rival in her special field of the highly wrought, atmospheric short story.

In biography and autobiography, successes of a more than ephemeral significance were scored by Sir Osbert Sitwell in *Left Hand, Right Hand*, the first volume of a trilogy which was likely to be fascinating for its evocation of a vanished society as well as for the personal story of a distinguished literary figure; by Lord Berners, who drew a witty and sensitive picture of his brief career at Eton in *A Distant Prospect*; by Margaret Cole in her biography of *Beatrice Webb*, and by Jack Simmonds in his study of a once dominating literary figure, *Southey*. In criticism, a book of exceptional importance, controversial though many of its conclusions may be, was Dr. E. M. W. Tillyard's *Shakespeare's Historical Plays*, while Sir Herbert Grierson and Dr. J. C. Smith attempted afresh an all but impossible task in their *Critical History of English Poetry*, valuable in particular for the chapters on Scottish poetry and the romantics. Three outstanding literary figures of our time were the subjects of interesting monographs, by Edward Thompson on Robert Bridges, by W. H. Gardner on *Gerard Manley Hopkins* and by Joan Bennett on *Virginia Woolf*, while William Gaunt made a lively and engrossing book out of the story of Whistler, Wilde and their contemporaries in *The Aesthetic Adventure*. In a class apart was Dr. C. M. Bowra's erudite but sparkling study of the epic, *Virgil to Milton*. In *British Architects and Craftsmen* Sacheverell Sitwell paid a glowing tribute to the post-mediaeval manifestations of the domestic arts in the British Isles; and in *The Years of Victory* Arthur Bryant carried his epic story of England's struggle against Napoleon one masterly step further.

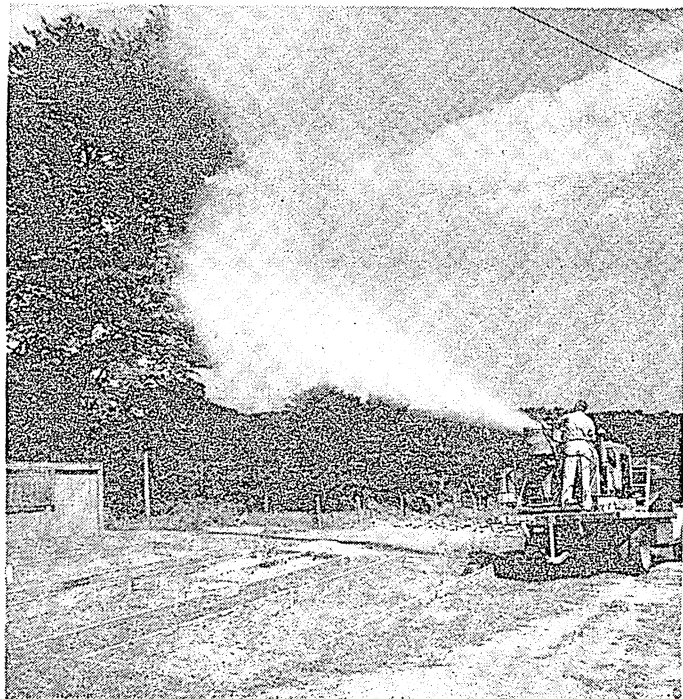
Among many records of war experience, both individual and general, which were published in 1945, Alan Moorehead's account of the end in Italy and Germany in *Eclipse* must be singled out for its rare qualities of mind, sympathy and observation. Finally, five books, all difficult to classify but of unusual quality, cannot be omitted: Lawrence Durrell's description of the island of Corfu in *Prospero's Cell*; George Orwell's irrever-

ent satire on revolution and dictatorship, *Animal Farm*; *The Unquiet Grave*, a book of elegiac meditations by "Palinurus"; William Plomer's collection of verse, satire and extravaganza *The Dorking Thigh*; and H. G. Wells's sombre and unforgettable declaration of despair, *Mind at the End of its Tether*. (See also AMERICAN LITERATURE; BOOK PUBLISHING.) (J. F. LE.)

**Entomology.** Entomology and World War II.—During the years of World War II the United States and its Allies accomplished more in certain of the sciences than had been done throughout all the ages of the past. The discoveries and developments in the relatively little known field of entomology were among those advanced most. During no other war or period of history had this relatively obscure and often ridiculed science been so important and received so much painstaking consideration and support by the armed forces at home and abroad, especially in the tropical theatres of warfare. The particular phases of entomology that were developed most were: (a) medical entomology, which has to do with the protection of human health from the torment of insects and the very disastrous diseases carried and transmitted to man and his domestic animals by insects; (b) agricultural or economic entomology which is concerned with the preservation of growing crops, harvested and stored foods, and the protection and conservation of domestic animals and all their various important products against the attacks of insects; (c) and insect toxicology or the development of chemicals and other means for the control and extermination of injurious insects wherever necessary.

**Medical Entomology.**—By far the most important developments in entomology during the war had as their objectives the protection of human health and especially the armies in training at home and in action on foreign fields. The most urgent medical problem in all theatres of the war in the warmer temperate and the tropical areas was malaria. It was very early evident that this disease would so deplete the armed forces that its control and suppression were absolutely necessary for successful operations at home and abroad. The creation of malaria control units became important parts of the medical and sanitary organizations of the armed forces throughout the entire world. Other

INSECTICIDE blower spraying shade trees with DDT in a demonstration by the U.S. Bureau of Entomology and Plant Quarantine on Aug. 22, 1945. The blower reduces the usual volume of insecticide needed because of special nozzles which permit a highly concentrated spray





almost equally important insect-borne diseases were the flea- and louse-borne typhus fever, the mosquito-transmitted dengue fever, filariasis and encephalitis.

On mosquitoes alone the amount of investigational work and the resultant publications on the systematics, distribution and control amounted to what appears to be greater in scope and volume than had been accomplished during all previous time. The collecting, systematizing and publishing of all this vast array of technical study would require the attention of specialists for years. The great success in the control and almost annihilation of mosquitoes and malaria was due to the adaptation of a previously little-known insecticide, DDT, discovered in Germany and first used in Switzerland where it was patented and from whence it was brought to England and the United States for possible use and development. Its effectiveness in killing mosquitoes and the adaptation and equipment for controlling mosquitoes and malaria were developed in the U.S. It will be discussed more fully under *Insect Toxicology*.

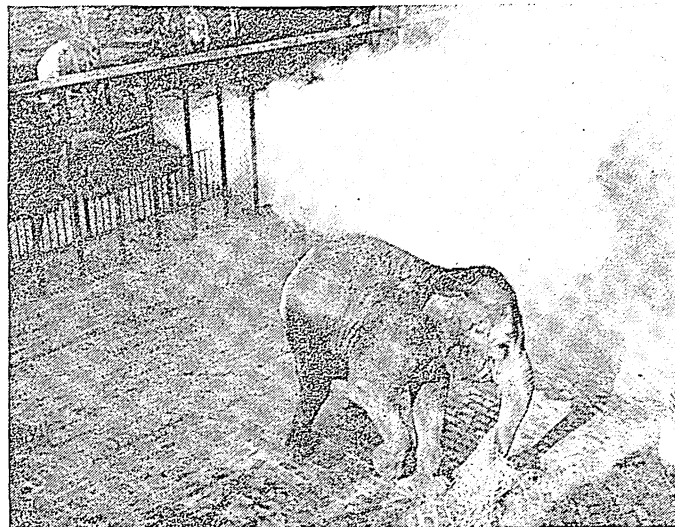
Entomologists played an important part in the control of mosquitoes and malaria. Altogether there must have been no less than 2,000 of these trained men engaged in this important work in the U.S. armed forces at home and abroad. Many of these men were highly trained and well experienced entomologists and were officers attached to sanitary corps or directly in charge of malaria, dengue fever and filariasis suppression in districts, regions or islands, often of considerable size. Others were engaged in surveys and investigational work of great importance. The results of these efficiently organized programs can only be estimated in terms of the successes of the armed forces in all training, combat and occupational areas, not only of U.S. forces, but also those of all the Allies. The cleaning up of occupied North Africa, southern Europe, southeastern Asia and the South Pacific islands, including the Philippines and Japanese empire, was made possible by the skilled and efficient entomologists whose initial conquest of insects made reconstruction and rehabilitation possible.

*Agricultural Entomology.*—The success of any war depends as much, if not more, upon food as upon equipment, ammunition and transportation. Unfortunately those in charge of armies and navies often overlook the part of agriculture in winning wars.

In their programs of training and equipping armed forces, the U.S. often seemed to disregard the importance of food production and conservation at home. The control of the insect destroyers of growing food crops, of domestic animals, of stored food products at home, in transit and in warehouses abroad were often neglected in spite of the many urgent requests of the economic entomologists for more help and for an adequate supply of insecticides and equipment for the proper conduct of their work at home. Too often there was an acute shortage of nearly all important and necessary insecticides which greatly handicapped the control of the multitudinous insects which regularly take a yearly toll of about 20% of all crops in years when insecticides are abundantly available.

Rotenone, pyrethrum and nicotine compounds, so necessary in the protection of vegetable crops, were almost completely restricted for aerosol bombs, sprays and dusts for the armed forces. Arsenical poisons, sulphur and fluorine compounds, oils, cyanides and other necessary insecticides were often extremely scarce or altogether unavailable. The newly discovered DDT also went to war and only small allotments were made available for small-scale investigations and tests against agricultural insect pests.

During the war period there was also a trying shortage of spraying, dusting and fumigating equipment, and parts for the old equipment that was fast wearing out. Suitable labour found



A DDT MIXTURE being sprayed at an elephant in the Central Park Zoo, New York, in Sept. 1945, to free him of the countless winged pests lodged in his hide

more remunerative jobs in shipyards and other manufacturing industries which attracted even the boys and girls from the farms.

In spite of these handicaps the ingenuity of the entomologists functioned as well at home as abroad and rendered the same exacting service for the protection of food crops and animals under even more trying conditions.

*Insect Toxicology.*—Because of the scarcities due to priorities governing the use of practically every important insecticide, during World War II the chemical and insecticide manufacturers sought diligently to discover and provide new insecticides, many of which showed great promise. Thus DDT, which had been hailed as one of the greatest achievements of World War II, DD, and ethylene dibromide (soil fumigants), aerosols, new insecticidal smokes and vapours, sabadilla (a possible rival of rotenone), pyrethrum, nicotine and many newer promising organic compounds were synthesized and tested for insect control. Never before had there been such a gigantic, organized research program for the subjection of insects.

**DDT.**—This insecticide kills insects by body contact and by absorption through the exoskeleton and the feet. Insects which have been subjected to it show these symptoms: They become restless; drag their legs; have jerky, spasmodic, uncontrolled movements; lie on their backs, kick their legs in the air and are unable to right themselves; develop tremors; often move away from treated areas and may require as long as several hours, days or even weeks to die.

*DDT Compounds.*—DDT is seldom used in the pure condition. It is usually dissolved in a solvent and applied as a spray or mixed with a powder and applied as a dust or a water spray. The various types of material prepared for application follow:

(1) *Aerosols or aerosol bombs.* These were developed chiefly for use of the armed forces. The bomb is the container, usually metal, in which the insecticide is held. It does not explode. The aerosol is the insecticide contained in the bomb. It consists of the DDT together with some other material in liquefied gas under pressure. The contents are discharged by opening a valve which releases the pressure causing the dispersal of the insecticide in the air as a mist or fog which rapidly diffuses. The small particles hit the insects and kill them by direct contact.

Aerosols are used chiefly for such flying insects as mosquitoes, flies, gnats, sandflies, clothes moths and others in dwellings, factories, hospitals, aeroplanes, tents and similar confined areas. Aerosols are useless for the control of such crawling insects as lice, fleas, cockroaches, earwigs, caterpillars, as well as the various immature stages of most insects. It is not classified as a fumigant.

(2) The fog method of applying DDT in concentrations of 2% or 3% has proved quite effective for many purposes. The fog can be blown great distances and is quickly applied in barns, houses, tents and other buildings to kill adult flies, mosquitoes, gnats, sandflies and other tormentors of man and domestic animals. It has also been used to treat stadiums, parks, beaches and other large open gathering places to free them of these insects.

(3) As a 2% or 3% dust for the control of many insects that infest truck crops, field crops, fruits and other agricultural products. It was

found effective in controlling leaf hoppers, onion thrips, pear thrips and other species of thrips, some aphids, plant bugs, flea beetles, Colorado potato beetle, pea weevil, Japanese beetle, rose chafer, potato tuber moth, corn-ear worm, cabbage worm, oriental fruit moth, codling moth, pickle worm, melon worm and many cutworms.

(4) As a 5% dust for the external parasites of animals and man, and for ants and many kinds of insects injurious to agricultural crops.

(5) As a 10% dust for external parasites of man including lice and fleas, and for the brown dog tick. It may also be used for cockroaches, silverfish moths and other household insects. For human lice 1.5 to 2 oz. should be used per individual.

(6) As a 50% wettable powder. This concentrated material may be diluted at the rate of from 1 to 2 lb. per 100 gal. of water and used as a spray for such insects as leaf hoppers, thrips, codling moth, oriental fruit moth, grape-berry moth; Japanese beetle (25 lb. per ac. appear to be as effective as 40 times as much arsenate of lead), rose chafer, pea weevil and probably many other similar insects. As a spray for lice on cattle, it should be used at the rate of 4 lb. to 100 gal. of water. One gal. should be sufficient to spray 3 large animals. As a dip for cattle, at the rate of 2 lb. to 10 gal. of water.

(7) As a 5% oil solution (in deodorized kerosene). It is extremely effective in killing bedbugs, flies, mosquitoes, clothes moths, some carpet beetles and many stored products insects, as well as termites in their burrows. Three liquid oz. are sufficient to treat the mattress, springs and frame of a bed. It may also be used as a residual spray to be applied to the walls of rooms, closets and chests. It will not stain wallpaper and clothing and remains effective for several months.

(8) As a 20% emulsifiable spray (a water miscible concentrate composed of 20 grams DDT for every 100 mm. of solution) is useful for killing lice, fleas, flies and other insects which frequent buildings, and has often been used for spraying all kinds of buildings, fences, boxes, screens, tents, autos and similar enclosed areas. For this latter purpose it is diluted at the rate of 1 gal. to 3 gal. of water. One gal. of this dilution will cover 1,000 sq.ft. of surface. Instead of using this combination many investigators preferred to use the wettable powder referred to above. The water mixture leaves the crystallized DDT on the surface of the sprayed areas and the latter remains effective longer than when applied in the oil solutions which are often absorbed. It is much safer, too, for animal dips and for the operators applying the material. Adding lime to any mixture reduces the effectiveness of DDT.

Tolerance of DDT residue: "No question is raised concerning the use of DDT on such fruits as apples and pears since it is less toxic than the other commonly used insecticides for these crops, such as lead arsenate and cryolite. . . For the present the Food and Drug administration will not take action against apples and pears containing not more than 7 mgs. of DDT per kg. of fruit." (Food and Drug and Cosmetic Act-Trade Correspondence, Nov. 5, 1945.)

**Pests Not Controllable by DDT.**—In spite of the remarkable insecticidal properties of this new chemical there were some agricultural and household insect pests and mites that did not appear to be affected by the application of DDT dusts and sprays. It was unsatisfactory for the control of many aphids, including the cabbage aphid, turnip aphid, melon aphid and others, and for the control of the Mexican bean beetle, the German cockroach, certain dermestid beetles and for orchard mites, red spiders, bud blister and gall mites.

**Destruction of Beneficial Insects by DDT.**—This insecticide is destructive to many kinds of beneficial predaceous and parasitic insects when used as a contact or residual dust or spray. It may suppress the natural enemies of many insect pests and thus permit the latter to gain considerable headway and even require additional control measures. Thus aphids often increase in great numbers, as a result of killing the ladybird beetles, predaceous bugs, green lacewings, brown lacewings, syrphid flies and the very effective hymenopterous parasites.

The rather critical situation relative to the possible killing of the honeybee and wild bees, thus decreasing the pollination of many essential crops, as well as curtailing the production of honey and beeswax, was greatly feared by many and was given much publicity. At first DDT was proclaimed "the destroyer of bees" because tests in hives and cages indicated this claim to be a fact. However, after two years of very intensive investigations and observations of large areas of alfalfa, vegetable and flower seed crops, it appeared that, while the bees are driven out of the freshly dusted fields for a period of three or more days, they return after that time in practically equal numbers and eventually actually build up their populations in the treated areas. This increase is due to the multiplication of the flowers as a result of the protection afforded them by the applications of DDT and thereby killing the lygus bugs which destroy the flowers and the seed crop. Careful observations during 1945 in Arizona, California, Oregon, Texas and Utah support this latter statement. In the case of fruit trees the honeybees alight directly in the flowers and if the trees are not sprayed during the blooming period no harm whatever befalls the bees.

**Ethylene Dibromide.**—This relatively new insecticide is especially useful as a soil fumigant for the control of nematodes, garden centipede, wireworms, white grubs and other subterranean plant pests. It appeared to be particularly promising for killing wireworms, but must be used on land free from growing plants.

**Benzine Hexachloride or 666.**—This new insecticide had, to a much lesser degree, somewhat the same type of publicity in Great Britain as DDT had in the U.S. However, it did not appear to be either as versatile or as effective as the latter, although it is quite similar in many respects and is effective in killing many insects. It appeared to be less toxic to man and domestic animals. It is usually applied as a powder and is quite toxic to plant bugs, granary weevils and other insects.

**Ortho-dichlorobenzene.**—This new insecticide gave very effective results in the control of many household and stored products insects as well as pests of fruit trees and many agricultural crops. It was used as a contact spray, as a solvent for aerosols and mixed with other insecticides. In its various forms it proved effective in controlling insects infesting seeds, aphids, clothes moths, bedbugs, body lice, flea beetles, caterpillars, termites, powder-post beetles in seasoned wood and bark beetles in branches

and trunks of living infested trees. It is deserving of much more extended investigation.

**Phenothiazine or Thiodiphenylamine.**—This relatively new insecticide continued to occupy an important place in the control of certain caterpillars which infest fruit trees.

**BIBLIOGRAPHY.**—Dow Chemical Company, "The DDT Avalanche," *Down to Earth*, 1 (5):10-12 (1945); H. A. Jones, H. J. Flump and G. T. McCollough, "Solvents for DDT," *Soap and Sanitary Chemicals*, 11:110-115, 155 (1945); MacNair-Dorland Co., "Aerosol Insecticides," *Soap and Sanitary Chemicals*, 10:124-25 (1945); Federal Security agency, U.S. Public Health Service, "DDT for the Control of Household Insects," *Malaria Control in War Areas* (1945); A. S. Wing, "The Facts About DDT," *News from the Nat. Victory Garden Inst.* (1945).

**FILMS.**—*Aphids; Beetles; House-Fly; Moths* (Encyclopædia Britannica Films Inc.).

**Entomology and Plant Quarantine, Bureau of:** see AGRICULTURAL RESEARCH ADMINISTRATION.

**Enzymes:** see BIOCHEMISTRY.

## Epidemics and Public Health Control.

Outstanding was the continued progress in 1945 in use and development of the antibiotics, such as penicillin, streptomycin and streptothricin. F. L. Meleney reported that good results may be expected in 75% of cases of grave infection by haemolytic streptococci.

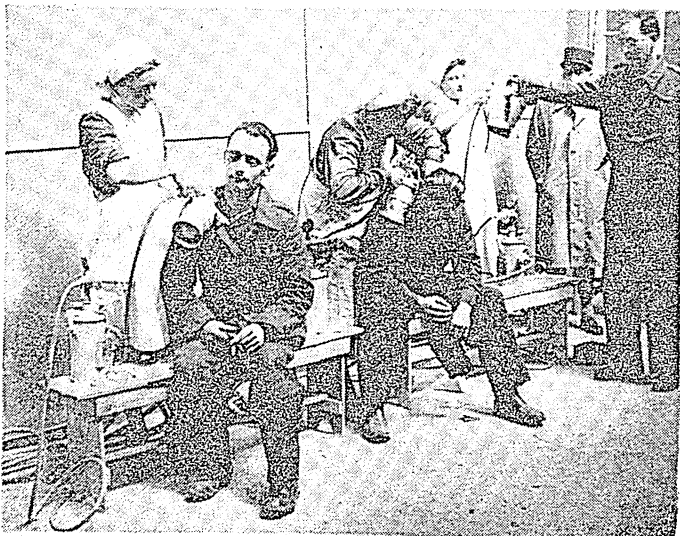
The action of penicillin, for practical purposes, may be considered to be bactericidal as well as bacteriostatic. Use of penicillin by mouth was reported extensively. According to P. György and his co-workers, penicillin calcium given orally with trisodium citrate was as effective in the treatment of gonorrhoea as the same dose given by injection. British observers felt that inhalation therapy is advantageous, especially for infants, because given otherwise it is rapidly excreted.

O. H. Robertson studied air-borne infection and pointed out how environment can be contaminated by diseased persons or carriers of pathogenic organisms which later remain in bedding and floor dust and then during cleaning are resuspended in the air.

Edward Bigg and co-workers were successful in instilling bactericidal concentrations of triethylene glycol (TEG) in large living quarters. They reported definite reduction of air infections.

Virus, viral or viroid upper respiratory and pneumonia infections were the subject of differing opinions as to cause, diagnosis and treatment. Titrations of cold haemagglutinin were intensively studied. C. L. Spingarn and J. P. Jones pointed out that in 89% of normal controls the titre was 1:56 or lower, and in

REPATRIATED French prisoners of war receiving the delousing treatment as part of their medical examination in Paris before returning to civilian life in 1945



11% reached up to 1:224. However, the titre was highest in patients with primary atypical (virus) pneumonia. Pneumonias of bacterial origin gave cold haemagglutinin titres lower than in the atypical (virus) type. However, the authors felt that cold haemagglutination is a nonspecific manifestation of certain types of antibody response rather than specific for atypical pneumonias.

Advice generally was given that the sulfonamides and penicillin are ineffective in viroid upper respiratory and pneumonia infections. Yet, its widespread use in these infections continued. J. J. Short reported good results with penicillin in viroid pneumonias. Others, from personal experience, felt that clinical application of penicillin does not always follow test-tube trend.

H. A. Reimann, *et al.*, reported a widespread, mild, apparently communicable type of diarrhoea, nausea and vomiting, called epidemic diarrhoea, nausea and vomiting. It was believed that a virus is the cause.

Vaccination against influenza, using a virus vaccine of .5 cc. type A and .5 cc. type B, was carried out in army specialized training program units of eight universities. Attack rate among those vaccinated was 2.22% and among controls 7.11%.

M. J. Romansky, *et al.*, reported on treatment of gonorrhoea with a single injection of calcium penicillin in beeswax-peanut oil. One injection produced cures in most cases, and assayable levels of penicillin in the blood were maintained for 7½ to 10 hours, with excretion in urine continuing for 24 to 32 hours. No abnormal reactions were seen locally or constitutionally. (See also BACTERIOLOGY; ENTOMOLOGY.)

**BIBLIOGRAPHY.**—F. L. Meleney, "Recent Experiences with Penicillin in the Treatment of Surgical Infections," *Bull., New York Acad. Med.*, 20:517-537 (Oct. 1944); L. P. Garrod, "Action of Penicillin on Bacteria," *Brit. M. J.*, 1:107-110 (Jan. 1945); P. György, H. N. Vandegrift, William Elias, L. G. Colio, F. M. Barry and J. D. Pilcher, "Administration of Penicillin by Mouth," *J.A.M.A.*, 127:639-642 (March 1945); F. A. Knott and W. H. Clark, "Absorption of Aerosol Penicillin Via the Lungs," *Lancet*, 1:468 (April 1945); O. H. Robertson, Morton Hamburger, Jr., Clayton G. Loosli, Theodore T. Puck, Henry M. Lemon and Henry Wise, "A Study of the Nature and Control of Air-borne Infection in Army Camps," *J.A.M.A.*, 126:993-1000 (Dec. 1944); Edward Bigg, B. H. Jennings and F. C. W. Olson, "Epidemiologic Observations on Use of Glycol Vapors for Air Sterilization," *Am. J. Pub. Health*, 35:788-798 (Aug. 1945); C. L. Spingarn and J. P. Jones, "Cold Hemagglutination in Primary Atypical Pneumonia and Other Common Infections," *Arch. Int. Med.*, 76:75-87 (Aug. 1945); J. J. Short, "Penicillin in the Treatment of Primary Atypical Pneumonia," *U.S. Nav. M. Bull.*, 43:974-980 (Nov. 1944); H. A. Reimann, J. H. Hodges and A. H. Price, "Epidemic Diarrhea, Nausea and Vomiting of Unknown Cause," *J.A.M.A.*, 127:1-6 (Jan. 1945); "Cause of Epidemic Diarrhea, Nausea and Vomiting (Viral Dysentery?)," *Proc. Soc. Exper. Biol. & Med.*, 59:8-9 (May 1945); Editorial, "Vaccination Against Influenza," *J.A.M.A.*, 129:619 (Oct. 1945); M. J. Romansky, R. J. Murphy and G. E. Rittman, "Single Injection Treatment of Gonorrhea with Penicillin in Beeswax-Peanut Oil," *J.A.M.A.*, 128:404-407 (June 1945).

**FILMS.**—*City Water Supply*; *Defending the City's Health* (Encyclopedia Britannica Films Inc.). (H. Bu.)

**Episcopal Church:** see PROTESTANT EPISCOPAL CHURCH.

**Eritrea:** see ITALIAN COLONIAL EMPIRE.

**Espionage:** see FEDERAL BUREAU OF INVESTIGATION.

**Estonia.** One of the Baltic states of northeastern Europe, north of Latvia, south of Finland, 16th republic of the U.S.S.R. Area, 18,371 sq.mi.; pop. (est. 1939) 1,122,000. Chief towns: Tallinn (capital 146,400); Tartu (60,100); Narva (24,200); Nomme (19,700); Pärnu (21,500). Language, Estonian (a Finno-Ugrian tongue). Religion, Christian (Lutheran 78%, Greek Orthodox 19%). Ruler in 1945: Russian military occupation, with local government under Johannes Vares as chairman of the supreme soviet of Estonia.

**History.**—After 20 years of precarious peace and independence Estonia's troubles began in 1939. In that year Germany started the sequence of events by the invasion of Poland. The U.S.S.R. then began to push its frontier westward, occupying eastern Poland and demanding strategic bases of Estonia (Sept. 29, 1939) and of the other Baltic states. In June 1940 the Rus-

sians occupied the country and in July held elections at which the people voted to join the U.S.S.R. When Germany attacked Russia, June 22, 1941, the Baltic states were overrun by the German armies—though the northwest section of Estonia held out for about six months. In 1944 the Russian counteroffensive swept back across Estonia; by the end of November the whole country was reconquered, and the following year was a time of slow but purposeful reconstruction. (See section on *Manufacturing and Mineral Production*.)

The Russians assumed that Estonia, long controlled by the tsars and incorporated in the soviet state in 1940, was once more one of the union republics of the U.S.S.R. The indictment of German war criminals referred to the Baltic states as within the U.S.S.R., but although Britain and the U.S. both signed this document they each specifically denied that the signature implied recognition of the Russian claim. The British foreign office made public a statement to this effect (Oct. 19). For the U.S., Justice Robert H. Jackson sent a letter to the Russian, French and British prosecutors saying that the indictment was signed with the reservation that he had no authority either to accept or to challenge the soviet sovereignty in the Baltic states. Legally the U.S. and Great Britain recognized a regime out of power from 1940, yet *de facto* control remained in soviet hands, and no other government appeared disposed to make a real issue of the matter.

Estonia faced major readjustment in its population. From 1940-41 unknown numbers of the people had been transported into central Russia or Siberia; other hundreds at least had been taken to Germany as forced labour in the period 1941-44; thousands fled to Germany or Sweden during the struggle of the great powers. One group bought a 30-ft. sloop in Stockholm and sailed to the United States. Some who could face the Russian control without fear gradually returned to their homes; but many had so compromised themselves against communism or against Russia that they dared not return. U.S. and British occupiers of Germany cared for thousands of Estonians and other Balts (of this group large numbers were, of course, nazi sympathizers); Sweden continued hospitality to thousands more. Military personnel among the refugees in Sweden were demanded by the Russians, but many of these staged a hunger strike or committed suicide and delayed the evacuation. Meantime large numbers of Russians seemed to be moving into Estonia, and plans were under way to expand Tallinn into a city of 500,000. For the most part, however, the western world was left very much in the dark about conditions and trends in the 16th republic of the U.S.S.R.

**Education.**—In 1937-38 there were 1,224 elementary schools, 58 middle schools, 39 technical schools and 30 agricultural schools. Tartu (Dorpat) university had 3,219 students and 217 professors in 1938. Under the soviet regime education is universal and compulsory.

**Finance.**—The monetary unit is the kroon (26.7 U.S. cents at par). Effects of monetary changes in 1941-44 were uncertain, but the Russians gave receipts for German marks turned in. What meagre reports reached the west in 1945 were in terms of rubles. Revenue (est. 1939-40) 99,293,000 kroons; expenditure 99,293,000 kroons.

**Trade and Communication.**—Imports in 1939 totalled 101,351,000 kroons; exports, 118,217,000 kroons. Principal imports were raw cotton, sugar, woollen yarns and thread, iron and steel. Principal exports were butter, wood and paper, cotton goods, cellulose, flax and tow, meat products and eggs. Imports were chiefly from Germany, Great Britain, Sweden, the United States and the U.S.S.R. Exports were chiefly to Great Britain, Germany, Finland, the United States and Sweden.

**Agriculture.**—Production (in short tons) of the leading crops



in 1939 was as follows: rye 250,994, potatoes 963,741, oats 164,684, barley 99,207 and wheat 94,026. Estonia in 1938 had 660,890 cattle, 649,730 sheep, 384,580 pigs, 219,020 horses and 1,596,570 chickens.

**Manufacturing and Mineral Production.**—Manufacturing production was valued at 166,238,000 kroons in 1937. One of the larger cotton mills in Europe was at Narva, where textile manufactures in 1937 were valued at 47,425,000 kroons. Other important industries were paper and wood, food products, cement, flax, leather. Shale oil production rose rapidly to 209,437 short tons in 1939. Approximately 60,000 people were employed in industry in 1938.

Industrial rehabilitation stood high on the U.S.S.R. priority list for Estonia, and according to the soviet *Information Bulletin* great progress was achieved even in the first six months of 1945. By May 1 the Tunnel furnace and shale refinery was restored and in the next four months produced 7,000 tons of shale grease. Other mines in Kivil and Kokhtla and elsewhere opened earlier and provided fuel for factories, power stations and railroads—353,000 tons of shale fuel altogether. Machine plants, glassworks, shipyards, lumber mills and furniture factories resumed operations. A cellulose paper factory produced 4,000 tons of cellulose, 2,600 tons of paper and 1,000 tons of cardboard in the period January to June. The great textile mills at Narva were scheduled to reopen with at least 25,000 spindles by the end of 1945.

(F. D. S.)

**Etching.** The year 1945, which brought to an end the long struggle of World War II, brought also a renewed activity in the field of etching in the United States. Practitioners of the art who had been absent in the armed forces began to return to their studios, many with sketches later to be transferred in more developed form to the copper plate; etching societies which had either suspended their activities or greatly limited them during the war years took on new life; museums and other art organizations renewed normal schedules. Because of the highly technical nature of the medium and the fact that it is not the only one of the graphic arts by which a design is made susceptible to multiplication, etching has always been practised by a comparatively limited number of artists, but the number of etchers in the United States increased rather than otherwise during the year 1945. Among its most active exponents may be



"IDA MAY" by John E. Costigan was included in the 1945 exhibit of the Society of American Etchers at the National Academy Galleries in New York

named Niels Y. Andersen, Isabel Bishop, Cornelius Botke, Theodore Brenson, J. Gross Bettelheim, John E. Costigan, Ralph Fabri, Isac Friedlander, Elias M. Grossman, Arthur W. Heintzelman, Eugene Higgins, Morris Henry Hobbs, Irwin D. Hoffman, Alfred H. Hutt, Armin Landeck, Lino S. Lipinsky, Luigi Lucioni, Joseph Margulies, Blanche McVeigh, Helen P. Miller, Martin Petersen, Fermin Rocker, Ernest D. Roth, Carl M. Schultheiss, Effim H. Sherman, Y. E. Soderberg, Sam Thal, Reynold Weidenaar, R. W. Woiceske, and George H. Wright. An active group under the leadership of Stanley W. Hayter, working in the so-called "modern" idiom, produced some interesting abstract designs, though mostly in line engraving. The American master, Frank W. Benson, ceased etching some years before and John W. Winkler and Cadwallader Washburn, other outstanding performers, produced no new work in 1945. Most of the many etching societies in the United States, among them the three largest, the Society of American Etchers, the Chicago Society of Etch-

ers, and the Print Makers Society of California, held their usual annual exhibitions, which included the work of practically all the etchers of the country. In addition, the Library of Congress held its great annual national exhibition, sponsored by the administrators of the Joseph Pennell fund.

British etchers carried on during the year 1945 with the same magnificent courage and perseverance displayed by all British artists, and the Royal Society of Painter Etchers, of which Sir Malcolm Osborne was president, held its usual exhibition in London. The Royal Academy had many etchers among the contributors to its annual show at Burlington house. Among the foremost British etchers of the year were Katharine Cameron, William D. Brokman Davis, Paul D. Drury, W. Russell Flint, H. A. Freeth, Sylvia Gosse, Martin Hardie, W. Westley Manning, John Nicolson, W. P. Robins, Henry Rushbury, Sara Sproule, Leonard Squirrell, Ian Strang, Robin Tanner and S. Van Abbe. The death of Sir Frank Short, the inactivity of Sir David Young Cameron, James McBey's transfer to American residence and citizenship, and the work of Sir Muirhead Bone in other fields, removed the four greatest names in contemporary British etching for the year 1945.

Many of France's etchers continued to work throughout the war, but the internal conditions resulting from it made publication and distribution almost impossible, so that little news of their production reached the outside world. In Nov. 1945, an exhibition of the work of such well-known performers of other years as Beurdeley, Jacques Boullaire, Jean Frelaut, Pierre Guastalla, Andre Jacquemin, Jacques Villon and Wehrin was held at one of the leading Parisian print galleries. An interesting international gesture was embodied in the showing in the 30th annual exhibition of the Society of American Etchers of a group of etchings by contemporary Frenchmen, H. G. Adams, Yves Alix, E. Cournault, Jean Deville, Anthony Gross, Joseph Hecht, Montandon and Charles Walch. These artists were all members of a group known as "La Jeune Gravure Contemporaine," headed by Joseph Hecht.

A strong group of Canadian artists, organized into the Society of Canadian Painter-Etchers and Engravers, with Nicholas Hornyansky as its president, held its annual exhibition in 1945. Among prominent etcher members were Woodruff K. Aykroyd, Isabel Cleland, John S. Inglehart, Wendell P. Lawson, I. MacKinnon-Pearson, Harry D. Martin, Jack Martin, Wilbur K. Peacock, Owen Staples, Cyril John Travers, Harry D. Wallace, Peter Whalley and W. J. Wood.

The only other countries whose artists were active in the graphic arts during 1945 were Mexico and the South American republics Uruguay and Argentina, but in all three lithography and woodcut predominated and little work in the medium of etching was published.

(J. T. AR.)

## Ethical Culture Movement.

A religious and educational movement emphasizing the centrality of ethics in human relations, started in New York city in 1876 by Felix Adler, and established ten years later in London by Stanton Coit. In 1945, societies were active in New York city, Westchester, Brooklyn, Philadelphia, St. Louis and Chicago, and groups were meeting regularly in Washington, D.C., and New Jersey. There were five societies meeting in London and one in Birmingham, England.

The Ethical Culture societies conduct Sunday and weekday services, and a variety of educational and community activities. University Settlement, the first neighbourhood house in the United States, was an enterprise of the movement, which was also responsible for significant efforts in child labour reform, visiting nurse associations, legal aid societies, housing, race relations, child study and progressive education. Considerable

literature dealing with the autonomy of ethics and the religious nature of ethical dedication was produced. In addition to war-time service activities, the English and U.S. societies devoted themselves to training of youth for democratic citizenship, extensive programs in adult education, the fuller realization of Negro rights, problems of atomic power and public policy and efforts aimed at the improvement of the public school system. The Conference on the Scientific Spirit and Democratic Faith held its annual meeting at the meeting house of the New York society.

Exposition of the movement's principles was to be found in Felix Adler, *An Ethical Philosophy of Life*, David Saville Muzey, *Ethical Religion* and Horace J. Bridges, *Some Aspects of Ethical Religion*. *The Standard*, edited by George E. O'Dell, was published each month at 2 West 64th St., New York 23, N.Y. The American Ethical union, of which Robert D. Kohn is president, had offices at the same address. The offices of the English Ethical union, of which H. M. Brailsford was president (1945), were at Chandos House, Buckingham Gate, London, S.W.1.

(J. NN.)

**Ethiopia.** A kingdom of northeast Africa. Area, c. 350,000 sq.mi.; pop. (est. Dec. 31, 1939) 9,500,000; cap. Addis Ababa; religion: Christian (Copt) and Mohammedan; languages: Amharic and Arabic; ruler: Emperor Haile Selassie I.

**History.**—The terms of the treaty concluded in 1945 between the British mission under Earl de la Warr and the emperor included: the return of the Jibuti railway to Ethiopia, together with certain cantonment areas and the Italian Somaliland frontier zone; tribes on the British Somaliland border to remain under British control; the British military mission with certain advisers to remain, and the Ethiopian army to continue to be trained by British instructors. An offer of a £3,000,000 loan in three years was refused, because it involved an Anglo-Ethiopian board. In February the emperor saw Prime Minister Churchill and President Roosevelt on their return from Yalta. The British Friend's ambulance unit, which provided half the European medical personnel, left the country shortly afterwards. A number of Negro educationists and scientists arrived from the United States. In September the Ethiopian representative at San Francisco signed an agreement for a 50-year oil concession to a U.S. concern, in exchange for the building and equipment of a hospital, one or more schools

PRES. ROOSEVELT and Emperor Haile Selassie during their meeting aboard a U.S. warship near Cairo in Feb. 1945. The president was en route to the U.S. from the Crimea conference



and scholarships to the United States.

Against this background, Ethiopia made strong demands at San Francisco and elsewhere for the ex-Italian colonies, particularly Eritrea, and for large reparations against Italy. It also made strong representation for relief from the United Nations Relief and Rehabilitation administration which sent a mission to Addis Ababa in Oct., 1945. (H. V. L. S.)

**Trade and Communication.**—Chief exports: hides and skins, coffee (14,300 short tons in 1937-38) and gold. Roads (1940) c. 4,340 mi.; railways (Addis Ababa to Jibuti in French Somaliland) 486 mi.

## European Advisory Commission.

The establishment of the European Advisory commission was announced in the joint communiqué of the Tripartite conference at Moscow which was published on Nov. 1, 1943. The communiqué stated in this regard, "the conference agreed to set up machinery for ensuring the closest co-operation between the three governments in the examination of European questions arising as the war develops. For this purpose the conference decided to establish in London a European Advisory commission to study these questions and to make joint recommendations to the three governments." The joint communiqué went on to point out that provision was made for continuing when necessary the tripartite consultations of representatives of the three governments in the respective capitals through the existing diplomatic channels.

The European Advisory commission met for the first time on Dec. 15, 1943, at Lancaster house, St. James's palace, London. The commission continued its sessions throughout the years 1944-45 and was active in negotiating the surrender terms which were subsequently applied to Rumania and Bulgaria. A large proportion of the commission's activity was naturally devoted to questions relating to Germany. The agreement on control machinery for Germany and the agreement on zones of occupation in Germany were negotiated in the summer of 1945. The Declaration Regarding the Defeat of Germany and the Assumption of Supreme Authority in Germany by the Four Powers was likewise negotiated in the commission and subsequently issued at Berlin on June 5, 1945. The commission likewise recommended the Agreement on Certain Additional Requirements to be Imposed on Germany, which was subsequently announced by the Control council in Berlin.

With reference to Austria, the agreement on control machinery in Austria and the agreement on zones of occupation in Austria were negotiated in the commission and subsequently approved and made public.

The United States representative on the commission in 1945 was Ambassador John G. Winant; the soviet representative was Ambassador Foydor Gousev; the British representative was Sir William Strang, who until this appointment was under secretary of state for foreign affairs in the British foreign office.

The French government was admitted to full participation in the European Advisory commission and was represented by René Massigli, the French ambassador in London. Each of the representatives on the commission was assisted by a staff supplied by his own government, and there was a joint secretariat composed of personnel supplied by the participating governments.

The Potsdam declaration recommended that, in view of the establishment of the Council of Foreign Ministers and inasmuch as the European Advisory commission had ably discharged its principal task, the commission be dissolved. As the French government later stated that it agreed with this recommendation, the four governments participating in the European Advisory commission considered that it was terminated. (H. F. Ms.)

**European War:** *see* WORLD WAR II.

**Evangelicals, National Association of:** *see* NATIONAL ASSOCIATION OF EVANGELICALS.

**Events of the Year:** *see* CALENDAR OF EVENTS, 1945, pages 1-16.

## Exchange Control and Exchange Rates.

The situation of the international exchange markets in 1945 can be summarized as follows: Orderly monetary and foreign exchange conditions were maintained in the western hemisphere, in the greatest part of the sterling bloc, and in the neutral countries of Europe. The soviet union, of course, had its own monetary system. The technical position of the United States dollar remained very strong and it was clear that the dollar was becoming the basis of a new international monetary standard. The monetary reconstruction of the European nations was closely tied up with the renewal of production. The danger of inflation was great. Without ample supply of goods monetary measures alone would not suffice to check this movement.

**The United States.**—The gold stock of the United States decreased from \$20,619,000,000 in Dec. 1944 to \$20,030,000,000 in Nov. 1945 or by \$589,000,000. The reduction of the gold stock proceeded in a slower tempo than in the two previous years. Over the five years from July 1, 1940, through June 30, 1945, the U.S. government spent abroad \$13,045,000,000, of which \$4,000,000,000 to \$5,000,000,000 was spent to purchase vitally needed food and raw materials. A similar amount was spent to pay U.S. troops overseas. The government agencies held abroad more than 3,000 installations, acquired at a cost of \$2,413,000,000, of which 95% were military installations. Out of the total disbursements abroad of \$13,045,000,000, the amount of \$6,375,000,000 went to the British commonwealth; \$3,326,000,000 to American republics; \$986,000,000 to China; \$541,000,000 to France and its possessions; and \$127,000,000 to Italy and its possessions. (The U.S. government received from the British commonwealth \$2,460,000,000; from the American republics \$288,000,000; from France \$526,000,000; and from China \$149,000,000.) This source of dollar income was to be greatly reduced. With the end of the lend-lease supplies, the countries which had previously received them had to pay in dollars or obtain credit in dollars. The universal great demand for U.S. goods would logically stop further export of gold from the U.S. and tend to reduce the foreign-held dollar balances.

Foreign funds in the U.S. increased from \$7,423,400,000 on July 31, 1944, to \$8,296,800,000 on July 31, 1945, or by \$873,400,000. (The foreign banking fund included here went up from \$4,740,800,000 to \$5,442,600,000 during the same period.) As of July 31, 1945, Europe held \$4,140,600,000, a slight decline compared with the previous year; while Canada's balances went further up to \$1,361,400,000, Latin America's to \$1,411,700,000, and Asia's to \$1,175,500,000.

The technical position of the dollar remained strong, and it was becoming more and more a pivotal basis of a new international monetary system. The foreign exchange quotations in New York remained limited to the Latin American nations, Canada, the countries of the sterling bloc, Sweden, Switzerland, China and irregular quotations of Spain and Portugal. The quotation of the French and Belgian franc was again introduced.

During the fiscal year 1945, the Foreign Funds Control continued to freeze the assets held within the U.S. by persons in enemy, enemy-occupied and European neutral countries and to regulate the use to which such assets might be put. The purpose of these measures, however, was not to protect the U.S. dollar; it was not an exchange control, but belonged to the field of economic warfare. The aim was to prevent enemies from using,



# EXCHANGE CONTROL AND EXCHANGE RATES

Latin-American Exchange Rates

299

295

Note.—Averages are based on actual selling rates for sight drafts on New York, in units of foreign currency, per dollar, with the following exception: Cuba—United States dollar to the peso. The peso of the Dominican Republic, the Guatemalan quetzal, and the Panamanian balboa are linked to the dollar at 1 to 1; the Haitian gourde is fixed at 5 gourdes to a dollar.

Country	Unit quoted	Type of exchange	Annual Average rate			Monthly average rates, 1945				Latest Available quotation	
			1942	1943	1944	January	April	June	July	Rate	Date, 1945
Argentina	Paper peso	Official A	3.73	3.73	3.73	3.73	3.73	3.73	3.73	3.73	Sept. 29
		Official B	4.23	4.23	4.23	4.23	4.23	4.23	4.23	4.23	
		Bid	4.94	4.94	4.94	4.94	4.94	4.94	4.94	4.94	
		Free market	—	4.06	4.03	4.04	4.04	4.03	4.03	4.03	
Bolivia	Boliviano	Controlled	46.46	42.91	42.42	42.42	42.42	42.42	42.42	42.42	Aug. 8
		Curb	49.66	45.42	51.80	60.75	58.00	56.50	59.00	60.00	
Brazil	Cruzeiro*	Official	16.50	16.50	16.50	16.50	16.50	16.50	16.50	16.50	Oct. 15
		Free market	19.64	19.63	19.57	19.50	19.50	19.50	19.50	19.50	
		Special free market	20.52	20.43	20.20	20.00	20.00	20.00	20.00	20.00	
Chile	Peso	Special	19.37	19.37	19.37	19.37	19.37	19.37	19.37	19.37	Oct. 31
		Export draft	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	
		Free market	31.75	32.37	31.85	31.71	32.26	32.54	32.24	32.85	
		"D. P."†	31.13	31.00	31.00	31.00	31.00	31.00	31.00	31.00	
Colombia	Peso	Commercial Bank	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.746	Sept. 30
		Bank of Republic	1.76	1.76	1.76	1.76	1.76	1.76	1.76	1.755	
		Draft	1.77	1.76	1.75	1.75	1.83	1.82	1.84	1.83	
Costa Rica	Colon	Uncontrolled	5.71	5.65	5.66	5.67	5.66	5.67	5.67	5.67	Aug. 31
		Controlled	5.62	5.62	5.62	5.62	5.62	5.62	5.62	5.62	
Cuba	Peso	Free	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	Aug. 31
Ecuador	Sucre	Central Bank (Official)	14.39	14.10	14.06	13.77	13.77	13.77	13.77	13.77	Nov. 16
Honduras	Lempira	Official	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	Aug. 31
Mexico	Peso	Free	4.85	4.85	4.85	4.85	4.85	4.85	4.85	4.85	Sept. 30
Nicaragua	Cordoba	Official	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	Nov. 9
		Curb	—	5.16	5.72	6.65	7.18	7.25	7.30	5.55	
Paraguay	Paper peso Guarani‡	Official	333.00	333.00	—	3.11	3.12	3.12	3.12	3.12	Oct. 31
		—	—	3.10	3.11	3.12	3.12	3.12	3.12	3.12	
Peru	Sol	Free	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	Aug. 15
Salvador	Colon	Free	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	Oct. 8
Uruguay	Peso	Controlled	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	Nov. 8
		Free	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90	
Venezuela	Bolívar	Controlled	3.35	3.35	3.35	3.35	3.35	3.35	3.35	3.35	Oct. 18
		Free	3.45	3.35	3.35	3.35	3.35	3.35	3.35	3.38	

\*Under law of Oct. 6, 1942, the cruzeiro became the unit of currency, replacing the milreis. From Nov. 1942, exchange quotations have been in terms of cruzeiros and centavos to the dollar.

†Disponibilidades propias (private funds).

‡New currency unit instituted as of Nov. 8, 1943. Paraguayan central bank establishes a "legal rate" from which buying and selling rates may vary by 1%. From July 13, 1944, the legal rate has been fixed at 3.09 guaranies to the dollar, resulting in buying and selling rates of 3.059 and 3.121, respectively.

§A decree of Nov. 18, 1944, fixed basic central bank buying and selling rates at 13.40 and 13.50 sucres to the dollar, respectively, but the imposition at the same time of a 2% charge on all exchange transactions has resulted in effective buying and selling rates of 13.132 and 13.77.

Note.—Special rates apply to automotive equipment and agricultural machinery imported from the United States into Argentina.

directly or indirectly, assets held in the U.S. and, furthermore, from acquiring assets belonging to the occupied countries.

With the end of World War II a general relaxation of the freezing of these assets could soon be expected. French, Belgian, Norwegian and also Finnish blocked accounts were released through issuance of a general license. It was stated, however, that before property was released, investigations had to be made to determine whether enemy interests were involved.

Canada.—The foreign exchange position of Canada remained strong. There was a further net influx of capital to Canada arising from net sales of outstanding securities to other countries, which amounted to \$97,000,000 in 1944 and totalled, for the five-year period 1939-44, to a net capital influx of \$436,500,000. The principal element in this influx of capital was the large volume of sales of Canadian bonds to the U.S. The tourist restrictions to the U.S. were further relaxed.

The Foreign Exchange Control board in Nov. 1945 slightly changed its selling rate for one U.S. dollar from \$1.11 Canadian to \$1.10½ Canadian. The buying rate of \$1.10 Canadian to one U.S. dollar remained unchanged. These rates translated into U.S. terms were for official Canadian dollars, 90.90 U.S. cents to buy and 90.50 U.S. cents to sell.

Latin America.—The technical position of the majority of Latin-American currencies continued to be good in 1945. The pressure on the domestic level of prices, however, did not ease up; in several countries the governments attempted to immobilize a part of the excess purchasing power through foreign exchange transactions. The danger of inflationary price developments had not yet disappeared by the end of the year.

Countries which were greatly dependent on the export of minerals and metals—Bolivia, Chile, Peru—showed apprehension as to the future of these exports. The purchases of the U.S. would hardly continue on the war scale.

In 1945 all except seven of the Latin-American republics maintained exchange control; these were Cuba, Dominican Republic, El Salvador, Haiti, Guatemala, Mexico and Panamá. In Peru exchange control was introduced in Jan. 1945.

As in 1944, the exchange control in 1945 was carried out in a liberal way, exchange restrictions being applied to unnecessary payments while

permits for current transactions were mostly obtained automatically. Very liberal regimes in this respect existed especially in Argentina, Colombia and Venezuela. As things stood at the end of 1945, a number of countries were able to go on operating without any significant exchange control. The original purpose of the exchange control, however, had changed in the meantime. Introduced to protect the exchange stability, it was in later years used for the protection of newly-developed industries and also for subsidizing of exports. There was also a new reason for exchange control. Some countries were anxious to prevent the spending of their accumulated dollar balances on the import of luxuries or goods considered unnecessary, because they desired to give priority to the import of capital and durable consumer goods.

The system of multiple exchange rates was maintained in some countries partly for fiscal purposes, partly as providing means for subsidizing export. For instance, in Venezuela the oil companies sold to the Central bank the exchange necessary for providing them with the bolívares for paying their expenses in the country at the fixed rate of 3.09 bolívares per dollar; the coffee exporters sold their dollar at the rate of 4.80 bolívares per dollar (in the case of washed coffee) and the cacao exporters at the rate of 4.25 bolívares. The exporters of other goods were allowed to sell their exchange in the unofficial or uncontrolled market. In the exchange market the rate of 3.35 bolívares per U.S. dollar was maintained from May 1942.

In Bolivia the percentage of exchange which had to be delivered by tin exporters was increased in 1945 (from 42% to 60% for exporters of highest grade ores). The percentages of exchange which had to be delivered by exporters of agricultural products, nonmineral raw materials and industrial goods were all revised upward. The import quota system established on the monthly basis was used by the government to an increasing extent as a general means of controlling business. The exchange rate for bolívares in the

curb market in Aug. 1945, reached 60 bolívares per U.S. dollar as compared with an average of 51.80 in 1944.

In Chile the National Foreign Trade council pursued consistently the policy of preventing the country's foreign exchange resources from being wasted on nonessential imports and of reserving the surplus funds for the purchase of machinery and productive equipment. The attempts of the Central bank to induce importers to invest surplus pesos in dollar deposits at the Central bank were not successful.

Brazil, too, continued its system of multiple rates. Only the "official" rate was fixed by regulation; this was the rate at which exporters were required to deliver 30% of the proceeds of their export to the Bank of Brazil. This exchange was sold exclusively to the government at the rate at which it was acquired. All other transactions were carried out over the free market. The Bank of Brazil, which conducted more than 75% of the business in exchange, maintained the other rate stable for several years.

The exchange rates of the Latin-American countries remained stable, the whole area having enjoyed exchange stability for several years. (The only exception was the increase of the bolívares to 60 per dollar on the curb market, and of the Nicaraguan cordobas to 7.30 per dollar on the curb market in July 1945, as against 5.72 average in 1944.) (See table.)

The chief contributing factor to the stability of the exchange rates was the favourable balance of trade.

The Sterling Bloc.—The area of the sterling bloc remained unchanged during 1945; it included the whole British empire—except Canada and Newfoundland—British mandated territories, British protectorates and protected states, Egypt, the Anglo-Egyptian Sudan, Iraq and the Faroe islands. The organization of the sterling area, consisting of pooling of dollars and other hard currencies, continued. With slight exceptions the income in dollars was converted in sterling, and dollars were allocated according to the needs of the empire. The amount of the war (or abnormal) sterling balances increased further to the total of nearly \$3,500,000,000 (\$14,000,000,000). Of these sterling balances outstanding on June 30, 1945, roughly \$1,070,000,000 were owed to India; \$350,000,000 to Egypt; \$170,000,000 to Eire, \$115,000,000 to Australia; \$110,000,000 to Palestine; \$105,000,000 to Argentina; \$100,000,000 to Malaya; \$63,000,000 to New Zealand and \$27,000,000 to South Africa. A sizable amount was owing to British colonies. These balances could be used without any significant limitations within the sterling area, not, however, for payments outside this area.

The pressure exercised by the owners of the sterling balances to con-

vert part of them into dollars, was growing steadily. This was especially the case after the shipping situation became easier and many of the countries desired to buy various industrial commodities from the U.S.

An agreement with Egypt assured that country of \$40,000,000 for its needs in 1945; similarly, an agreement arranged with Iraq offered that country 3,500,000 Iraqi dinars (= £3,500,000) in dollars for its purchases in 1945. The sterling area was in some respects practically extended by agreements which Great Britain concluded with a number of European countries.

The dollar and gold reserves of Great Britain further increased, especially as a result of the expenditures of U.S. troops in the empire countries. Though no official figures were released, its total was estimated to have reached £450,000,000 (\$1,800,000,000) at the end of Oct. 1945.

The exchange control in Great Britain was further simplified and decentralized. "Registered" accounts in sterling for residents of the U.S. and for residents in Central-American countries were discontinued in July 1945. Sterling on these accounts were freely transferable to any other "America's" account and were convertible in dollars at the official rate of the day.

The registered sterling held on June 30, 1945, were exchangeable into dollars at \$4.02½ only until Sept. 30, 1945, and after that date at the official rate.

The treasury's buying price for gold was increased in June 1945, from 168s. per fine ounce to 172s. 3d. per fine ounce; at the middle dollar rate of \$4.03 it still remained 1s. 5d. under U.S. parity as against previously 5s. 8d. This margin left hardly any scope at all for private arbitrage.

The Anglo-American credit agreement signed in Washington on Dec. 6, 1945, and approved by the British parliament, had great significance for the future exchange and monetary policy of Great Britain. Great Britain was to receive a line of credit of \$3,750,000,000 which might be drawn upon at any time until Dec. 31, 1951. In connection with this agreement Great Britain took on itself the obligation to end practically the dollar pool arrangement of the sterling bloc, not later than one year after the effective date of this credit agreement. Each member of the sterling area was to have its current sterling and dollar receipts at its free disposition for current transactions everywhere, and any discrimination arising from the so-called sterling area dollar pool was to be entirely removed. Furthermore, after the effective date of this agreement, Great Britain was not to apply exchange controls in such a manner as to restrict payments or transfer, in respect to products of the U.S. permitted to be imported into the United Kingdom, or other current transactions between the two countries. Finally the U.S. and the United Kingdom agreed that not later than one year after the effective date of this agreement they would impose no restrictions on payments and transfers for current obligations. This obligation, of course, would not apply to restrictions imposed in conformity with the articles of agreement of the International Monetary Fund.

Continental Europe.—The end of World War II found all countries which had been involved—victorious as well as defeated nations—in a difficult monetary situation. It was clear that there was no possibility of establishing free exchange markets; for months there had been hardly any foreign trade and the paramount task everywhere was that of curbing inflation. Throughout the continent inflation was a major problem closely related to and dependent on the solution of the problems of transport, coal and supplies in general. In most countries a potential inflation had existed during the whole period of war. There was everywhere an excess purchasing power and a growing shortage of commodities of all kinds; and only through a very rigid price and wage control, and through rationing, had it been possible to avoid a great increase in prices. With the end of the war the elaborate system of controls broke down in a number of countries and the danger of galloping inflation became acute. Generally speaking, this danger had been checked more efficiently in western than in eastern Europe.

Already in Nov. 1944 Belgium took measures which aimed at checking inflation by withdrawing from circulation a substantial part of notes and by blocking at the same time all deposit accounts. Similar measures were taken by the Netherlands, Denmark, Norway, Czechoslovakia and Austria. In these countries the circulation was radically cut and the use of all deposits controlled or put practically under rationing. Through all these restrictions a great part of the existing purchasing power was frozen and prevented from appearing as demand on a market with a very low supply of goods. It was clear, however, that these measures would not be able to help avoiding a further increase in prices if an early revival of production did not strengthen the supply of goods.

All attempts to stop the galloping inflation in Greece failed in spite of new measures being taken continuously. Also in Hungary (\$1 U.S. = 30,000 pö) and Rumania galloping inflation broke out; very unsettled monetary conditions existed in Bulgaria and Poland. There was no dealing in foreign exchange in Germany; even between the four occupation zones foreign trade remained practically limited to barter. One U.S. dollar was put equal to 10 German marks, of course only for use by the occupation authorities.

In Italy inflation continued and a further devaluation of the lira was expected and considered necessary. After Dec. 25, 1945, all foreign trading was done at the rate of 225 lire to the dollar instead of 100 lire to the dollar. The question of finding the appropriate exchange rate was expected to become important especially when the International Monetary Fund would begin to operate. France, which maintained what was generally considered an undervalued rate of its currency, devalued on Dec. 23, 1945, introducing the rate of 119 francs to one U.S. dollar instead of the previous 50 to 1. Finland devalued in August from 196 Finnish marks to 1 to 485 to 1.

The clearing payment agreements arranged between Great Britain and several European countries proved to be helpful in promoting trade and also as a stabilizing factor on the exchange markets. The first such agreement was signed with Belgium in Oct. 1944, the rate of 176.5 Belgian francs to the pound being used as basis for current transactions. Each government granted to the other overdraft facilities to the amount of £5,000,000; the balances over this amount to be settled in gold at a price to be determined in each case separately.

The Anglo-Swedish monetary agreement was signed in March. The rate of exchange between the currencies of the two countries was fixed at

16.90 Kr. to the pound sterling. Sweden could use its sterling holdings to finance imports from all members of the sterling area while no overdraft facilities were stated in the agreement. At the time of the agreement Sweden envisaged a maximum transitional accumulation of about £40,000,000 over a period of about two years. The first six months of the agreement showed that there was by far greater need of Swedish imports to Great Britain than Britain's existing possibility of supplying goods needed in Sweden.

The Anglo-Danish monetary agreement was signed in Aug. 1945. It followed closely the pattern of the agreement reached with Sweden. The rate was fixed at 19.34 Kr. to the pound, only a fraction above the pre-invasion level. The Anglo-Norwegian monetary pact was concluded in Nov. 1945, following also the same pattern as the pact with Denmark. The rate was fixed at 20 Kr. to one pound.

The Anglo-Dutch monetary agreement was signed in Nov. 1945, fixing the rate at 10.691 guilder to the pound. The agreement did not apply at the time to the Netherlands Indies. As in the Belgian agreement, each central bank agreed to make its currency available against payment in the other's currency; if the resulting holding reached £5,000,000, additional sales were to be paid in gold.

A similar agreement was concluded in Nov. 1945 with Czechoslovakia, fixing the rate at 201.50 Kč. to one pound. The overdraft facilities were limited to £1,000,000 or to 200,000,000 Kč.

The Anglo-French financial agreement signed in March 1945, while settling a number of outstanding financial problems originated in war, arranged also a payment organization in order to facilitate the resumption of economic intercourse between the sterling and the franc areas. Great Britain was to open a credit of £100,000,000 to France and France a credit of 20,000,000,000 francs to Great Britain—the rate at that time was fixed at 200 francs to the pound. By the end of October the credit of £100,000,000 for French purchases in the sterling area was exhausted, and there were complaints on the British side that the trade between the two countries had been almost a one-way traffic. French purchases stood to British purchases in the ratio of about 10 to 1. France tightened up its exchange control and required especially that private holdings of foreign exchange be surrendered to the French authorities. Great Britain in its agreement with France promised to disclose to the French authorities private French accounts held in Great Britain.

The technical monetary position of the neutral countries remained strong. All of them showed a further increase of their monetary reserve. The Swiss National bank had gold holdings amounting to \$1,111,000,000 (Oct. 1945); the Bank of Sweden \$475,000,000 (Oct. 1945); the Bank of Spain \$109,000,000 (Aug. 1945); and the Bank of Portugal \$60,000,000 (Sept. 1945). In addition to this, all these countries held substantial dollar and sterling balances. Sweden and Switzerland granted reconstruction credits to western European nations.

The Near East.—In the near east the decline of military expenditures of the U.S. and British governments, resulting from the cessation of hostilities in this area, eased somewhat the inflationary pressure. Yet the existing purchasing power and demand for goods still exceeded in most of these countries the supply of commodities and, therefore, the trend toward higher prices was not stopped. Moreover, gold continued to be sought as storage of value.

The open market price for gold in Alexandria slumped violently when Germany collapsed. This decline carried the Egyptian price down from 184 piastres per dirhem at the end of April to 162 piastres on May 10. Shortly afterward, however, the price went up to 186 piastres, equivalent to roughly £19 per ounce, and reached 193 piastres (£19 10s.) in August. Of course these gold transactions were more spectacular than large and the premia quoted on gold compared with exchange parities were not true indices of the value of the middle east currencies. Yet when price levels had been multiplied from three to six times it would be very difficult eventually to avoid a devaluation.

In Iran foreign exchange control was tightened in the fall of 1945. The sale of dollars at the official rate of 32½ rials to the U.S. dollar was virtually suspended in June, and the rate on the free market reached 65 rials in October. The great dollar shortage was explained by gold purchases in the U.S. and by the purchase of U.S. surplus military supplies in Iran.

The U.S. treasury terminated in April 1945 its participation in the program of selling gold in India, which subsequently had been extended to Egypt and Iran. This program had been initiated in Aug. 1943 by the British treasury for the double purpose of combating inflation and of obtaining local currency for military expenditures in India, Egypt and Iran. The U.S. treasury participation was ended in April because the military needs for the currencies of these countries had been completely met by that time.

The price of gold in Bombay quoted Dec. 12, 1945, Rs. 81¼ per fine tolas as compared with Rs. 74⅞ on March 1. After the end of the Japanese war the price dropped to Rs. 63¼ but recovered very quickly.

China.—The end of the war increased rather than eased the monetary chaos in China. The index of the wholesale prices of domestic commodities in Chungking had reached in the spring of 1945 the astronomical figure of more than 1,200 times the 1937 level (in August, 1,900 times). The increase of wholesale prices was checked in December in the expectation of the early arrival of fresh stock.

The exchange shop buying rate for dollars, toward the end of November, was \$1.290, and previous quotations were even higher. Gold which at the beginning of August was quoted between CN \$180,000–190,000 (CN = Chinese national currency) per tael dropped toward the end of August to CN \$115,000.

Exchange control was put in force for some export commodities to assure the surrendering of foreign exchange proceeds of such exports to the government. (See also GOLD.)

BIBLIOGRAPHY.—*Federal Reserve Bulletin*, *Foreign Commerce Weekly*, *Economist* (London); *Financial Times* (London); *Press Releases of the U.S. Treasury*, *The New York Times*, *The Times* (London). (A. BH.)

**Exchange Rates:** see EXCHANGE CONTROL AND EXCHANGE RATES.

## Exchange Stabilization Funds.

As in 1944, exchange stabilization funds were relatively inactive in 1945. In most Latin-American countries the available exchange holdings limited the need for a direct intervention to support the stability of currencies. The liberated countries in Europe had not reached such a stage in their monetary reconstruction that creation of stabilization funds would be advisable.

It seemed obvious that under these circumstances the role of the United States Exchange Stabilization fund in controlling foreign exchange values was not very important. Through the renewal of expiring stabilization agreements and through operations conducted under the existing agreements, the policy of co-operating with friendly foreign governments in the stabilization of their currencies was continued.

Under an existing stabilization agreement between the United States and Brazil originally entered into on July 15, 1937, for a five-year period and later extended to July 15, 1947, the United States Stabilization fund undertook to purchase Brazilian cruzeiros to an amount of \$100,000,000 for the purpose of stabilizing the United States dollar-Brazilian cruzeiro exchange rate. In addition the U.S. government undertook to sell gold to the government of Brazil up to a total amount of \$300,000,000.

On Oct. 9, 1944, the stabilization agreement of March 1, 1942, between the United States and Ecuador was extended, as of June 30, 1944, to June 30, 1945. Under this agreement the U.S. Stabilization fund undertook to purchase up to \$5,000,000 of Ecuadoran sucres for the purpose of stabilizing the United States dollar-Ecuadoran sucre exchange rate. Provision for renewal of this agreement had not been made by the close of fiscal year 1945.

On June 13, 1945, the stabilization agreement of Nov. 1, 1941, between the United States and Mexico was extended for two years to June 30, 1947. Under this agreement the U.S. Stabilization fund undertook to purchase Mexican pesos up to an amount of \$40,000,000 for the purpose of stabilizing the United States dollar-Mexican peso exchange rate.

Also on June 13, 1945, the gold sale agreement of July 6, 1942, between the United States and Cuba, under which the government of the United States undertook to sell gold to the government of Cuba from time to time with payment to be made in dollars within 120 days from the date of the sale of the gold, was extended for four years to June 30, 1949. Under this agreement the unpaid-for amount was not at any time to exceed \$5,000,000.

Throughout the period from Jan. 1944 through June 30, 1945, the stabilization fund co-operated in arrangements whereby Swiss francs were made available for governmental and humanitarian purposes. Thus undesirable disturbances in the United States dollar-Swiss franc rate were avoided.

The total foreign exchange holdings of the fund went up from \$3,200,000 on June 30, 1944, to \$19,080,000 on June 30, 1945. There was a substantial increase of Swiss francs from \$107,594 to \$4,439,237 and the nonspecified foreign exchange increased from \$2,400,000 to \$14,590,000.

On Feb. 15, 1945, identical bills designated as S.540 and H.R.2211 were introduced in the senate and the house of representatives, respectively, to provide for the participation of the U.S. in the International Monetary fund and the International Bank for Reconstruction and Development. The bill, called "Bretton Woods Agreement act," was passed by the senate and the house of representatives. By this bill the secretary of the treasury was directed to use \$1,800,000,000 of the Exchange Stabilization fund to pay part of the subscription of the United States to the International Monetary fund. (See also EXCHANGE CONTROL AND EXCHANGE RATES; GOLD; UNITED NATIONS

MONETARY AND FINANCIAL PROGRAM.)

(A. BH.)

**Exhibitions and Fairs:** see SHOWS.

**Expenditure, Government:** see BUDGET, NATIONAL.

**Explosions:** see DISASTERS.

**Export Controls:** see FOREIGN ECONOMIC ADMINISTRATION.

## Export-Import Bank of Washington.

Created in 1934, the bank was made a permanent, independent agency of the United States government by the Export-Import Bank act of 1945, approved July 31, 1945. The purpose of the bank is to aid in the financing and facilitating of exports and imports and the exchange of commodities between the United States and foreign countries. All of the operations of the bank are related to this fundamental purpose.

The act of 1945 vested the management of the bank in a board of directors consisting of the secretary of state and four full-time directors appointed by the president of the United States by and with the advice and consent of the senate. It also authorized an increase in the limit on outstanding loans and guaranties from \$700,000,000 to \$3,500,000,000 and removed the prohibition on loans by the bank to governments in default on their obligations to the United States government.

In addition to its reconstruction loans, the bank continued to finance foreign trade of the United States in two other principal ways. It finances specific export and import transactions on application of United States exporters and importers where the nature of the risk involved is such that private credit cannot be obtained. It also makes long-term loans to assist in financing the export of United States materials and equipment required for development projects in foreign countries.

"AS THE REST OF THE WORLD SEES US" by Coffman of the Ft. Worth Star-Telegram. Export-Import bank loans were the only alternative to cash payments open to foreign purchasers of U.S. goods after the termination of lend-lease on Aug. 21, 1945





The total amount of loans authorized by the bank from the time of its establishment in 1934 increased from approximately \$1,200,000,000 at the end of 1944 to more than \$2,300,000,000 at the end of 1945. Disbursements during 1945 were approximately \$80,000,000, and repayments were approximately \$52,000,000. As a consequence, the outstanding loans of the Bank increased from \$224,000,000 at the end of 1944 to \$252,000,000 at the end of 1945. (W. C. Tr.)

**Exports:** see AGRICULTURE; INTERNATIONAL TRADE; TARIFFS. See also under various countries.

**Eye, Diseases of.** **Trachoma.**—Only two theories of the aetiology of trachoma were generally accepted in 1945, the virus theory and the Rickettsial theory. These two theories are not mutually incompatible, but can be reconciled. The conflict is indeed one of nomenclature rather than of fact and largely depends on what we choose to call a Rickettsia and what we choose to call a virus. The evidence so far accumulated leads to the conclusion that trachoma is a specific infectious disease, not caused by any cultivable bacterium, but due to a filter passing agent which is almost certainly identical with the elementary and initial bodies found in the inclusion bodies (Prowazek-Halberstaedter inclusion).

It was doubted in 1945, that trachoma is a specific infectious disease. No cultivable bacterium was shown to produce trachoma when experimentally inoculated into man. The disease can be transmitted to healthy eyes of animals and man only by direct inoculation of material from a case of active trachoma. This material contains an agent that has some of the staining characteristics of both virus and Rickettsia, but not all of either. Hence it would appear that it stands in an intermediary position between the large viruses and the Rickettsia and may possibly form a biological link between them.

**Dibutoline Sulfate.**—A new class of synthetic drugs to produce mydriasis for fundusoscopic examination and cycloplegia for refraction of the eye was described and was undergoing experimental tests. The new drug replaces atropine and scopolamine and in some ways has qualities superior to them. The new mydriatic and cycloplegic drugs are surface active carbamic acid esters of the choline type and, therefore, are chemically unrelated to atropine.

Dibutoline sulfate (dibutylcarbamate of dimethylethyl-B-hydroxyethyl ammonium sulfate) occurs as white crystal which dissolves in water. A 5% solution in distilled water is nearly neutral (pH 6.5) but repeated instillations produce temporary congestion of the eye. It was used in 1945 in cases where atropine was contraindicated.

**Quantitative Test for Measurement of the Degree of Red-Green Colour Deficiency.**—The types of colour vision tests needed for the classification of personnel of the army air forces were (1) a simple, rapid and reliable screening test which would distinguish the normal from the colour deficient person, and (2) a supplementary quantitative test which would classify the colour deficient subjects as to the degree of the defect and would be of aid in determining whether the applicant was competent to make the colour discriminations required in his particular job. A threshold lantern was devised for use as a supplementary test. It uses eight test colours chosen so as to approximate the limiting standards for aviation colours. Tests involved the identification of red, green and white signals from a traffic control projector and the recognition of coloured pyrotechnic signals fired from a plane. When the results of the field tests were compared with scores on several colour vision tests giving quantitative scores, it was found that the threshold lantern provided the least indication of success or failure in the

field tests.

**Prosthesis of the Eye in Synthetic Resin.**—As a result of research conducted by the medical ophthalmologists of the U.S. army, a new method of fabrication of artificial eyes was developed by dental officers working with ophthalmologists in the service hospitals. Eye replacements made of blown glass with coloured parts added by hand painting or conventional iris disks were not available in sufficient quantities nor of satisfactory quality during World War II. Furthermore, glass restorations are fragile, may explode within the socket. The surface glaze of glass is not permanent and etching often occurs. Restorations of a more durable substance were urgently required, which could be made as natural or more natural in appearance than those of glass.

The basic synthetic resin, methyl methacrylate, is easily obtained, being a standard item used in the production of acrylic teeth. It lends itself well to moulding, colouring and adjustment of size and shape after initial completion.

**BIBLIOGRAPHY.**—J. O. W. Bland, "The Aetiology of Trachoma," *Brit. J. Ophthalmol.*, 29:407-420 (1945); Kenneth C. Swan and Norman G. White, "Dibutoline Sulfate; New Mydriatic and Cycloplegic Drug," *Arch. Ophthalmol.*, 33:16-22 (1945); Louise L. Sloan, "A Quantitative Test for Measuring Degree of Red-Green Color Deficiency," *Am. J. Ophthalmol.*, 27:941-949 (1944); Stanley F. Erpf, Victor H. Dietz and Milton S. Wirtz, "Prosthesis of the Eye in Synthetic Resin," *Bull. U.S. Army M. Dept.*, 4:76-86 (1945).

**FILMS.**—*Eyes and Their Care* (Encyclopædia Britannica Films Inc.). (W. L. Be.)

## Fair Employment Practice, Committee On.

Under authority of executive orders 8802 of June 25, 1941, and 9346 of May 27, 1943, this committee, established by President Roosevelt, continued to process cases of discrimination because of race, creed, colour or national origin in war industries and government employment. During the fiscal year 1944-45, the committee docketed a total of 3,485 cases and 3,173 were closed, 1,191 cases being settled as satisfactory adjustments while the remainder were disposed of because of lack of jurisdiction, lack of merit, insufficient evidence and withdrawal by complainant. The pending case load as of July 1, 1945, was 2,428. In this same period the committee held 15 public hearings. Its staff numbered 128 persons by March 1945, 54 being assigned to the 15 regional and subregional offices located in major industrial centres and the remainder to the national office in Washington. Two committee members resigned for reasons of health and were replaced by presidential appointments. In June 1945, the committee published its "First Report," which covered its activities for the 18 months' period between July 1943 and Dec. 1944.

The National War Agencies Appropriation act, 1946, approved by congress on July 17, 1945, included a \$250,000 appropriation for the Committee on Fair Employment Practice. The act provided that this sum be used "for completely terminating the functions and duties of the committee . . ." and provided further "That if and until the committee . . . is continued by an act of congress, the amount named . . . may be used for its continued operation until an additional appropriation shall have been provided."

The occurrence of V-J day less than a month later, followed by the wholesale cancellation of war contracts, raised questions concerning the committee's jurisdiction over private industry reconverting to peacetime production. The committee immediately sought clarification of its responsibilities in industrial reconversion while holding that its authority to eliminate discrimination in government employment and in the performance of government contracts remained unimpaired.

On Dec. 20, 1945, President Truman issued executive order 9664, continuing the committee's work under "the duties and

responsibilities" of the previous executive orders and "for the period and subject to the conditions" stated in its appropriation. In addition, the committee was empowered to "investigate, make findings and recommendations, and report to the president with respect to discrimination in industries engaged in work contributing to the production of military supplies or to the effective transition to a peacetime economy."

To accomplish these new duties, the committee planned a series of investigations, including public hearings, preparatory to advising the president concerning the status of minority workers in the reconversion period.

The committee's decreased appropriation necessitated two cuts in staff, one in Aug. and another in Dec. 1945, when the total personnel numbered 31. In addition, as of that date, all field offices except those in Detroit, Chicago and St. Louis had been closed.

(M. Rs.)

**Fair Labor Standards Act:** *see* CHILD WELFARE; LAW.

**Fairs, State:** *see* SHOWS.

**Falk Foundation, The Maurice and Laura:** *see* SOCIETIES AND ASSOCIATIONS.

**Falkland Islands:** *see* BRITISH EMPIRE.

**Famines.** The world-wide drive for larger food production, particularly in the thickly populated areas of India and China, combined with the better organization for relief prevented any widespread famines in 1945. The general drought in the southern hemisphere and through the Mediterranean area reduced production in some areas but sufficient supplies were available to prevent starvation. The fatal scarcity of food occurred in the cities of Europe where the devastation of the war had destroyed storehouses and stocks, transportation facilities and otherwise so impoverished the people as to bring them to the low rations that resulted in a high death rate from malnutrition.

In China there was one area of serious drought losses in Shensi, southern Hopei and western Honan. The 1945 wheat crop was very short. While food supplies were short in what was formerly occupied China, the removal of Japanese military forces released some stocks for the natives. Unoccupied China had only enough food to supply the usual population plus those who had migrated from occupied China. The end of hostilities encouraged the maximum planting for the next crop.

India's food situation was not favourable because of the short rice crop in Bengal and Bihar which normally produce 45% of the total crop. Rice imports from Burma were limited by the short crop there. India's problem was becoming more acute because of the annual increase of population by 5,000,000 per year and increased consumption by industrial workers. The requirements for military forces were large in 1945 but expected to be sharply reduced in 1946.

Food supplies for the native populations in southeastern Asia, Indo-China, Malaya and Java were less than prewar normal but generally sufficient to sustain the people, except in limited areas where hostilities had not ended. The use of air transport for emergencies was available during the second half of 1945 and served to relieve distress in many areas. The operations of U.N.R.R.A. also became an important service in critical cases. The plans for the United Nations Food and Agriculture organization, begun at Quebec, Canada, in Oct. 1945, included measures that were designed to put an end to famines of the large scale of past years by forecasting shortages, crop failures, etc. and arranging for the transportation of surpluses to the devastated regions. These plans would come into action following the end of the work of U.N.R.R.A. in 1947 according to 1945 plans.

(J. C. Ms.)

**Far Eastern Commission:** *see* ALLIED MILITARY GOVERNMENT.

**Farm Co-operatives:** *see* FARM CREDIT ADMINISTRATION.

**Farm Credit:** *see* FARM CREDIT ADMINISTRATION.

**Farm Credit Administration.** Farmers in the United States and their co-operative business associations used \$1,105,599,906 in credit in the year 1945 supplied by the credit units operating under the supervision of the Farm Credit administration.

Financing crop and livestock production accounted for the biggest volume of the loans, amounting to \$617,204,790. The largest amount of this financing was through the nation-wide system of production credit associations. While the number of loans made by the production credit associations in the year decreased compared with the previous year, the volume was \$516,115,670 compared with \$490,476,633 for 1944. The 11 emergency crop and feed loan offices loaned \$16,952,105 to farmers unable to qualify for credit from other sources. The federal intermediate credit banks, besides supplying the bulk of the loan funds for the production credit associations and part of the funds used by the banks for co-operatives, discounted agricultural paper for privately capitalized financing institutions amounting to \$74,490,554, and the Regional Agricultural Credit corporation of Washington, D.C., made loans totalling \$9,646,461.

The 13 banks for co-operatives extended credit totalling \$361,255,040 in 1945 compared with \$391,533,038 in 1944. Decrease in the amount loaned was due largely to many co-operatives having built up their capital and become debt free, and to the lack of demand for loans financing construction or the purchase of equipment.

The 12 federal land banks and the local national farm loan associations handled 41,909 long-term farm mortgage loans totalling \$122,448,397 made for the land banks and the Federal Farm Mortgage corporation. This compared with 38,845 loans and \$105,292,360 in 1944. A change in the law effective July 1, 1945, allowed the land banks to make loans up to 65% of the appraised normal agricultural value of the land instead of 50% of the appraised normal agricultural value of the land plus 20% of the appraised value of the permanent, insured improvements on the land. Repayments on farm mortgage loans continued heavy amounting to \$349,110,210 in the year. Land bank and commissioner loans outstanding on Dec. 31, 1945, totalled \$1,255,984,495.

Further progress was made in returning federal land bank government-owned capital stock and paid-in surplus to the revolving fund in the U.S. treasury. In the year nine federal land banks returned \$74,424,459 to the treasury.

Loans and discounts made by the 12 federal intermediate credit banks in the year totalled \$838,458,909 compared with \$877,607,449 in 1944. Production credit associations accounted for \$663,498,820 of the total; banks for co-operatives, \$96,437,856; privately capitalized financing institutions, \$74,490,554; and loans direct to farmers' co-operatives, \$4,031,679.

Loans to veterans and those remaining in the service were given major attention and accounted for \$2,424,525 in long-term farm mortgage loans and \$5,646,180 in production credit association loans in the year.

(I. W. D.)

**Farm Income:** *see* AGRICULTURE.

**Farm Machinery:** *see* AGRICULTURE.

**Farm Mortgages:** *see* AGRICULTURE; FARM CREDIT ADMINISTRATION.

**Farm Purchase Loans:** *see* FARM SECURITY ADMINISTRATION.

**Farm Security Administration.** More than 310,000 farmers in the United States, including 3,600 World War II veterans, used the supervised agricultural credit services of the Farm Security administration in 1945.

During the year, committees composed of three successful farmers in each county assisted in adapting the program to the wartime needs of local communities. The farmer committees decided whether applicants for federal loan funds would be able with the aid of the local FSA supervisor to improve their farming practices, raise their living standards, and repay their debts. When a loan is made, the committees work with the supervisor to help the borrower utilize his labour and land resources to their fullest extent. They periodically review the progress made by the borrowers and decide whether additional credit and supervision is necessary. In addition, the county committees with the aid of a fourth member, a veteran, had by Oct. 31, 1945 certified 897 applications for agricultural loan guaranties made by veterans under the provisions of the Servicemen's Readjustment act. Three types of farm loans are made by the Farm Security administration:

1. *Operating Loans.*—Short-term loans for equipment, livestock and other farm operating needs are made to low-income farmers who cannot obtain adequate credit from any other source. In the fiscal year 1945, committees certified 24,996 families for new loans and 102,890 borrowers for supplemental loans. More than 78,000 borrowers repaid loans in full.

2. *Farm Ownership Loans.*—Forty-year loans are made to tenant farmers to purchase farms of their own. The county committees determine applicants' eligibility and certify the reasonable value of the farms they plan to buy. In the fiscal year 1945, 1,870 loans were approved, bringing the total number of these loans to 38,000. Eleven hundred families had paid their loans in full and, as of March 31, 1945, the remaining borrowers were 57% ahead of schedule on their repayments.

3. *Water Facilities Loans.*—Loans for farmstead and irrigation water supply were approved for 1,000 families and seven farmers' groups in the 17 western states during fiscal 1945.

World War II veterans shared in all these programs. By Oct. 31, operating loans had been made to 3,497 veterans, farm ownership loans to 145.

For the fiscal year 1946, congress authorized the use of \$67,500,000 for operating loans, \$50,000,000 for farm ownership loans, and \$1,000,000 for water facilities loans. Congress earmarked \$25,000,000 of the farm ownership loans for veterans.

(R. W. Hs.)

**Fascism.** The decline in the fortunes of fascism as a movement of international importance which had set in in 1943 was markedly accelerated in 1945. The total defeat of Germany, Italy and Japan which had formed the core of international fascism had its telling effect, though fascism maintained its grip on Spain and to a lesser degree on Argentina. In Hungary and in Austria the fascist regimes were followed by democratic regimes and free elections were held. The two men who had been outstanding as the leaders of fascism, Benito Mussolini and Adolf Hitler, each ended his life in 1945 in an ignominious way. Prominent fascist leaders were tried in many countries and a number of them were executed.

It was yet too early at the close of 1945 to say whether in the two countries where fascism was most entrenched, in Italy and in Germany, fascism had lost its hold on the public mind. Germany did not survive defeat as an organized nation. Bewilderment and lethargy were too great there to allow any conclusions about the trend of the German mind. In Italy a coalition of parties of the antifascist resistance movement was in power,



THE BODY of Benito Mussolini, executed April 28, 1945, by Italian partisans, lying in the Piazza Loreto, Milan, surrounded by the corpses of those executed with him. Crowds of Milanese were held in check by partisans

but toward the end of the year, in spite of the restoration of civil liberties, an antidemocratic trend made itself felt. It was mainly represented by a paper *L'Uomo Qualunque* (the *Average Man* or the *Common Man*), which was founded by Guglielmo Giannini and gained quickly a very wide circulation.

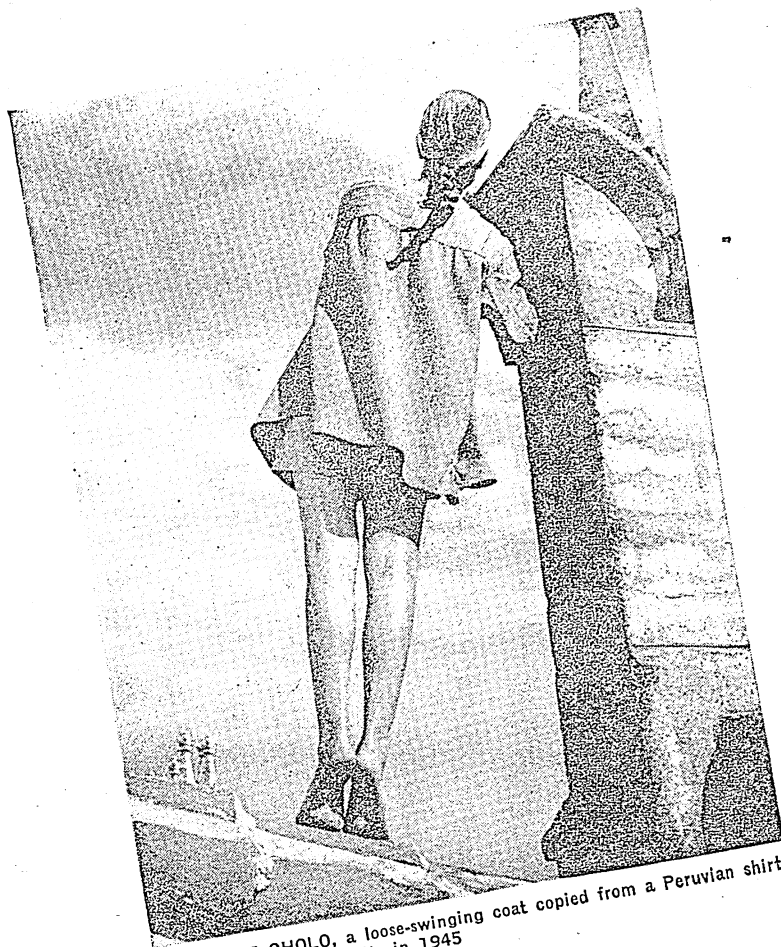
Though Giannini denied being a fascist, in an interview on Dec. 16, 1945, he used phrases which clearly reflected the general fascist line. He attacked all "professional politicians," including President Roosevelt who, he said, "fooled America for four successive terms." He promised that his movement, the movement of the common man, which, as he hoped, would "spread all over the world," would produce a sufficient number of administrators capable of running Italy. They would remain in office for 20 years and would find the "new word"—the new form of government. He did not blame fascism or Italy or Germany for World War II but "a handful of a hundred politicians throughout the world." He wished to rid the world of these politicians whom he blamed for the death of his son killed in the war. "America, too, has been the victim of professional politicians. Roosevelt brought you into the war and caused many Americans to die. Otherwise the war would have been finished in 1942," apparently with the victory of fascism.

With the victory of the United Nations, fascist parties went out of existence officially all over the European continent with the exception of the Iberian peninsula. In the United States fascist agitation continued on a rather minor scale. The defeat of Japan paved the way for an eradication of fascism in that country and for the progressive introduction of democratic institutions under the guidance of the U.S. occupying forces. In Latin America Argentina remained a centre of fascist agitation. An effort to oust the fascist officers' group failed and by the end of 1945 the position of Argentina's strong man, Colonel Juan D. Perón, seemed sufficiently stable to enable him to put up his candidacy for president. As a result of this situation the relations between the United States and Argentina became more and more strained. (See also ANTI-SEMITISM; ARGENTINA; COMMUNISM; DEMOCRACY; GERMANY; ITALY; JAPAN; RUMANIA; SPAIN.)

(H. Ko.)

**Fashion and Dress.** In 1945 U.S. designers continued to display remarkable ingenuity in working with the limited amounts of fabrics allotted them by





Above: THE CHOLO, a loose-swinging coat copied from a Peruvian shirt, was worn over swim suits in 1945



Above: JERSEYS and belted skirts were popular in 1945 with the younger set

Below: EVENING DRESS with stiff farthingale worn underneath, making a jutting line at the hips, a tiny look at the waist



Right: THE ROUNDED SILHOUETTE, tight only at the throat, wrists and waist, was a new 1945 fashion note



Above: THE CANADIENNE, tight-belted three-quarter length coat worn in the U.S. during 1945, was originated in Paris and adapted from the Canadian soldier's coat



the government. Principal means of avoiding a monotonously skimpy look in clothes was the use of a rounded line. Angles almost completely disappeared from the silhouette; shoulders, hips and arms all were cut on the curve or rounded out by skilful padding.

The trend toward roundness began early in the year with the introduction, via the renascent French *couture*, of the tight, corseted midriff. This, by pulling the waist in snugly, emphasized fullness above and below the beltline. Slowly, then, curves began to predominate in every costume, with tightness occurring only at the neck and the waist and the wrists. Suit jackets had round collars, round-cut hemlines and sleeves that were one swelling curve from the throat to the wrists. Suit skirts belled out in front, giving a stomachy look. Even the little jerseys worn with them had large dolman sleeves, and dresses featured rounded yokes as well as deep-set armholes. The Canadienne, adapted by the French from the coat of the Canadian soldier, appeared in many variations and was probably the year's biggest fashion. Cut to three-quarter length it was swung out from the shoulders, snug at the waist. Other coats hung straight and loose and then were belted tightly into thick folds to achieve bulkiness.

For these coats and suits and dresses, rounded hats came into being. Big globes of felt and crocheted wool completely enveloped the hair, which was swept backward into them, leaving the face and throat and the nape of the neck out in the open. Rollers, the swoop-brimmed hats of the Edwardians, also were abundant.

But it was the evening dresses shown in the fall collections of 1945—and here evening dresses put in their first spectacular appearance after World War II—that went the limit in achieving roundness. Many of them came equipped with farthingales, pillowy little peplums worn underneath to make the hips seem hipper and the waist tinier. Others had tightly boned basques narrowing them into nothing in the middle, billowing the skirt below.

On the beach, the rounded line manifested itself in shorts bloused at the legtops (like bloomers), and shorts cannily cut and moulded along the body lines (like the loincloths worn by South Sea islanders). Breastbands, strips of wool or sharkskin or linen, topped these. Over swimsuits, the *cholo*, one of the outstanding fashions of the year, was worn. This loose-swinging cotton coat, copied from the shirt of Peruvian mountaineers, hung slack and straight from the shoulders to the thighline. Elaborately ruffled versions of it were seen as time went on. In the country, the most popular clothes were big, billowed skirts of calico and gingham, often reaching mid-calf length or longer. These were bound tightly at the waist with sashes and cummerbunds, and worn with mere skimps of bandeaux on top.

In that peculiarly U.S. category of clothes, the "separates," the U.S. designers managed particularly exciting developments. Shirts and skirts became the easy-to-live-in, easy-to-vary uniform of the nation's women, and in 1945 shirts, usually made of wool jersey, were long-sleeved or completely sleeveless, rounded at the neckline or equipped with a turtleneck and otherwise completely simple. These buttoned down the back or zippered at the side. Skirts, formerly knife-straight, showed a definite trend toward puffiness over the stomach and hips in 1945.

A few horseblanket skirts appeared among the college crowd, made of plaid wool horseblankets bound with black braid and fastened with horseblanket buckles. All skirt and shirt combinations were sparked by the use of much brightly polished gold and brass. Gold neckbands, metal rings like those the Zulus wear, were popular, and lengths of gold chain were wound round

and round the neck and wrists. Buttons were invariably brassy, and belts had as much sparkle as a cowboy's Sunday saddle. The belt, in fact, became a vital part of fashion during 1945. It was no longer a strip of cloth that came with a dress, but an important thing in itself, a necessity for every silhouette. Belts were used to bind the waists of skirts, of taffeta evening dresses, of wool swimsuits and even fur coats. Manufacturers, as a result, turned out more varieties of belts and more beautiful ones than had ever been seen before. Some were wide burnished bands of leather like razor strops. Others were ingeniously shaped to fit the waistline, curving down in back and giving a round look to the hips. Almost all were plastered with handsome old emblems and insignia of brass, with brass rings and fastenings, and they often dangled little pouches that held make-up and keys or, for a whimsy, flowers.

The news on women's feet were ballet slippers. These, in plaids and brilliant colours as well as solid black, were seen everywhere with skirts, with dresses or with dancing master tights. As a rule, the flat and near-flat shoes outdistanced high heels in popularity all during 1945. Chief among these were low-slung suede sandals, thin little leather slippers and soft ankle-high boots which fitted the feet as gloves fit the hands.

Women's hair showed the shape of women's heads in 1945. The hair was scraped up into topknots, swept back into Psyche knots or into little knots at the nape of the neck. Ribbons and bands of metal were wound round these hairdos, or little clusters of flowers were pinned on top and dangled streamers of ribbon down the back. Headcoverings, besides the global hats and rollers already mentioned, included hoods and helmets. These ranged from skulltight ones of wool jersey to sumptuous ones of fur.

Toward the end of 1945, and it must be noted here, clothes took on a relaxed, peacetime air. Prettiness became fashionable and possible, with the end of the war; practicality was slightly stepped down. Elegant little satin suits that would have had no place in a 1945 wardrobe came into being. So did luxurious brocaded coats and stylized evening dresses stiff with jet embroidery. From Paris came pretty bonnets modelled on the hats of the Directoire era and made lush with flowers and ribbon. Paris too was responsible for a slow but decided interest in extremely feminine, bosomy fashions, blouses slashed low at the neck and dresses stitched for accentuation at the bustline. (See also FURS.)

FILMS.—*Clothing* (Encyclopædia Britannica Films Inc.). (C. Sn.)

- FBI: see FEDERAL BUREAU OF INVESTIGATION.
- FCA: see FARM CREDIT ADMINISTRATION.
- FCC: see FEDERAL COMMUNICATIONS COMMISSION.
- FDIC: see FEDERAL DEPOSIT INSURANCE CORPORATION.

**Federal Bureau of Investigation.** During World War II while there was a concentration of energy upon espionage, sabotage and related matters, the FBI gave constant attention to general criminal violations. This was true in the fiscal year 1945, when there were 13,813 convictions in cases investigated by the FBI, with sentences totalling 31,962 years, 4 months and 6 days, one death and six life sentences. Fines, savings and recoveries amounted to \$16,534,436.21.

A total of 8,955 fugitives were located in FBI investigations and 7,892 automobiles were recovered. Investigations resulted in the conviction of 96.9% of the persons brought to trial. During the fiscal year, 9,522 fugitives were located for other law enforcement agencies through the identification of fingerprints in the FBI identification division.

The national defense investigations of the FBI were vigor-

ously pursued during the war, with the result that there were no cases of enemy-directed sabotage, and espionage efforts of the enemy were made ineffective.

**Selective Training and Service Act.**—During the fiscal year 1945, the location and apprehension of Selective Service fugitives continued to be given preferred attention. The FBI and co-operating law enforcement agencies took into custody 5,090 such fugitives.

During the year 3,093 convictions resulted from Selective Service charges, but the major emphasis in the enforcement of this act was in making men available to the armed forces. Under this program prosecutions were undertaken only in those cases which evidenced a wilful violation of the law. During the war there were no "slacker raids" or indiscriminate challenging of draft-age men which might have led to inconveniences for law abiding citizens or hysteria.

**Espionage.**—While the effectiveness of counter-espionage programs cannot be evaluated in terms of persons convicted for that violation but rather through the lack of accomplishments of foreign spy organizations, ten convictions resulted in federal courts under this classification in the fiscal year 1945. Sentences totalled 89½ years. There were two life imprisonments, five fugitives were apprehended and recoveries amounting to \$106,853 were realized. There were two prosecutions for violations of the censorship statutes, resulting in one ten-year prison sentence and fines of \$10,050.

Approximately 700 cases were investigated under the Foreign Agents Registration act and in addition to forced compliance with provisions of the statute, 13 persons or corporations were convicted of violations.

**Sabotage.**—As in previous years, investigations of reported acts of sabotage showed persons responsible were not motivated by a desire to obstruct the war effort but were prompted generally by personal reasons such as jealousy, anger or a desire for revenge. Investigations were conducted of 3,081 reported acts of sabotage during the fiscal year. Of the cases resulting in prosecution, there were 45 convictions in federal courts with sentences totalling more than 146 years.

**Treason.**—There were no convictions for treason during 1945, but there were two for misprision of treason, resulting in sentences of five years each. In addition, three women were convicted under the General Conspiracy statute for giving aid and comfort to German prisoners of war who had escaped from internment camps in this country. Sentences totalling five years and four months and fines aggregating \$3,000 resulted from these three convictions.

**Escaped Prisoners of War.**—During the fiscal year 1945, a total of 1,607 prisoners of war were reported to the FBI as having escaped. Of this number, only 22 were still at large on June 30, 1945.

**Servicemen's Dependents Allowance Act of 1942.**—This act provides for the prosecution of women who illegally marry servicemen to receive allotment checks from the government. During the year, 215 convictions resulted from investigations under the act.

**War Frauds.**—Investigations dealing with frauds against the government continued to increase steadily during 1945. A total of 2,204 reports of fraud were received, of which 1,538 warranted investigation. From the cases investigated, 334 convictions resulted, with fines, recoveries and savings amounting to \$3,926,244 and sentences totalling 450 years, 7 months and 27 days.

**Kidnapping.**—During the fiscal year 1945, 18 kidnappings occurred, none of which involved a demand for ransom and all of which were solved. There were 34 convictions. From the enactment of the Federal Kidnapping statute on June 22, 1932,

to the close of the 1945 fiscal year, 279 kidnapping cases were investigated by the FBI and 277 of these were solved. The two remaining unsolved cases were under active investigation.

**Hijacking.**—Violations of the Theft From Interstate Shipment statute often involve hijacking and related criminal activity. Investigations by the FBI again reflected a substantial increase in this type of violation. A contributing factor undoubtedly was the continued scarcity of many consumer commodities. During 1945, there were 1,426 convictions, more than twice the number during the 1944 fiscal year.

**Bank Robberies.**—There was a slight increase in the number of bank robberies in the fiscal year 1945 over the preceding year of 1944. A total of 53 convictions were handed down in federal courts for bank robbery, larceny and burglary during the fiscal year. Two bank robbers were killed while resisting arrest.

**Illegal Wearing of the Uniform.**—Violations in this category increased 40% during 1945 over the fiscal year 1944. There were 974 convictions, with sentences of more than 992 years and fines of \$12,430.

**National Motor Vehicle Theft Act.**—Even though use of automobiles declined during the war, more automobiles were recovered in cases investigated by the FBI in the fiscal year 1945 than in the preceding fiscal year. A total of 7,892 stolen motor vehicles valued at \$6,402,439 were recovered. Convictions resulting from these investigations totalled 2,418.

**White Slave Traffic Act.**—Investigations under the White Slave Traffic act resulted in 338 convictions, with sentences totalling 1,048 years, 2 months and 18 days in the fiscal year 1945.

**Extortion.**—Investigation of violations of the Federal Extortion statute resulted in 62 convictions with sentences of more than 192 years and fines amounting to \$2,435. Investigative efforts of the FBI resulted in the recovery of \$6,144 of extorted money.

**Federal Reserve Act.**—During the year, 219 cases of alleged defalcations involving \$2,269,000 were reported to the FBI. The investigations resulted in the return to the banks of \$483,127. The FBI conducted investigations relative to embezzlements and related offenses by employees or officials of banks which resulted in 139 convictions.

**FBI Laboratory.**—During the fiscal year 1945, 136,098 examinations were made in the FBI laboratory involving 194,445 pieces of evidence. The volume of examinations conducted for state and municipal law enforcement agencies rose to 2,414 cases, an increase of 53.8% over the fiscal year 1944. In addition, 745 examinations were made for other federal agencies.

**Identification Division.**—In the fiscal year 1945, 7,480,249 fingerprint cards were received and retained by the identification division of the FBI.

An important function of the identification division is the war casualty file, the purpose of which is to identify unknown deceased casualty fingerprints in co-operation with the casualty branch, adjutant general's office, war department. As of June 30, 1945, this file contained 163,500 fingerprints. A total of 829 requests were received from the war department and 531 identifications were effected.

Identifications effected in the fiscal year 1945 on arrest fingerprint cards totalled 690,593 or approximately 70%. At the close of the fiscal year 1945, the identification division had a total of 97,497,563 fingerprint cards in its files.

Forty-five foreign countries and territorial possessions of the United States co-operated in the international exchange of fingerprints during the fiscal year 1945.

On June 30, 1945, the single fingerprint section of the identification division contained approximately 140,660 single fingerprints, representing the records of 14,066 criminals. These records were selected for special handling because the persons



The time of \$1,200 at the imately 000,000 increase at the  
Expor See al  
Eye, accept These reconc than o Ricket far ac specific terium tainly the in It w disea choma can be direct This n charac Hence tion b possibl  
b  
iroz ssolv ueutra conges pine w  
Que Red-C tests r forces which person classif defect cant w his a si ap s  
te l t is g iter

represented were believed to be outstanding gangsters, extortionists, kidnappers, bank robbers or fraudulent check writers.

**Uniform Crime Reporting.**—At the request of the International Association of Chiefs of Police and pursuant to an act of congress, the FBI from Sept. 1930 has acted as a central clearinghouse for police statistics on a nationwide basis. The reports of various law enforcement agencies are summarized and published in the *Uniform Crime Reports* bulletin which is published semiannually. The bulletin furnishes interested officials a yardstick with which to evaluate the extent and fluctuation of crime in individual communities.

**Juvenile Delinquency.**—Among the 488,979 arrest records received at the FBI in the calendar year 1944, age 17 was the predominating single age group among arrested persons and was followed by ages 18, 19, 21 and 22 in the order listed. The arrest records reflected, however, a decrease of 5.2% in the arrests of persons in the 18 to 20 age group, while arrests of persons less than 18 years old declined 2.5%.

Despite this decrease in the arrests of youths in 1944 as compared with 1943, a comparison of the 1944 data with the figures for 1941, the last peacetime year, shows a decided increase. Arrests of boys under 18 were 18.8% greater in 1944 than in 1941. Arrests of girls under 21 showed a 134% rise, indicating there was still an abnormally high level of juvenile delinquency. (See also CHILD WELFARE; CRIME; KIDNAPPING; POLICE; SECRET SERVICE, U.S.) (J. E. H.)

Federal Communications Commission.

The continuation of measures in the United States to speed the victory, preparation for reconversion of communications from war to peace and negotiations for common carrier rate reductions were the outstanding activities of the Federal Communications commission during the calendar year of 1945.

After the Japanese surrender, the Radio Intelligence division shifted its emphasis from the watch for espionage transmissions to surveillance for other illicit use of or interference with the radio channels, but continued locating and furnishing directions to lost planes, a service developed in response to wartime demands. The Foreign Broadcast Intelligence service which had monitored foreign broadcasts for various government agencies from 1941 was transferred at the end of the year to the war department.

Various restrictions on construction in the broadcasting and common carrier fields were removed after the war. Amateurs were permitted to resume operation in certain bands on Nov. 15.

Radio operation which before World War II had been confined below 300 megacycles was projected by wartime technical progress far into the higher frequencies for military purposes. To enable nongovernment users to expand into this area, the commission, after extensive hearings, issued an allocation pattern from 25 mc. to 30,000 mc. Commercial television was allocated channels below 300 mc., while the 480-920 mc. band was allocated for experimentation with wide-channel colour television. Frequency modulation (FM) broadcasting was provided for between 88 and 108 mc. The 88-92 mc. band was allocated to noncommercial educational broadcasting, the 92-108 band to commercial broadcasting. It was estimated that at least 5,000 FM stations could be licensed in these bands. Before the end of the year, the commission took the last steps needed to establish these services by issuing rules and regulations, standards of good engineering practice and plans allocating the channels over the U.S. At the end of the year, there were 150 applications for television permits, 800 for FM.

The upward extension of allocations also permitted the creation of a number of new services and expansion of many pre-

viously operating Re-allocation of frequencies below 25 mc. issued in proposed form had not been final at the end of the year.

The number of standard broadcasting stations rose during the year to 939. In addition, construction permits had been issued for 65 and there were 520 applications for new stations on file.

Annual savings of \$41,000,000 to patrons of interstate telephone service resulted during the year from negotiations between the commission and the American Telephone and Telegraph company. Other reductions were achieved in international radio and cable rates, some of them as the result of agreements between the United States and the British commonwealth at a tele-communications conference at Bermuda. The U.S. was also granted the privilege of establishing direct circuits on a permanent basis to certain British points. (See also RADIO; WAR COMMUNICATIONS, BOARD OF.) (P. A. P.)

Federal Council of the Churches of Christ in America.

In 1945 the council in the U.S. consisted of 25 national denominations, including most of the major Protestant bodies and three of the Eastern Orthodox group, and representing approximately 28,000,000 members in 140,000 local congregations.

While continuing to lead in the religious ministry to men and women in the armed forces, the council gave major attention in this year of transition from war to peace to problems of world order. It held a national study conference of leaders of the churches in Jan. 1945 to devise a program whereby the churches might strengthen the movement for world order. Amendments were suggested to the Dumbarton Oaks proposals and an extensive educational program was undertaken in preparation for the San Francisco conference. The council was represented among the consultants at the San Francisco conference and was, along with other religious groups, influential in achieving the inclusion of provisions for furthering human rights and fundamental freedoms in the charter adopted for the United Nations organization.

During the year plans were matured for a comprehensive relief and reconstruction program through the churches in the neediest territories of Asia and Europe. Rev. Samuel McCrea Cavert, general secretary of the council, was loaned to the World Council of Churches to work with its headquarters office in Geneva, Switzerland, in the development of the program of the World Council, notably in the field of reconstruction and relief in Europe.

The year marked the resumption of closer relation with the churches of other lands, including Japan, to which a deputation was sent in September (in co-operation with the Foreign Missions conference of North America), and Germany, to which a deputation was sent in November.

The council represented the interest of its constituent churches in impressing upon the public and upon responsible officers of the government the great urgency of moral and spiritual disciplines in the new atomic age. In the light of these obvious needs the council increased its program of evangelism on a community-wide basis through home visitation evangelism and over the radio, where it has co-operated with the national networks in presenting the challenge and the inspiration of religion.

In the field of race tensions the council developed race relations clinics in numerous cities, bringing together, under the initiative and auspices of the churches, the institutional and professional resources of the community to diagnose the causes of tension and to formulate plans for improving the community health.

The usual programs were enlarged in such fields as worship, home and family life, religion and health, industrial relations, and research and education.

The *Federal Council Bulletin* (monthly), *Information Service* (weekly), *Interracial News Service* (bi-monthly) and *Town and Country Church* (monthly) give current information about the work of the Council.

(Ro. P. B.)

## Federal Deposit Insurance Corporation.

During the year 1945 no bank depositor in the United States experienced a loss from a bank failure. The number of banks which fail is always relatively small when bank assets are increasing rapidly and the national income is high. However, 1945 was the first calendar year during which not a single bank failed. The Federal Deposit Insurance corporation purchased assets of a character not suited for bank investment from one bank, in order to permit its merger with another bank. The loss from this operation would be small.

The liquidation of assets acquired by FDIC through bank suspensions and mergers progressed satisfactorily during 1945. Of the \$260,000,000 disbursed in the 12 years of insurance operations to protect depositors in 398 banks with about \$500,000,000 of deposits, more than \$210,000,000 had been recovered by the corporation by the close of the year. Actual losses in terminated cases amounted to about \$10,000,000 and reserves of \$20,000,000 were held to cover additional losses. The total assets of FDIC at the close of the year amounted to \$932,000,000 including U.S. government obligations of \$900,000,000.

On Dec. 31, 1945, 13,500 insured commercial and mutual savings banks held total assets of about \$165,000,000,000 and total deposits of \$155,000,000,000. The increase in assets of these banks of \$21,000,000,000 during the year was chiefly in U.S. government obligations. Capital of insured banks increased more rapidly than in previous years, but not as rapidly as deposits. The total dollar amount of earnings was larger than in any previous year, but the rate of earnings on assets continued to decline.

The corporation continued the examination and supervision of the 3,800 federal credit unions—a responsibility which was first transferred to the FDIC from the Farm Credit administration by the president in 1942 until Title I of the First War Powers act.

Leo T. Crowley, who had served as chairman of the board of directors of FDIC from Feb. 1934, resigned effective Oct. 15. Maple T. Harl, state bank commissioner of Colorado, was appointed chairman but did not take the oath of office until Jan. 5, 1946. The other directors were: Phillips Lee Goldsborough whose appointment for another term of six years was approved in September, and Preston Delano, comptroller of the currency. (See also BANKING.)

(H. Jo.)

**Federal Home Loan Bank:** see HOUSING.

**Federal Housing Administration:** see HOUSING.

**Federal Income Tax:** see TAXATION.

**Federal Land Banks:** see FARM CREDIT ADMINISTRATION.

## Federal Power Commission.

More than \$1,000,000,000 was eliminated from the plant accounts of electric utilities in the U.S. under the requirement that utility properties be recorded on the basis of their original cost. By the end of 1945, 126 companies had disposed of reclassification and cost adjustments aggregating \$1,014,590,000. Elimination of write-ups and other inflationary items and cost accounting resulted in an overall strengthening of the electric utility industry, the commission contends, a seven-year

survey showing increases of 82% in kilowatt-hour sales, 24% in generating capacity, 17% in number of customers and 44% in electric revenues accompanied by an increase of only 7% in plant investment. Depreciation reserves were increased nearly 90%, more than \$1,300,000,000. More than \$3,000,000,000 retained out of revenues was invested in property additions and replacements or utilized to retire outstanding securities.

Electric power produced for public use in 1945 was estimated at 222,367,000,000 kw.hr., a decline of only 2.6% from the 1944 all-time high of 228,188,844,000 kw.hr. Industries and railways produced for their own use 48,521,000,000 kw.hr., 5.5% less than the previous year, making a total 1945 production estimated at 270,888,000,000 kw.hr. Industrial demand declined sharply after V-E day, following the cancellation of war contracts; but residential and commercial consumption increased as plants were reconverted to peacetime production. Nearly 800,000 customers were added during the year, bringing the total to about 34,000,000. Generating capacity of plants in utility service mounted toward the 50,000,000-kilowatts mark, as the total reported Oct. 31 was 49,901,280 kw. with further additions scheduled for service before the year's end. Industrial plant capacity was 12,763,732 kw., which, added to utility plants, made a total generating capacity of more than 62,000,000 kw.

Instituting a broad investigation of the entire natural gas industry, the commission heard state officials, gas producers, pipeline executives and engineers in Kansas City, Oklahoma City and New Orleans, with further hearings scheduled in Houston, Tex.; Biloxi, Miss.; Charleston, W.Va., and Chicago. Pipe-line capacity was largely increased to meet urgent demands in the Appalachian and middle west industrial areas. Construction of three major pipe lines, involving \$210,000,000, was proposed, including the \$70,000,000 Michigan-Wisconsin line from the Hugoton field to Detroit and Milwaukee, 1,216 mi.; a line from west Texas to Los Angeles, to serve southern California; and a \$60,000,000 line from the Guymon field east, greatly increasing Chicago's gas supply. Gas customers for the first time exceeded 20,000,000, of which 9,497,000 were served with natural gas. Supreme court decisions confirming FPC orders reducing the rates of Panhandle Eastern Pipe Line Co., Colorado Interstate, Canadian River and Colorado-Wyoming gas companies also approved the commission's use of the prudent investment principle, permitted inclusion of production and gathering facilities in the rate base, and ruled on allocation. The commission's authority over the licensing of hydroelectric power projects on non-navigable portions of navigable streams which affect downstream capacity was sustained by appeals courts in the *Wisconsin Public Service Corp.* and *Georgia Power Co.* cases.

More than 900,000 gas consumers benefited from the \$5,094,000 annual reduction of Panhandle Eastern Pipe Line company rates and shared in the \$24,858,000 refund. Refunds of more than \$10,000,000 resulted from the \$2,745,000 annual reduction in Colorado Interstate, Colorado-Wyoming and Canadian River gas companies' rates. Natural gas rate reductions made in previous years, later confirmed by the courts, exceeded \$35,000,000 annually, representing cumulative savings to consumers of more than \$100,000,000.

Created in 1920 to administer the original Federal Water Power act, the commission rounded out its 25th year. Leland Olds, of New York, who had served as chairman from 1940 to June 1944, was elected chairman, to succeed Basil Manly, who resigned to enter private business. Nelson Lee Smith, of New Hampshire, was elected vice-chairman. President Truman appointed Harrington Wimberly, of Oklahoma, to succeed Manly as a member of the commission, and Richard Sachse, of California, to succeed John W. Scott, who resigned to practice law.

(J. W. JE.)

The time of \$1,200 at the imate 000,000 increa at the  
Expo See a  
Eye, accep These recon than Ricke far as specif terium tainly the in It v diseas chome can b direct This chara Hence tion possib  
it dro ssol neutr conge pine Qu Red- tests forces which perso classi defec cant v his a s ap s  
t s ter

## 306 FEDERAL PUBLIC HOUSING—FEDERAL SECURITY AGENCY

**Federal Public Housing Authority:** *see* HOUSING.

**Federal Reserve System.** During 1945 the federal reserve system served the United States government, member banks and the public in giving full support to the financing of World War II and in helping to meet the emerging financial problems of reconversion. The system is a nation-wide central banking organization, created by congress, and composed of the board of governors, the 12 federal reserve banks and 24 branches.

Federal reserve holdings of government securities rose \$5,-416,000,000 during the year and stood at \$24,262,000,000 on Dec. 31, 1945. The increase resulted from purchases of certificates of indebtedness and treasury bills, with treasury bond holdings showing a decline. At the end of the year treasury bills held by the federal reserve banks comprised half of their government security holdings and accounted for three-fourths of the treasury bills outstanding.

The major factor responsible for the wartime expansion of reserve bank credit continued to be the currency outflow. Member banks draw on their reserve balances to obtain currency from the reserve banks. These reserve balances are replenished through sale of government securities to the reserve banks. This was in accordance with the system's wartime policy of keeping banks supplied with sufficient reserves to buy such government securities as were not bought and held by other investors.

At the same time, however, a basis for multiple credit expansion existed in the process through which commercial banks readily obtained reserve funds by sale of short-term low-rate government securities to the federal reserve banks. Replacement of such securities through purchase of higher-yield issues in the market resulted in bidding government securities away from nonbank holders and a further increase in the stock of bank deposits.

Some member banks at times borrowed substantial amounts from the reserve banks in order to maintain their reserve positions. Discounts and advances at the reserve banks reached \$912,000,000 on June 6, 1945—the largest amount after 1933.

By act of congress, approved June 12, 1945, the reserve requirements of federal reserve banks were reduced to a uniform minimum of 25% in gold certificates against federal reserve notes in circulation and deposit liabilities. The reserve requirements had previously been 40% in gold certificates against federal reserve notes in circulation and 35% in gold certificates or lawful money against deposits. The act also extended indefinitely the authority for the use of direct obligations of the United States as collateral security for federal reserve notes, terminated the authority to issue federal reserve bank notes, and terminated the authority to issue United States notes under the Thomas amendment.

Action by congress to reduce the reserve requirements of the federal reserve banks followed a decline in the reserve ratio of the federal reserve banks from 91% at the end of 1941, soon after the entry of the U.S. into the war, to 45% in June 1945. The decline was due chiefly to the growth of federal reserve note circulation during the war, and secondarily to a decline in gold certificate reserves of the federal reserve banks and an increase in their deposit liabilities. At the end of 1945 the ratio of gold certificate reserves to deposit and federal reserve note liabilities combined was 42%.

The federal reserve banks continued to act as fiscal agents for the war department, navy department and maritime commission in guaranteeing loans made by financing institutions to war contractors to provide working capital needed in war production and/or pending final settlement of claims arising from

terminated contracts. Although the amount of guaranteed loans outstanding declined during 1945, loans authorized in the first ten months of the year amounted to \$1,010,000,000, bringing the total amount authorized after the beginning of the guaranteed loan program in April 1942 to \$10,321,000,000.

The board of governors of the federal reserve system changed its regulations in the field of selective credit control to meet developments during the year. Regulation W, relating to consumer credit, was amended, effective Oct. 15, 1945, by exempting credits for home repairs and improvements and by lengthening from 12 months to 18 months the maturity limitation on loans which are not for the purpose of purchasing consumers' durable goods. After reviewing regulation W following the end of the war the board stated its belief that the use of consumer credit should so far as possible be discouraged until consumers' goods come on the market in sufficient supply to meet demands. Regulations T and U, which are applicable to credit extended by brokers and banks to finance purchasing, carrying or trading in stock exchange securities, were amended twice during the year. Margin requirements, which were 40% after 1937, were raised to 50%, effective Feb. 5, 1945, and to 75%, effective July 5, 1945. (*See also* BANKING; CONSUMER CREDIT.)

(J. K. L.)

**Federal Savings and Loan Insurance Corporation:** *see* HOUSING.

**Federal Security Agency.** Activities representing the responsibilities of the federal government for promoting and maintaining the health, education, economic security and welfare of the people of the United States and affecting the life of each individual, most often by way of his state or local government, were in some phases retarded and in others intensified during 1945 as a result of war conditions. However, developments all along the line in the broad scope of activities within the Federal Security agency were the subject of increasing public interest as the war drew to a close.

During 1945 the U.S. Office of Education co-operated with other governmental agencies in a variety of special war services including the development of plans for keeping youth in school; provision of school services in war areas under the Lanham act; maintenance of essential school transportation; utilization and disposal of surplus property for educational use; participation of schools in the salvage drive; making available to schools operating supplies, textbooks and essential materials for maintenance of the school plant, upon which wartime restrictions had been placed; provision of school lunches; promotion of programs of health and physical education; and the development of a sound educational approach to fundamental problems in the field of social hygiene.

In spite of wartime demands on human energy, long hours of work, overcrowding, shortage of medical and hospital facilities and personnel, the health of the U.S., generally speaking, remained good. The public health service reported marked progress in the control of malaria, venereal diseases and tuberculosis—enemies of man that commonly flourish in wartime. Protection provided by industrial hygiene services was at a high level, when there was taken into consideration the rapid changes in production methods and the tremendous increase in employment.

Within the complex of change and readjustment brought about by V-E and V-J days, the Office of Community War services, as the war arm of the Federal Security agency, carried on its appointed task of helping war areas to meet the problems imposed upon them. Services of the office lay in the fields of health, medical care, welfare, education, recreation, social pro-



tection and related areas of community well-being. Organization already effected to do the job was strengthened and geared to the rapidly changing situation. A few new facilities were established but the main goal was to help communities hold the gains already made, while they adjusted to the unwinding processes of production and the problems of deployment.

To carry out its part in the disposal of the surplus properties assigned to it, the Federal Security agency created the Office of War Property Distribution within the office of the administrator. The Federal Security agency's part in the disposal and distribution of surplus property was to act as liaison between the federal disposal agencies and the states, communities, and non-profit organizations which were in line to apply for the available property on a basis of need. The institutions eligible included publicly supported and nonprofit schools, hospitals, clinics, libraries and similar institutions. Provision was also made for other types of nonprofit institutions. On applications approved by the Federal Security agency such institutions might purchase property from disposal agencies at the "fair value," which in practice would be the lowest price for which the property was sold at any commercial level.

The division of surplus property utilization set up in the public health service was to work with state and local health officers to help them determine community needs and to make application for war property, and the similar division in the office of education was to perform the same services for school officials.

(P. V. M.)

### Federal Trade Commission.

The Federal Trade commission, an agency of the U.S. government, enforces the Federal Trade Commission act, certain sections of the Clayton act, the Wool Products Labeling act and the Export Trade act. In 1945 the commission issued 150 complaints alleging violations of the laws it administers, entered 115 orders to cease and desist from proved violations, and accepted 211 stipulations wherein respondents agreed to discontinue unlawful practices.

Proceedings instituted in the public interest under these acts were directed to promoting free and fair competition by preventing price-fixing agreements, restraint-of-trade combinations, unlawful discriminations in price and otherwise, misbranding of wool products, and other unfair methods of competition and unfair or deceptive commercial practices including false advertising; and to safeguarding health by preventing the dissemination of false advertisements of food, drugs, devices and cosmetics which might be injurious.

United States courts decided 27 cases in favour of the commission. In two of these the supreme court sustained commission orders directed against the use by two glucose manufacturers of a discriminatory basing point system of delivered prices.

The commission reported to congress its continuing investigations of distribution methods and costs, part six, milk products and parts seven and eight, fish (Great Lakes and New England); also its study of the operation of resale price maintenance contracts in 45 states where such system of pricing trademarked, branded or otherwise identified products for resale was legalized. This last report declared that in the absence of effective government supervision, resale price maintenance "is subject to use as a means of effecting enhancement of prices by secret agreements and restraint of competition by coercive action on the part of interested co-operating trade groups of manufacturers, wholesalers and retailers in such ways and to such an extent as to make it economically unsound and undesirable in a competitive economy."

As a result of its investigation of the wartime cigarette shortage, the commission reported the scarcity was not attrib-

utable to violations of law but was caused principally by diversion of a high percentage of total U.S. cigarette production to the armed forces and the Allies.

The commission recommended to congress an amendment of section 7 of the Clayton act to prohibit the corporate acquisition of another corporation's assets under the same conditions that acquisition of its capital stock had been declared unlawful by congress in 1914. The recommendation was directed against the increasing consolidations of competing corporations.

The commission instituted investigations of several of the 48 export trade associations registered with it under the Export Trade act to determine whether they were engaging in restraint-of-trade practices and agreements violative of law. One inquiry resulted in the commission recommending that an association exporting Florida hard rock phosphate readjust its business to conform to law.

The commission approved trade practice rules for the water heater, razor and razor blade, wood-cased lead pencil, low-pressure refrigerant, button jobbing and tuna industries.

(R. E. F.)

### Federal Works Agency.

The Japanese surrender in 1945 caused an abrupt shift in the activities of the Federal Works agency, from supporting the United States war effort to meeting peacetime problems.

The regular federal-aid highway program was resumed after its wartime suspension. Planning of many major highway projects had already been completed in 1945, financed partly by \$10,000,000 authorized under the Defense Highway act of 1941 and partly by federal-aid funds freed for the purpose in legislation approved July 13, 1943.

The Public Roads administration, FWA, prepared to administer the federal-aid Highway act of 1944, which authorized the greatest highway-building program in the nation's history—\$500,000,000 a year, to be matched by the states, for each of the following three years: \$225,000,000 for the federal-aid system, \$150,000,000 for secondary or farm-to-market roads, and \$125,000,000 for the federal-aid system in urban areas. The act also provided for a national system of interstate highways, not to exceed 40,000 mi., to link the principal cities of the U.S. Designation of the highways to be included was already well advanced in Washington and in the state highway departments.

The Federal Works administrator, in conjunction with the postmaster general, submitted to congress a list of eligible federal building projects outside the District of Columbia, chiefly post offices, that would cost about \$750,000,000, and requested an authorization of \$193,000,000 for early construction by the Public Buildings administration, FWA, of the most urgently needed of them. The administrator also asked authorization and funds for an extensive building program in the Washington area. Congress was considering requests as the year 1945 ended.

Construction activities under the Lanham act were discontinued as rapidly as practicable. Projects on which construction had not begun were cancelled; those already under way were carried to a useful stage wherever it appeared that the need would continue. Arrangements were made to discontinue service projects—war nurseries and child care centres—March 1, 1946, and financial aid for regular school programs at the close of the 1945-46 school year.

The making of non-interest-bearing advances, through the Bureau of Community Facilities, FWA, to states and their political subdivisions for plan preparation of local public works was accelerated. Authorized by Title V of the War Mobilization and Reconversion act of 1944, this program went into operation July 1, 1945, when an initial appropriation of \$17,500,000 became available. The funds were to be allotted among the

Th  
time  
\$1,20  
at th  
imate  
000,0  
incre  
at th

Exp  
See a

Eye,

accep  
These  
recon  
than  
Ricke  
far a  
specif  
terium  
tainly  
the ir

It v  
diseas  
choma  
can be  
direct  
This  
chara  
Hence  
tion  
possib

Dib  
duce  
for re  
perim  
mine  
mydri  
acid e  
unrela

Dib  
hydro  
dissol  
neutra  
conge  
pine v

Qu  
Red-  
tests  
forces  
which  
person  
classif  
defect  
cant v  
in his  
as a s  
to ap  
Tests  
from  
pyroth  
field  
tests  
lanter

## FEDERATED MALAY STATES—FERTILIZERS

states, 90% on the basis of population, and 10% at the discretion of the administrator.

Requests for advances, to be repaid when construction was begun, soon exceeded available funds. The First Deficiency Appropriation act of 1946 included an additional appropriation of \$12,500,000 to continue the program until the end of the fiscal year. Sewer and water systems, schools, hospitals, health centres, public buildings, and improvements to roads and streets ineligible for federal-aid highway funds were among the leading types of projects for which the localities sought planning advances.

The law stipulates that the making of advances for planning does not commit the congress to pay all or any part of the cost of construction of local public works projects. The program enables states and their subdivisions to build up a shelf of complete architectural, engineering and legal plans for needed public works in advance, so that their construction may be so timed as to help stabilize the construction industry. The normal procedure of financing both construction and planning of public works by the sale of bonds would make advance planning impracticable for most localities without the assistance provided by this program. (See also HOUSING.) (P. B. F.)

### Federated Malay States.

One of the three principal administrative divisions of British Malaya, the other two being the Straits Settlements and the Unfederated Malay States (*qq.v.*). There are four Federated States—Perak, Selangor, Negri Sembilan and Pahang. The first three are on the west coast of the elongated Malay peninsula, while Pahang is on the east coast. Area: 27,540 sq.mi; pop. (est. 1941) 2,193,605, distributed as follows: Perak, 984,464; Selangor, 696,173; Negri Sembilan, 293,510; Pahang, 219,458. The capital and largest city is Kuala Lumpur (Selangor), pop. (1939) 138,425. Racially the population was divided as follows (est. 1941): Europeans, 11,019; Eurasians, 5,226; Malays, 713,679; Chinese, 978,208; Indians, 468,029; others, 17,444.

A process of commercial contact and political expansion brought this area under British administration between 1874 and 1914, Perak being the first state to accept British control. The system of government before the Japanese occupation (1942) was the maintenance in each state of a native sultan. But, "except in matters touching Malay religion and customs," authority was in the hands of a British resident in each state. Co-ordinating authority was in the hands of a British high commissioner, who was also governor of the Straits Settlements. This joint office, until the Japanese occupation, was held by Sir Thomas Whitelegge Shenton Thomas. The Japanese preserved the essential features of the former system, substituting their own military "advisers" for the British residents and outwardly respecting the authority of the native sultans. The Federated Malay States, like other parts of Malaya, were returned to British sovereignty after the Japanese surrender in Aug. 1945.

**Education.**—Schools of various types were provided for the heterogeneous population. There were 35 English schools for boys (13,564 pupils) and 14 English schools for girls (5,941 pupils). There were 582 Malay schools (63,638 pupils) and 572 Chinese schools (58,227 pupils). There were also 580 schools in the Tamil language, spoken by many of the Indians in Malaya, attended by 23,527 pupils. Expenditure on education (1940) £437,796.

**Finance.**—Revenue in 1940 was £11,493,060, expenditure was £9,166,303. Public debt at the end of 1940 was £9,950,000.

**Agriculture and Mineral Production.**—Rubber and tin are the most important products. There were 1,699,459 ac. of rubber plantations in 1940, 251,960 ac. in coconut groves, 186,310 ac. in rice paddies, 40,629 ac. of oil-bearing palms. Mineral pro-

duction in that year was as follows: tin 35,689 tons; gold, 81,633 oz.; tungsten 90 tons; coal 781,508 tons. There were 90,145 miners, mostly Chinese, while the labourers on the rubber plantations were mostly Indians. (See also JAPAN.) (W. H. CH.)

**Federation of Labor, American:** see AMERICAN FEDERATION OF LABOR.

**Feldspar.** Sales of crude feldspar in the United States rose to 366,697 short tons in 1944, from 345,162 tons in 1943, accompanied by a 10% increase in value as compared with the 6% increase in quantity. Sales of domestic ground spar totalled 337,491 tons, and of ground Canadian spar 7,710 tons, making a total of 343,201 tons, of which 64% was used in glass and 31% in pottery. In spite of a growing use of competing products in the making of glass, the consumption of feldspar in glass continued to expand.

Canadian shipments of feldspar dropped from 23,858 short tons in 1943 to 23,509 tons in 1944, but improved in 1945, the total for the first three quarters of the year being 20,385 tons. (G. A. Ro.)

**Fencing.** Four inactive divisions of the Amateur Fencers League of America were reactivated in the United States in 1945 and one new division applied for a charter.

The greatest fencing activity was, as usual, in the east around New York with California, Michigan, Ohio and Illinois showing renewed interest.

The national championships were held in New York city. In foil, Dernel Every (New York Athletic club) won the title he last held in 1940. Alfred Snyder (Fencers club) defending champion was second and Warren Dow (New York Athletic club) former champion was third. In épée, a new winner, Max Gilman (Illinois division) placed first, James H. Flynn (New York Athletic club) second and Fred Linkmeyer (Los Angeles Athletic club) Pacific coast champion, third. In sabre, Norman Armitage (Fencers club) regained the title he last held in 1944 and placed first for the tenth time. James H. Flynn (New York Athletic club) was second and Tibor Nyilas (Salle Santelli) defending champion, third. In the women's event another new champion was crowned when Miss Maria Cerra (Fencers club) nosed out her teammate Mrs. Helena Dow (twice champion) for first. Miss Madeline Dalton (unattached) defending champion, was third.

In the Pacific coast championships, Edward Carfagno (Los Angeles Athletic club) successfully defended his foil and sabre titles. His teammate Fred Linkmeyer won the épée. Miss Janice York (Faulkner School of Fencing) won the women's event.

In the midwest championships Byron Krieger (Michigan) successfully defended his sabre title and also won the foil title. Ivan Gilbert (Columbus, O.) again won the épée championship. Miss Paula Sweeney (Michigan) won the women's championship for the third consecutive time. (W. A. Dw.)

**Fertilizers.** Victory in Europe in May 1945 sped up fertilizer production and use in many countries. During the war recognition of the importance of chemical plant foods grew apace throughout the world. The farmers of the United Nations and of axis and neutral countries did a stupendous job of crop production despite withdrawal of tens of millions of men from farms to the armies and to war and essential civilian industries. As farm incomes throughout the world showed signs of future decline, the hastened tempo of fertilizer consumption promised to slacken but still to continue in higher volume than in the prewar period. The total crop output of U.S. farms, for example, in 1944 and 1945 exceeded the 1935-39 average by

fully 33%. Fertilizers, liming materials, pesticides, improved farm machinery, better crop varieties including first generation hybrids and many other factors contributed to this result, but none more than commercial fertilizers. Statistics for foreign countries continued to be meagre in spite of the fact that prohibitions on the publication of pertinent data were lifted.

The only detailed national figures of fertilizer consumption available for World War II were those for the United States. In 1938 total use in the U.S. was 7,758,000 short tons; in 1944 it was 12,468,000 tons. Figures for 1945 were not available but advance estimates indicated a further increase over the previous year.

Synthetic nitrogen production capacity was in 1945 at the highest point in world history. While plants in axis-controlled countries were bombed mercilessly, new construction in other nations, particularly the United States and Canada, was far greater than immediate peacetime consumption would warrant. The group of materials involved included ammonia solutions, cyanamide, ammonium nitrate, synthetic ammonium sulphate and sodium nitrate, urea compounds and some others. An acute industrial problem depended on the policy adopted as to the disposal of some 8 or 10 large U.S. government-owned synthetic plants built for war purposes. Total capacity in the U.S. which includes 9 private plants was twice as great as the peak wartime agricultural use. Canada built 4 new plants and apparently counted on their continued operation largely to supply the U.S. market where excessive capacity already existed. Canadian use was relatively small. Nitrogen production as by-product ammonium sulphate depended on the rate of coke production for steel manufacture throughout the world. In the U.S. many factors including exhaustion of high-grade iron ore were expected to reduce steel production from the wartime peak of about 100,000,000 tons in 1943—more than the total from 1863 when statistics begin to 1900—to the usual peacetime rate of between 50,000,000 and 60,000,000 tons annually. Sulphate of ammonia is the chief nitrogen carrier used in compound fertilizers. Natural nitrate of soda from Chile was expected to be available to supply any likely demand up to 2,000,000 short tons. This material continued to be the preferred nitrogen carrier for top and side dressing. Organic nitrogenates from crop and animal sources were diverted largely to feed use. They promised to remain meagrely available as fertilizers with some improvement as world transport conditions get better.

Phosphatic fertilizers, chiefly in the form of normal (18% to 20%  $P_2O_5$ ) and concentrated (43% to 48%) superphosphate, were expected to increase rapidly in supply if market demand called for them. The phosphate rock deposits of the U.S., North Africa and Russia are adequate to supply world needs for many centuries, particularly as phosphorus becomes fixed readily in the soil and does not leach out as do nitrogen and potash.

The world potash outlook was favourable with a new factor of uncertainty because of soviet claims of discoveries of tremendous deposits of potassium salts in the vicinity of Solikamsk, a town northeast of Perm in European Russia, located just west of the main range of the Urals. Heretofore the greatest known deposits were those of Germany which were estimated to be sufficient to supply world demand for thousands of years. Known American deposits were sufficient for fewer than 200 years at the existing rate of use. They were severely exploited during the war years, production in terms of  $K_2O$  contained having risen from 302,000 tons in 1935 to approximately 850,000 tons in 1945. France, Poland, Spain and Palestine were expected to increase their contribution to world supply but future development necessarily depended chiefly on soviet policies toward permitting Germany to return to the world market which it had developed during the previous 90 years. A Russian authority claimed that

the Solikamsk deposits contained reserves 35 times as great as all the rest of the world. Discovery of potash salts in Western Australia in the vicinity of Lake Campion in the form of alunite was reported in 1944.

Agronomic knowledge concerning crop nutrition has grown with great rapidity. Crops, like animals including human beings, must be properly nourished. Nitrogen, phosphorus, potassium and calcium are usually regarded as the essential plant foods. Research has shown that deficiencies in other elements may determine success or failure in growing certain crops. These elements are usually referred to as minor, trace or secondary elements. Included are manganese, boron, iron, zinc, magnesium, copper and sulphur. For some crops and soil areas cobalt, iodine and molybdenum may also be required. The effect of these minor elements may be nutritional, catalytic or functional. In the case of Florida citrus fruits minute quantities of trace elements have rendered citrus trees less sensitive to cold and less subject to plant diseases. (See also AGRICULTURE.)

(C. J. Br.)

**FHA:** see HOUSING.

**FHLB:** see HOUSING.

**Fiction:** see AMERICAN LITERATURE; CANADIAN LITERATURE; ENGLISH LITERATURE; FRENCH LITERATURE; GERMAN LITERATURE; ITALIAN LITERATURE; PRIZES OF 1945; BOOK PUBLISHING; RUSSIAN LITERATURE; SPANISH-AMERICAN LITERATURE; SPANISH LITERATURE.

**Figs:** see FRUIT.

**Fiji:** see PACIFIC ISLANDS, BRITISH.

**Filberts:** see NUTS.

**Financial Review:** see BUSINESS REVIEW.

**Fine Arts:** see MUSIC; PAINTING; SCULPTURE; etc.

**Finland.** An independent republic of northern Europe. Area, 134,000 sq.mi. (land area, 121,000 sq.mi.), after cession of 13,500 sq.mi. to the U.S.S.R. in 1940 and again in 1944. Pop. (est. of 1940) 3,850,000. Capital, Helsinki; pop. (est. Jan. 1, 1939) 304,965. Other principal cities: Turku (Åbo) (74,351); Tampere (76,730); Viipuri, ceded to the U.S.S.R. (74,247). Language and nationality, 90% Finnish, about 10% Swedish. Religion, Lutheran Christian. President after Aug. 4, 1944: Carl Gustav von Mannerheim; prime minister after Nov. 17, 1944 (and acting president during Pres. Mannerheim's illness in the spring of 1945 and absence in the latter part of the year), Juho K. Paasikivi. Anglo-Soviet control commission headed by Col. Gen. A. A. Zhdanov.

**History.**—Finland's troubles did not end when it made peace with Russia and Britain on Sept. 19, 1944. The reparations of \$300,000,000 were heavy (though but half the original demand); the contraction of territory by loss of the Petsamo area, Viipuri and the Karelian region meant a shift of more than 10% of Finland's population as well as loss of points of great economic importance; the grant of aerodrome and port facilities to Russia and the pledge to hand over German soldiers as war prisoners to Russia involved a strain on both pride and energy.

The most immediate problem was the last mentioned, and mop-up operations against the Germans remaining in Finland began in the fall of 1944. The campaign drove them steadily northward and across the border into Norway. By spring only a tiny pocket of resistance remained in the Finnish tongue of land between Norway and Sweden. Evidently to facilitate Russian use of Finnish bases Finland formally declared war on Germany on March 3, 1945, announcing then that a state of war had actually existed from Sept. 15, 1944, when German forces attacked the island of Hogland.



Political reorganization was difficult, but seemed to progress "as well as could be expected" under the firm and farsighted guidance of Premier Paasikivi. The premier's basic policy was one of friendly co-operation with Russia within a framework of Finnish independence. Elections to the 200-member unicameral parliament were held on March 17 and 18, with a considerable change from 1939 in the party lineup. Broadly speaking, the left gained at the expense of the right, and the formerly predominant Social Democrats lost many seats to the coalition called Popular Democrats (40 of whose 49 deputies were communists). Even then the total vote amassed by the right was about 732,000 as against 711,000 for the left. The Finnish Nazi party (formerly holding eight seats) was banned from the elections, and a number of the former anti-Russian leaders like Väinö A. Tanner, Edwin Linkomies, Henrik Ramsay and Tyko Reinikka, did not stand for election. The two days of voting were ushered in by Paasikivi's warning that it was not enough merely to observe the letter of the armistice with Moscow, and that the elections were the supreme opportunity for Finland to prove its intentions. The results gave: Social Democrats (anti-Moscow) 50 seats, a loss of 35; Popular Democrats (pro-Moscow) 49 seats; Agrarians 48 seats, a loss of nine; Conservatives 29 seats, a gain of two; Swedish Peoples' Party 16 seats, a loss of two; Liberals (or Progressives) 7 seats.

The cabinet resigned after the elections according to custom, but Paasikivi retained his position in a new-formed government, the partial makeup of which was: prime minister, Juho K. Paasikivi (non-party); foreign minister, Carl J. A. Enckell (non-party); minister of finance, M. Tuomija (Liberal); minister of the interior, Yrjö Leino (communist). By party the total cabinet contained four communists, four Social Democrats, two Popular Democrats, four Agrarians, two non-party and one Swedish Peoples' party.

The Russians appeared pleased at the trend of the elections, but they had taken no visible part in the campaign. Everything indicated that they were quite ready to let the Finns make their own decisions—and be responsible for their actions. In a speech on April 7 at the opening of the new parliament Pres. Mannerheim called for "lasting, friendly relations, founded on common interests and mutual confidence, with the soviet union" and for a complete reform of Finnish agriculture.

The armistice terms bore heavily on Finland, and inevitably resentment expressed itself. Some of the opposition was natural and innocent, but more serious tensions were indicated by the arrest of 34 Finnish general staff officers in July, for storing of arms and sabotage of the armistice. In September some 200 arrests were made and "second officers" of the general staff were rumoured to be implicated in a plot involving storage of arms in each of Finland's former "protective corps" districts. Early in August the Soviets relaxed some of the restraints on Finnish shipping and travel, and new hope arose. However, in October two new demands for reparations created despondency: \$15,000,000 payment for German assets in Finland, and \$14,000,000 for damage inflicted by the Finns during the occupation of Karelia, both payments to be made in 1946. This burden, added to the \$50,000,000 annual payment on the \$300,000,000 agreed on in 1944, had to come from a country with depleted resources, few ships and with small chance of remunerative trade. The prospect was bleak. The fact that payments had to be made in kind actually worked out to a doubling (in current values) of the monetary figure of reparations, and thus to a still tighter channelling of all Finnish exports to Russia. Under these circumstances the political freedom carefully left to the Finns was of slight satisfaction.

Following the Russian lead (Aug. 6), Britain and the U.S. resumed diplomatic relations with Finland (resumption of U.S.

relations with Finland dated officially from Sept. 1). Since the U.S.S.R. and Great Britain were the chief Allies at war with Finland (the U.S. broke off relations on June 30, 1944), they alone negotiated the armistice and maintained the control commission in Helsinki. The London conference of foreign ministers failed to reach agreements on implementing the peace, but the conference in Moscow in December opened the way for the participation of all major Allies in the definitive peace treaty.

Restoration of trade relations with the west was attempted: an agreement with Britain, beginning Aug. 17, 1945 and continuing to June 30, 1947, permitted normal trade and financial transactions. Some export of pulpwood to the U.S. was resumed in the late fall and the U.S. Export-Import bank on Dec. 13 granted a 15-month credit of \$5,000,000 for Finnish purchase of U.S. cotton. British agents were reported vigorously pushing trade on a credit basis.

The prosecution of war criminals was perhaps more difficult in Finland than in most countries, for it was hard to separate war criminals, war culprits and the various others who were merely anti-Russian or anticommunist. Early in the year an investigating committee had been set up under the chairmanship of Dr. Erik Hornborg. The trials got under way only in mid-November, after much prodding by the control commission, and the passage of a law by the Riksdag (Sept. 11) providing for punishment of those responsible for taking the country into war on the German side. On Nov. 6, eight men were dramatically arrested and on the 15th were brought to trial. The leaders charged with war guilt, and their former positions, were: Risto Ryti, president; Edwin Linkomies, premier; Johan W. Rangell, premier; V. A. Tanner, minister of finance and head of Social Democratic party; Tyko Reinikka, minister of finance; Henrik Ramsay, minister of foreign affairs; Antti Kukkonen, minister of interior; Toivo Kivimaeki, minister to Berlin.

One of the many tragedies in war-ravaged Finland was the taking by the soviet authorities of about 1,000 "white Russians," refugees from the revolution of 1917. In general, however, Russian activity was restrained, new papers appeared, and the Finns were beginning courageously the long job of reconstruction.

No new statistics on education, finance, trade or communication, etc., were available after 1939. (F. D. S.)

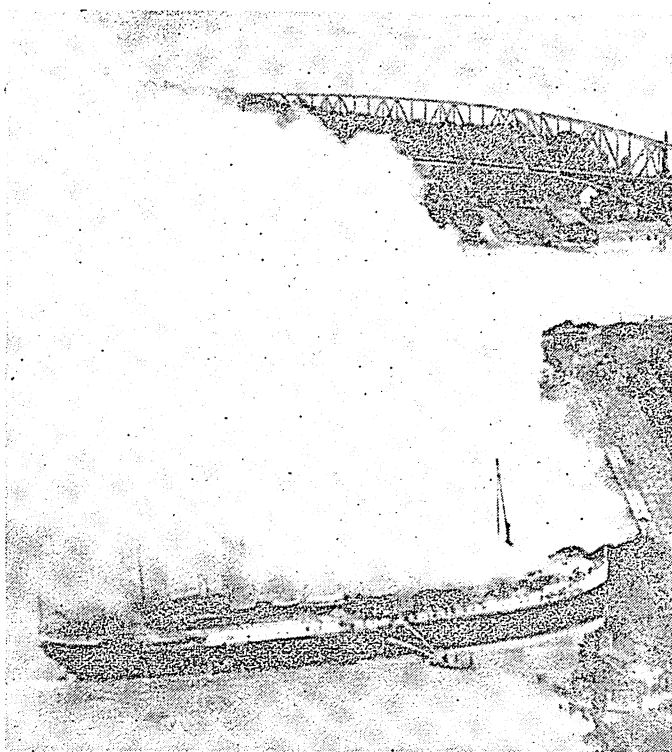
**Finlay, William Finlay**, 2nd Viscount, of Nairn (1875-1945), British jurist, was born in London and was educated at Eton and at Trinity college, Cambridge. Called to the bar at the age of 26, Lord Finlay specialized in revenue cases, later became a judge of the high court of justice, King's Bench division, 1924. Subsequently, he was appointed a Lord Justice of Appeal, 1938, and at the start of World War II headed the Contraband committee, which planned a tight blockade around Nazi territory.

In Jan. 1945 he was named to the United Nations War Crimes commission, succeeding Sir Cecil Hurst. He died at Redhill, Surrey, June 30.

**Fire Insurance:** see INSURANCE.

**Fires and Fire Losses.** The losses by fire, including lightning, in the United States as compiled by the National Board of Fire Underwriters for 1945 amounted to \$455,329,000. This compares with \$423,538,000 for 1944 and \$380,235,000 for 1943. The losses by fire in 1945 were the largest after the year 1930.

There were no fires which rose to the magnitude of a conflagration. It is reasonable to suppose that the general wear and tear on business properties might have been responsible



GREAT LAKES passenger-freight liner "Hamonic," destroyed by fire spreading from an exploding gasoline engine on the dock at Point Edward, Ont., on July 17, 1945. More than 150 persons sustained injuries and property damage was estimated at \$2,000,000. No lives were lost

for some, at least, of this increase. The adoption of what is called the "off premises" loss, for example, clothes in the hands of cleaners, where the policy might cover up to 10% of its value, was said to have potential and actual losses that were not anticipated. One was estimated to cost nearly \$1,000,000 by such a coverage. (See also DISASTERS.)

FILMS.—*Fireman* (Encyclopædia Britannica Films Inc.). (E. R. H.)

**Fires and Fire Prevention:** see WARFARE, INCENDIARY.

**Fischer, Hans** (1881-1945), German chemist, was born July 27 at Hoechst. Educated at Lausanne, Marburg and Munich universities, Fischer spent a year on the faculty of Munich university, 1915, later taught at Innsbruck and at Vienna and in 1921 became professor at the Technische Hochschule in Munich. He won the Nobel prize in chemistry (1930) for his discovery and isolation of hematin (the red corpuscle colouring matter). Colleagues regarded his work in blood chemistry as one of the most important steps toward discovery of the common ancestor of blood and chlorophyll. He attended the Harvard Tercentenary celebrations in 1936 when he led the discussion on chlorophyll at the arts and sciences conference. Though he remained in Germany during World War II, he was thought not to be on friendly terms with the Nazi regime. A Berne report of April 6 told of his death.

**Fish and Wildlife Service:** see FISHERIES; WILDLIFE CONSERVATION.

**Fisher, Geoffrey Francis** (1887- ), 97th archbishop of Canterbury, was born May 5, the youngest son of the Rev. H. Fisher, rector of Higham-on-the-Hill, Nuneaton. The primate of all England was educated at Marlborough and at Exeter college, Oxford, and, after a short period of training at Wells theological college, became an assistant master at Marlborough in 1911. He was ordained deacon

at Salisbury in 1912 and a priest in 1913. In 1914 he was appointed headmaster of Repton school, in Derbyshire. In 1917 he married Rosamond Chevallier, granddaughter of Dr. S. A. Pears, a former head of Repton. In 1932 he was consecrated bishop of Chester and in 1939 bishop of London. While in London he relinquished ownership of Fulham palace, traditional home of London's bishops, to the ecclesiastical commissioners, preferring to live as a tenant in a small part of the vast residence. He was nominated archbishop of Canterbury in succession to William Temple on Jan. 5, 1945, elected on Jan. 23 and enthroned on April 19.

**Fisheries.** The fish and wildlife service of the United States department of the interior reported early in December that the yield of U.S. fishery products in 1945 would probably equal the average prewar figure as a result of the restoration of about normal operating conditions in the fishing industry but would probably fall slightly below the 1944 yield. The catch of all species was expected to total approximately 4,400,000,000 lb., equivalent to average production during the five years preceding World War II. (The fisheries of the world normally yield about 37,000,000,000 lb. in a year.)

The U.S. yield had suffered a drastic reduction during the first year of war. In 1942 the catch, in fact, declined to 3,900,000,000 lb. By the end of 1943, however, special wartime measures had become effective and the catch rose to 4,200,000,000 lb., and in 1944 the 4,500,000,000-lb. catch exceeded the peacetime average.

The chief reason cited by the fish and wildlife service for the 1945 decrease from the 1944 production was a decline of about 225,000,000 lb. in the catch of pilchards, or California sardines. The pilchard industry, it was pointed out, accounts for about one-fourth of the total U.S. fish catch and the success of this fishery may thus determine whether the year's total is above or below average. By Nov. 17 the 1945 pilchard catch had reached a total of 353,501 tons, compared with 466,909 tons by the same date in 1944. (An improved manpower situation in canneries had, however, made it possible to pack 3,132,322 cases of canned pilchards, an increase of about 9% over 1944.)

Production for the fresh fish markets in 1945 was generally high throughout the country. All the major ports of New England, which receive the catches made by the trawling fleets on the New England and Nova Scotia banks, handled more fish than at any time after the beginning of World War II. Landings at the principal New England ports (Gloucester, Boston, New Bedford and Provincetown, Mass., and Portland, Me.) totalled about 525,000,000 lb. by mid-November, compared with about 430,000,000 lb. in 1944. In New York, receipts of fishery products rose from 190,285,865 lb. during the first three quarters of 1944 to 217,075,480 lb. in 1945. In the Chesapeake bay area, receipts at Norfolk, Va., amounted to 24,703,590 lb. for the first 10 months of the year, a gain of about 2,500,000 lb. over 1944. In the Gulf of Mexico area, landings of fresh and salt-water fish increased about 15% over 1944 and totalled about 9,000,000 lb. by the end of October; receipts of hard crabs increased from 10,323,000 lb. to 11,767,000 lb.; while oysters had declined slightly from 507,000 bbl. to 435,000 bbl. Receipts at the port of Seattle, Wash., for the first 10 months of 1945 were up 35% to a total of 70,716,955 lb., comprising chiefly halibut, rockfish, flounders, salmon and sablefish.

In contrast to the generally upward trend of the fresh fish trade, the total canned fish pack was about 6% under that of 1944. On both the Atlantic and the Pacific coasts the pack of mackerel was extremely small. On the Atlantic coast only 44,351 cases had been canned by the end of September, compared with 175,998 cases in 1944. The pack of Pacific mackerel through October was 309,251 cases, as against 645,320 cases in

Th  
time  
\$1,20  
at th  
imate  
000,0  
incre  
at th

Exp  
See

Eye,

accep  
Thes  
recor  
than  
Rick  
far a  
speci  
teriu  
tainly  
the i

It  
disea  
chom  
can b  
direc  
This  
char  
Henc  
tion  
possi

Di  
duce  
for r  
perin  
mine  
mydi  
acid  
unre

Di  
hydr  
disso  
neut  
cong  
pine

Q  
Red  
tests  
force  
whic  
pers  
class  
defe  
cant  
in hi  
as a  
to a  
Test  
from  
pyro  
field  
tests  
lanc



SWORDFISHERMAN off the coast of Massachusetts during the summer of 1945, with a haul of fish, some weighing more than 400 lb. Sighted from the masthead, the fish are speared with harpoons and later hauled up by the tail

1944. The Maine sardine industry, with a pack of 2,007,784 cases for the first three quarters of 1945, was running almost 20% behind the 1944 pack, while on the Pacific coast the salmon pack declined from 5,138,647 cases in the 1944 season to 4,833,333 cases in 1945. California tuna, however, by Oct. 31 had provided a pack of 2,995,757 cases, 437,000 more than on the same date in 1944. Shrimp receipts had totalled 222,152 bbl. as compared with 288,483 bbl. in 1944, yet the canned pack of 113,813 cases was only about one-third of the 1944 pack.

Before the end of 1945 the U.S. fishing fleet, which was reduced to critically low levels immediately after the U.S. entered World War II, had been built up to its prewar size. The government had authorized the building of a total of 2,128 fishing craft, many of which were already fishing in 1945. All but 85 were scheduled for completion by the end of the year, and the balance was scheduled to come off the ways by the latter part of 1946. The fishing fleet normally loses about 275 boats a year through disaster or the wearing out of vessels. In addition to these normal losses, about 700 of the largest and most productive fishing vessels were requisitioned for military service early in the war. Some of these had been returned. Others were still in service, but their loss had been more than compensated for by new construction. A few classifications of vessels—notably tuna clippers and large New England trawlers—were still below the prewar level, but the fleet as a whole had become larger than before the war and its productive capacity was considerably greater because of the large proportion of new boats.

The office of the coordinator of fisheries, the wartime agency through which the government met the nation's fishery prob-

lems, began a progressive demobilization on Sept. 30. The office planned to retain a small staff at its Washington headquarters for the purpose of handling special problems in connection with the reconversion of the fishing industry to a peacetime basis, but most of the area offices were to be closed. These offices had given the industry assistance in securing priorities; in obtaining materials, equipment and supplies; in interpreting government regulations; and in certifying keymen for draft deferment. Most of them were staffed with personnel detailed from the fish and wildlife service.

"Probably no other nation in the world was able to maintain its wartime production of fish so well," said Deputy Coordinator Ira N. Gabrielson in the office's annual report for the fiscal year ended June 30. Dr. Gabrielson, who also was director of the fish and wildlife service, pointed out that most of the European fisheries were shattered, their fleets destroyed, their shore facilities wrecked, their accustomed fishing waters sown with mines. "... Most Asiatic fisheries," he said, "were affected in similar fashion."

"The wartime difficulties suffered by the fisheries of the United States," said Dr. Gabrielson, "differed in character and in degree from those of most of the belligerents, but the impediments to operation, especially in the early years of war, were none the less real. The wartime achievements of the fishing industry are a record of distinguished service, and a testimony to what may be accomplished by co-operation in a common cause between government and industry."

Fishery resources, it was pointed out, provided larger quantities of protein foods, vitamin oils and numerous industrial materials needed for war than had been thought possible, yet the resource was "maintained in essentially sound condition" and the industry itself emerged from the war in good condition.

"In carrying out its wartime task of supplying the aquatic products needed for war," said Dr. Gabrielson, "the coordinator's office has also taken care to safeguard the fishery resources from excessive drains which would impair their future value to the nation. In happy contrast to the situation at the end of World War I, the fisheries as a whole have been maintained in sound condition. Instead, therefore, of being faced with the need of rebuilding depleted stocks and decimated runs of fish, we may now proceed to the postwar development and expansion of a sound and vital resource."

A public understanding of the nature of this resource and the problems in its conservation was greatly facilitated during the year by publication of the results of a survey conducted by the fish and wildlife service of the fishery resources of the U.S. and its possessions. Published by the government printing office as Senate Document No. 51, 79th Congress, 1st Session, with the title *Fishery Resources of the United States*, this report touched on "all the important aquatic species utilized by United States fishermen"; included drawings of the various species and distribution maps showing "in a general way the ranges over which the various species are frequently caught"; and presented a wealth of information with a striking typography of text, charts and drawings. In transmitting the report to the senate, Secretary of the Interior Harold L. Ickes wrote significantly as follows:

In making this study, the fish and wildlife service . . . has attempted to distill, from a massive volume of statistical, biological and industrial data, the essential facts needed to see clearly and objectively the present condition of our national aquatic resources and of our conservation of them. It is concluded from the study that throughout its entire history the federal government has never given adequate care to these resources.

The recommendations derived from the conclusions are stated as very general principles. These are intended to guide the formulation of specific programs which will enable the United States to take intelligently the leadership in world aquatic industries that seems about to be thrust into its hands. Because the long range of American fishing interests will broaden on a vast scale after this war, these programs must be made flexible and must remain so. This department proposes to submit to the congress for its consideration, in future months, suggestions for specific



legislation covering federal functions in economic, technological, and biological aspects of the development, utilization, and maintenance of the fishery resources. These will be based on the material presented in this report. (See also MARINE BIOLOGY.)

FILMS.—*Maritime Provinces; New England Fishermen; Pacific Canada; Shell-Fishing; Sunfish* (Encyclopædia Britannica Films Inc.). (H. Z.)

**Fiume:** see TRIESTE; YUGOSLAVIA.

**Flax:** see LINEN AND FLAX.

**Fleming, Sir John Ambrose** (1849–1945), British physicist, was born Nov. 29, at Lancaster. For his earlier career see *Encyclopædia Britannica*. A pioneer in applied electrical science, he was closely associated with the introduction in Great Britain of the telephone, electric lighting and wireless telegraphy. He died at Sidmouth, Devonshire, England, April 19.

**Flexner, Bernard** (1865–1945), U.S. lawyer and Jewish leader, was born Feb. 24 in Louisville, Ky. He received his Bachelor of Laws degree at the University of Louisville, 1898, and was admitted to the Kentucky bar the same year. He subsequently moved to New York where he continued the practice of law. During World War I, Flexner was a member of the American Red Cross commission to Rumania, July 1917. After viewing the plight of Jews in that country, he advocated resettlement of Jews in Palestine. He was active in the Zionist Organization of America and attended the World Zionist conference in London. In 1925 he organized the Palestine Economic corporation, designed to provide credits for and promote industry and commerce in Palestine. In 1933 he participated in organizations that aided German refugees fleeing Nazi persecution. In addition to his interests in law and Zionism, Flexner was also an authority on juvenile welfare, and he collaborated in preparing a report in 1929 that urged establishment of domestic relations clinics staffed by psychologists and social investigators to deal with problems of juvenile delinquency. Flexner died in New York city, May 3.

**Floods and Flood Control.** Exclusive of the large projects previously authorized for the alluvial valley of the Mississippi river and for the Sacramento river, Calif., construction work on the federal program for general flood control was begun in 1937 after the first funds for that purpose were appropriated by congress. By the end of June 1945, 49 reservoirs and 114 local protection projects were in operation throughout the United States. In addition to previous authorizations, congress, in the Flood Control act approved Dec. 22, 1944, authorized expenditures amounting to \$750,000,000 for approximately 150 additional flood control and multiple-purpose projects and for the continuation of previously approved river basin plans. With the passage of the 1944 act, congress approved authorizations totalling \$1,680,400,000 for the construction of about 650 reservoir and local protection projects. In the period from 1937 through June 30, 1945, funds totalling \$605,742,000 were appropriated for the prosecution of the general flood control program.

All of the authorized projects were parts of comprehensive co-ordinated plans for the development of the river basins of the nation to provide economical flood protection and allied benefits for centres of industry and population, thousands of acres of rich agricultural lands and vital lines of communication. In addition to their use for flood control, many of the reservoirs provided favourable possibilities for hydroelectric power generation, stream flow regulation, water conservation, recreation and other water uses.

During the year, the Barker dam on Buffalo Bayou, Tex., was

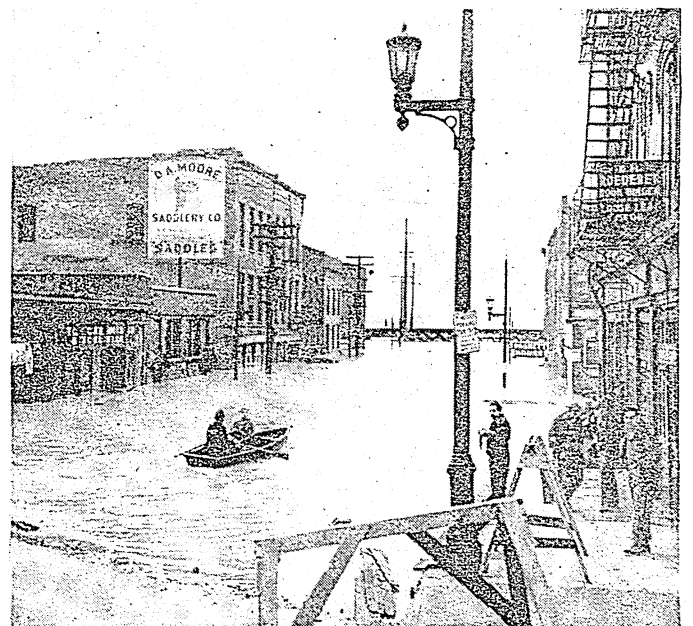
essentially completed to provide partial flood protection for the city of Houston. The local protection projects for Tulsa, Oklahoma and the East Peoria Drainage and Levee district, Ill., were essentially completed to protect those highly industrialized areas from flood damage. The improvement of the Vermilion river, La., to provide flood protection for a large agricultural area, and the local protection project on the Ohio river at Jeffersonville and Clarksville, Ind., were continued during the year.

Subsequent to the cessation of hostilities in Europe, certain projects considered to be essential to the public health and safety were placed under way. By the close of the fiscal year 1945, construction had been initiated on a project for Lytle and Cajon creeks to protect the cities of San Bernardino and Colton, Calif., and vital Pacific coast railroad facilities from flood damage. Construction work on four local protection projects in the Ohio river basin, which were suspended during the war, was resumed to provide flood protection for the cities of Evansville, Ind.; Paducah, Ky.; Portsmouth-New Boston and Cincinnati, O. The raising of existing levees along the Mississippi river between Alton and Gale, Ill., was also resumed.

In addition to the general flood control program, work on the projects authorized separately for the alluvial valley of the Mississippi river and for the Sacramento river, Calif., was continued throughout the year to protect agricultural lands, communities and principal arteries of communication.

Pursuant to authority provided by congress in the Flood Control act of Aug. 18, 1941, and in the act of May 29, 1944 (Pub. Law No. 318, 78th congress), an extensive program of emergency flood control work was undertaken to repair levees and other flood control structures damaged or destroyed by the floods of 1944 in order to restore protection to flood-threatened areas. As the result of major flooding which occurred during the year 1945 on the Ohio, Missouri, Arkansas, Red and Mississippi rivers, as well as on numerous other streams throughout the United States, congress again enacted emergency legislation (Pub. Law No. 75, 79th congress, approved June 5, 1945) to authorize the appropriation of \$12,000,000 for emergency flood control work to repair levees and other flood control structures damaged or destroyed by those floods. The great majority of the damaged structures were constructed by local people or organizations and were of insufficient grade to withstand the crest stages resulting from such large floods. During the flood periods,

FLOODED STREETS in Louisville, Ky. The Ohio river crested at 19.1 ft. above flood level on March 9, 1945, with 900 acres of the city under water



Th  
time  
\$1,20  
at th  
imate  
000,0  
incre  
at th  
  
Exp  
See a  
  
Eye,  
accep  
Thes  
recor  
than  
Rick  
far a  
speci  
teriu  
tainly  
the i  
  
It  
disea  
chom  
can b  
direc  
This  
chara  
Henc  
tion  
possi  
  
Di  
duce  
for r  
perin  
mine  
mydi  
acid  
unre  
  
Di  
hydr  
disso  
neut  
cong  
pine  
  
Q  
Red  
tests  
forc  
whic  
pers  
class  
defe  
cant  
in h  
as a  
to a  
Test  
from  
pyro  
field  
tests  
lant

corps of engineer personnel directed and carried out an effective program of flood fighting and rescue work in the affected areas. (See also DAMS; FORESTS; IRRIGATION; METEOROLOGY; SOIL EROSION AND SOIL CONSERVATION.)

FILMS.—*Work of Rivers* (Encyclopædia Britannica Films Inc.). (R. A. Wr.)

**Florida.** An extreme southeastern state of the United States, called the "Peninsula state" because of its peculiar outline. Its coast line, not taking into account its numerous bays and indentations, is greater than that of any other state, extending 472 mi. along the Atlantic and 674 mi. along the Gulf of Mexico. Area, 58,560 sq.mi., of which 4,298 sq.mi. are water surface; pop. (1940) 1,897,414, of which 1,045,791 were urban and 851,623 were rural; 1,384,365 white and 513,049 Negroes. Only about 60,000 were foreign-born. Capital, Tallahassee (16,240 in 1940). The larger cities are Jacksonville (173,065), Miami (172,172) and Tampa (108,391). By the state census (1945) Florida had a population of 2,249,649. Population figures for the three larger cities, Jacksonville, Miami and Tampa, were 206,442, 192,122 and 124,476 respectively.

**History.**—The state elective administrative officers in 1945, whose terms were to expire in Jan. 1949, were as follows: Millard Caldwell, governor; R. A. Gray, secretary of state; J. Thomas Watson, attorney-general; J. M. Lee, comptroller; J. Edwin Larson, state treasurer; Colin English, superintendent of public instruction; and Nathan Mayo, commissioner of agriculture.

**Education.**—The biennial report of the state superintendent of public instruction, 1942-44, showed enrolment in the public schools for 1943-44 through grade 12 as follows: white 288,071; Negro 101,605; total 389,676. There were 1,766 elementary and 674 secondary public schools in the state, with instructional staffs totalling 13,305 teachers, of whom 9,993 taught in the schools for whites and 3,312 in the schools for Negroes.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—Florida disbursed for pensions, benefits and public welfare \$16,991,752.92 in 1944-45. From grants by the federal government, the state received in 1944-45, for old-age pensions \$7,034,910.55; for dependent children \$985,625.04; and for pensions for the blind \$423,163.80. Disbursements for old-

age assistance were \$14,043,066.48; for dependent children \$1,992,408.65; and for the blind \$846,327.60. The unemployment benefit receipts were \$923,301.56, with benefit disbursements of \$843,833.50.

Florida has no state penitentiary, but maintains a prison farm at Raiford, an Industrial School for Boys at Marianna and an Industrial School for Girls at Ocala. The appropriation for these institutions for 1944-45 carried the sums of \$665,394.82, \$240,943.17 and \$87,587.68, respectively. The state also supports a state hospital for the insane at Chattahoochee, the Florida Farm colony for the feeble minded at Gainesville and the Florida School for the Deaf and Blind at St. Augustine. The total disbursements for charities, correction and hospitals for 1944-45 were \$3,045,283.41.

**Communications.**—The total highway mileage in the state in 1945, exclusive of roads built for military purposes for which no figures were obtainable for publication, was about 13,400 mi., of which approximately 8,000 mi. were paved or hard-surfaced. Disbursements by the state road department for the fiscal year ending June 30, 1945, for maintenance and construction, amounted to \$14,515,305.43, mostly for maintenance. The state road department budget for 1946 for construction was \$29,839,798, plus \$9,160,202 for maintenance and other departmental costs. Florida in 1945 had about 6,000 mi. of railroads.

**Banking and Finance.**—On June 30, 1945, there was a total balance in the treasury of \$35,278,468.49. The state is constitutionally forbidden to incur a debt by borrowing except to put down rebellion or repel invasion. The constitution also prohibits the legislature from levying an income tax, and a constitutional amendment forbids any state ad valorem tax on real estate. Homesteads are constitutionally exempt from taxation by local taxing units up to the value of \$5,000.

On June 30, 1945, there were within the state 56 national banks with deposits amounting to \$1,113,055,000 and 112 state banks and trust companies with deposits of \$430,256,000, representing total deposits of \$1,543,311,000, a gain in deposits of \$206,232,000 in the fiscal year.

TROPICAL HURRICANE lashing the coast of Florida in Sept. 1945. Traveling at a peak velocity of 143 m.p.h., it tore through southern Florida destroying crops, buildings and communications. Damage was estimated at \$50,000,000



**Agriculture.**—In 1940 the U.S. census showed that there were 62,248 farms with a total acreage of 8,337,708 ac., of which 1,751,275 were in crops; 462,248 were idle (fallow); 2,643,065 were in pasture; 1,649,960 were in farm woodland and the rest mainly in fruit.

Principal Agricultural Products of Florida, 1945 and 1944

Crop	1945	1944
Corn, bu. . . . .	6,900,000	7,190,000
Tobacco, lb. . . . .	20,413,000	20,008,000
Potatoes, bu. . . . .	5,285,000	3,445,000
Sugar cane, short tons. . . . .	1,111,000	970,000

The citrus production for the season 1944-45 and the estimates for 1945-46 respectively were as follows: oranges (including tangerines) 46,800,000 boxes and 54,000,000 boxes; grapefruit 22,300,000 boxes and 32,000,000 boxes.

On Jan. 1, 1945, the livestock resources of the state were as follows: 1,026,000 beef cattle; 133,000 milch cows; 609,000 swine; 22,000 sheep; 20,000 horses; and 35,000 mules.

**Manufacturing.**—The more important manufactures of the state in 1945 were lumber and naval stores (turpentine and rosin) and cigars. There was a great expansion of shipbuilding after 1940, much of it in connection with the war effort.

The cigars manufactured in Florida are valued at around \$21,000,000 annually. Tampa and Jacksonville are the leading cities in this industry.

Florida's lumber production, mainly yellow pine and cypress, in 1944 was 473,000,000 board ft. Estimated production for 1945 was 425,000,000 board ft. Tung oil and the production of paper pulp and the manufacture of paper and paper board were also important industries. Much of the wood pulp produced in Florida until well through 1945 went into the war effort.

In 1939, according to the U.S. census figures (1940), the state had 2,083 manufacturing establishments, paying \$37,823,204 to 52,728 workers and producing \$241,238,534 worth of goods.

**Mineral Production.**—Florida had only limited resources in minerals, but had large and rich deposits of phosphates, lime and limestone and less extensive, though highly valuable, deposits of kaolin and fuller's earth. The estimated value of the state's mineral production in 1945 was about \$15,000,000.

(J. M. L.)

**Flour and Flour Milling.** The International Wheat council, comprising representatives of the governments of Argentina, Australia, Canada, United Kingdom and the U.S., held its ninth meeting in London on Aug. 31-Sept. 1, 1945. It recommended, in view of a "gravely unbalanced demand and supply (world basis) situation in wheat, that the constituent governments take all steps necessary to ensure that the maximum amount of wheat is made available for human food, to discourage the use of wheat for feed (animal), and to maintain wartime extraction,"—i.e., 85% by weight of the wheat recovered as foodstuff flour.

**Enrichment of Flour.**—The enrichment of "green dot flour" (flour milled in the United States for foreign relief) was considered, but rejected by army authorities, "although it was regarded by leading nutritionists that flour enrichment was the most economical method of providing essential vitamins, from a transportation point of view. Army officials say that they could not pay the higher price for enriched flour on the basis of the army's responsibility to the American taxpayer."

The program of bread enrichment in the United States continued to meet with public as well as professional approval. A prominent medical journal stated, "The enrichment of flour and bread is considered particularly desirable because these foods are consumed daily by practically everyone."

In many states legislation was being drafted making enrichment of bread mandatory. Kansas State college stated that 75%

of the flour milled in the United States was enriched by the addition of the required quantities of thiamin, riboflavin, niacin and iron, even though in most cases this enrichment was not required by law.

**Legislation.**—A new flour packaging requirement that flour be packed and sold in uniform packaged weights of 100, 50, 25, 10 and 5 lb. became a law in the following 30 states in 1945: Alabama, California, Colorado, Florida, Georgia, Idaho, Illinois, Indiana, Kansas, Massachusetts, Michigan, Maine, Missouri, Nevada, New Hampshire, New Mexico, New Jersey, New York, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Utah, Washington, West Virginia and Wisconsin, which, together with the states of Kentucky, Nebraska and Texas passing the law in 1944, brought to a total of 33 the number of states enacting uniform package weight legislation.

**Economic Factors.**—The flour subsidy program (in the United States) would be—according to the office of the secretary of agriculture—the last of the supporting food subsidies to be abandoned. It was probable that the subsidy would be continued until June 30, 1946, when action by congress would be required to further extend this subsidy.

The bureau of agricultural economics of the United States department of agriculture in its survey of the problem of wheat surpluses, stated that, "Conditions in the United States are conducive to maintaining wheat acreage at current levels for 1946-47." Wheat disappearance for 1945-46 was estimated at 530,000,000 bu. for civil and military needs; for seed, 82,000,000 bu.; for alcohol, about 50,000,000 bu.; and about 120,000,000 bu. for feed on farms where grown. Total exports and purchases for feed were estimated at 360,000,000 bu. A carry-over of about 300,000,000 bu. was estimated for 1946.

The purchase of flour for military needs continued to be a significant factor in the flour market. According to Brig. Gen. J. E. Barzynski of the Chicago Quartermaster depot, the procurement divisions of the Chicago and California depots purchased 31,921,206 cwt. of hard and soft wheat flours for domestic and overseas uses between Jan. 1944 and March 1945. With regard to continued military requirements, it appeared that "army requirements will be met without interfering with an ample supply to provide for all civilian needs."

Average U.S. Retail Prices of Flour and Flour Products, Aug. 14, 1945

(Compiled by U.S. Bureau of Labor Statistics)

	Aug. 14 1945	July 17 1945	Aug. 15 1944	July 18 1944	Annual Averages * 1944 1943 1942
Flour, wheat . . . . .	6.4	6.4	6.5	6.5	6.5 6.1 5.2
Bread, white . . . . .	8.8	8.8	8.8	8.8	8.8 8.9 8.7
Bread, whole wheat . . . . .	9.7	9.7	9.6	9.7	9.7 9.8 9.5
Bread, rye . . . . .	9.9	9.9	9.9	9.9	9.9 10.0 9.7
Soda crackers . . . . .	18.9	18.9	19.0	18.9	18.9 18.0 16.4

\*Based on data from 51 U.S. cities prior to Feb. 16, 1945

Loans to farmers on wheat for milling purposes continued on an extensive scale. The Commodity Credit corporation, as of April 14, 1945, completed 136,165 loans on 183,231,850 bu. of wheat in the amount of \$251,982,723, for an average of \$1.375 per bushel. Loans were made on 48,000,000 bu. of wheat stored on farms, and 135,000,000 bu. stored in elevators and warehouses.

**Milling.**—The estimated capacity of the milling industry in the United States as of 1945 was, according to Herman Fakler, vice-president of the Millers National federation, approximately 300,000,000 cwt. per annum, including granular flour. Movement by rail of this quantity of flour would require 565,000 box cars, including about 165,000 cars required to handle the by-product mill feeds.

The problem of over-capacity in the milling industry was apparently being solved satisfactorily in the United States by



normal population increases. The disparity which existed prior to World War II between the ability of the industry to produce and the consuming demand has apparently been largely met by (1) abnormal wartime demands for flour and (2) a population increase of about 8,000,000 during the five years prior to July 1, 1945.

During World War II the production of granular flour for the manufacture of alcohol absorbed large quantities of wheat. At the peak of production 45 different mills were producing flour of this type, amounting to a total of 18,680,727 cwt. for the crop year 1944-45. During the later months of 1945 the milling of granular flour decreased sharply and, it was thought, might drop to about 5% of peak production—an amount which could easily be produced by a few mills.

Flour quality, as obtained from the milling of southwestern wheat of the 1945 crop, appeared to compare closely with the product of the 1944 crop obtained from the same area. Members of the American Association of Cereal Chemists, reporting on early shipments of wheat from Oklahoma and Kansas, observed from preliminary studies that test-weight (weight per bushel of wheat) tended to run high, but protein content slightly lower. The wheat milled well, producing flour of ash content and gluten quality comparable to 1944. In general, weather conditions in the central, western and southwestern sections of the United States were favourable to wheat growth during 1945.

In view of a substantial carryover of wheat from the previous year, and, since the spring wheat crop—estimated at 315,301,000 bu.—was the greatest crop in 17 years, it appeared that ample grain for flour milling would be available in the United States for 1945-46. (See also BREAD AND BAKERY PRODUCTS.)

**BIBLIOGRAPHY.**—*Southwestern Miller; Baker & Confectioner's Journal; Northwestern Miller; Bakers Weekly; Bakers Helper.*  
**FILMS.**—*Bread; Principles of Baking* (Encyclopædia Britannica Films Inc.). (H. E. BA.)

**Fluorspar.** The demand for steel during World War II led to increased requirements, in the United States in 1945, for fluorspar which were made even larger by other war uses. Hydrofluoric acid and its derivatives are used in the making of artificial cryolite, insecticides (DDT and aerosol bombs), refrigerating liquid (freon), and high octane gasoline. The important place which these products gained in the war program was expected to carry over to peacetime, and to lead to a continued high demand for fluorspar. The development of the industry during the war years is outlined in the table.

*Data of Fluorspar Industry in the U.S., 1940-44*  
(In thousands of short tons)

	1940	1941	1942	1943	1944
Shipments . . . . .	233.6	320.7	360.3	406.0	413.8
Imports . . . . .	11.9	7.5	2.2	43.8	87.2
Consumption . . . . .	218.5	303.6	360.8	388.9	410.2
Iron and steel . . . . .	160.1	214.7	250.4	241.4	238.0
Acid . . . . .	35.7	56.0	81.6	113.6	129.6

The production rate at the end of 1944 was well below the average for the year, and continued to decline in 1945. Shipments in the first ten months of 1945 totalled 286,787 tons, and consumption 309,256 tons. Imports remained high, the total for the first three quarters being almost as large as the total for the full year 1944.

Production figures for other countries for 1944 (and 1943) were limited to the following, in short tons: Canada 6,924 (11,210), France 14,137 (27,388), Mexico, exports, 62,225 (24,768), Newfoundland 65,308 (74,137), Spain 56,242 (39,585). (G. A. Ro.)

**Food and Drug Administration:** see DRUGS AND DRUG TRAFFIC; FEDERAL SECURITY AGENCY.

**Food Research.** In food research, as in other branches of science, interest in 1945 was keen to appraise wartime achievements for the purposes of peace. Principles discovered were expected to have permanent value, even if many of the applications had to be changed. For example, military demands for dehydrated products brought forth in the United States a forty-fold increase in the dehydration of vegetables and fruits. Processors started many new dehydration plants and expanded old facilities. They turned out, in 1945, dehydrated products much superior to those available before World War II; but only the future could tell if these products could compete successfully with fresh, canned and frozen vegetables and fruits.

In some respects World War II retarded progress in the commercial application of food-research findings—for example, the commercial development of quick freezing, which ran into shortages of equipment and manpower. Nevertheless, the research itself continued to advance. For example, the Pennsylvania Agricultural Experiment station developed a process for making a new frozen concentrated milk. Velva fruit, a frozen dessert, was another promising new product of research in food freezing; it utilized tree-ripened fruit, much of which was too soft for shipment. Gathered along with other fruit, and preserved by freezing until it can be processed, the ripe fruit is thawed, made into a puree, and refrozen, in which form it retains the original flavour, colour and nutritive value. Food-freezing research far outstripped commercial development facilities. Yet an increasing amount of food was being preserved by freezing.

Study of the vitamin A content of butter showed that milk and butter produced in the summer, when most cows are on pasture or other green roughages, are much richer in Vitamin A than milk and butter produced in the winter. The difference results largely from the difference in the carotene content of the summer and winter feeds. It was, however, prohibitively expensive for farmers to include enough high carotene feeds in the winter rations. Research workers were consequently trying to develop methods of harvesting, handling and storing summer feeds without loss of their carotene content. Other dairy studies showed that under certain conditions milk production per cow could be increased as much as 10% and butterfat production from 15% to 25%, or more, by administering synthetic thyroprotein to dairy cows. Feeding experiments with synthetic urea indicated a means of furnishing additional protein for milk production. Though urea contains no protein itself, it contains nitrogen, which the cow can combine with other feed constituents, to make protein in her body.

The Wisconsin station demonstrated the presence of cobalt deficiency in dairy cattle in the northeastern part of the state. Afflicted animals showed poor appetites, reduced milk production and lowered haemoglobin levels in the blood. Feeding cobalt sulphate at the rate of 1 oz. to 100 lb. of common salt gave spectacular results on the affected farms; the haemoglobin rose slowly, appetite and milk production were restored, and a generally bettered physiology resulted. Although polycythaemia can be produced in rats by too much cobalt, 50 mg. of this mineral per day—20 times the amount used in practice—did not induce this excessive production of red corpuscles in the blood of heifers. Similar findings had been reported earlier by the Michigan station as applying to various areas in that state.

A discovery important to farmers and fishermen was announced by Pennsylvania State college; it is a method for converting waste liquor from sulphite process paper mills into a valuable soil improver. Waste liquor poured into streams causes serious stream-pollution. It contains annually about 1,500,000 tons of lignin, a major constituent of the wood used in manufacturing paper. Added to soils, the lignin forms humus through precipitation by chemical and biological processes. This material, with certain harmful constituents removed, results (in freshly plowed ground) in the formation of water-stable granules or clods which render the soil more permeable to air and water, and consequently more suitable for crops.

Food research extends to the growing of food plants and livestock, as well as to the processing and distribution of food products. Soil differences affect plant and animal nutrition, and therefore indirectly affect human nutrition. Modern discoveries in nutrition emphasize the impor-

tance of mineral and other dietary essentials, which can vary widely in food crops according to their source. In many areas animals and human beings suffer from nutritional ills because the soils, and consequently the crops and livestock grown thereon, lack certain nutrients. Experiments and tests have indicated soil deficiencies in manganese, cobalt, copper, phosphorus and other minerals that play a part in nutrition. Genetic and climatic factors influence the food value of foods—for example, the vitamin content of tomatoes. Studies at Ithaca, N.Y., showed that the vitamin C content of tomatoes may vary as much as 60% according to the amount of sunshine they receive just prior to harvesting.

Reports by the United States department of agriculture in 1945 emphasized this and related aspects of food research. Investigations with regard to fertilizers included attention to nutritional results. So did studies of the effect of growing and harvesting methods on the quality of fruits and vegetables, and on their suitability for handling, preservation and transportation. Plant and animal breeding experiments sought to develop quality, palatability, vitamin content and other nutrition factors, as well as size, rate of growth and disease resistance. Food research influences the volume of production in many ways. One instance reported in 1945 was a new method of using preharvest hormone sprays to prevent the dropping of apples and pears. Adding carbowax (a polyethylene glycol) to naphthaleneacetic acid considerably increased the efficacy of the hormone in preventing preharvest fruit drop, and lengthened the duration of the effect.

Hydroponics or tank agriculture made progress, partly through experiments under United Nations military direction. The largest hydroponics installation was in 1945 on Ascension Island, an airway station in the South Atlantic. This British possession, called "The Rock," has no soil and no rain but plenty of cinders and ash. In 1945, it was providing more than 1,000 men with fresh vegetables every day from beds that occupied less than one acre of space. Cinders mixed with asphalt furnished material for making water-tight tanks seven inches deep. Partially shaded, filled with cinders, and saturated every second day with distilled sea water containing nitrates, potash, phosphorus, calcium and magnesium, these improvised growing beds produced excellent tomatoes, lettuce, radishes, cucumbers and peppers. Such vegetables cannot be grown successfully in the tropics by the usual methods. U.S. and British military forces cooperated in this experiment with the help of technicians who had developed hydroponics gardens in Florida and elsewhere. Other hydroponics gardens were being started on coral islands in the Pacific. Where soil is lacking or not free from dangerous contamination, hydroponics can be an efficient and safe method of supplying fresh foods.

Studies in the economics of nutrition yielded data of practical value, particularly in connection with malnutrition among low income groups. In the war years the nutrition of the lower income groups improved in the United States, in Great Britain, and in some of the other United Nations, in spite of difficulties occasioned by shortages of manpower, shipping and other necessities. But this improved average level of nutrition must be maintained. Needless to say, moreover, food consumption was not yet entirely sufficient even in the best-nourished countries. Over most of the world it was not nearly adequate, usually from sheer lack of production rather than from inequalities in distribution. But in the technically advanced countries the main trouble was on the demand side. Too many people could not afford good nutrition.

In 1941, according to figures published for the United States, urban families whose incomes per capita amounted to less than \$260 a year had to spend more than half their incomes for food. This is a very excessive proportion; it leaves far too little money for other essentials. The bureau of human nutrition and home economics said that in 1941 it would have cost about \$170 per person on the average to provide a low-cost minimum adequate diet for the low-income urban groups. In the entire urban population of the United States some 5,400,000 households or about one-fifth of the urban total could not have spent \$170 per person per year for food without allocating for that purpose more than 40% of their per capita incomes. Even 40% of the per capita income is excessive for food. Farm families spend less money for food than urban families, but they supplement their purchased food with home-produced food. Programs for improving the nutrition of low-income farm families emphasize the equal need of more production on the farm for use in the farm home and more cash income to buy necessary foods. Few farm families can produce all the foods they need.

Lower distribution costs could help to solve nutrition problems. After studying marketing margins and costs in the baking industry, the U.S. department of agriculture recommended some economy steps. The recommendations included prohibition of stale bread returns, an end to the practice of furnishing bread racks to retailers, and reductions in deliveries, in calls paid by bakery salesmen and in packaging costs. Distribution costs more for bakery products than for most other manufactured food products. Chiefly recommended as a remedy was elimination of highly competitive selling practices which entail avoidable costs. Profitable originally when used by only a few firms, these practices through general adoption had become burdensome. (See also DIETETICS.) (A. P. Cw.)

**Football.** One of the finest teams college football has produced, boasting the most devastating pair of backs of modern times in the U.S., dominated the gridiron in 1945, the fourth and final season of the war.

The team was Army. The backs were Felix (Doc) Blanchard and Glenn Davis. Blanchard, the fullback, was voted the Heisman trophy as the outstanding player of the year. Halfback Davis placed second in the balloting.

The West Point cadets, coached by Colonel Earl Blaik, finished the season with a perfect record, as they did in 1944,

extending their two-year string of victories to 18. This marked the first time Army ever went through two successive seasons without a setback.

In their final game, the cadets defeated their chief rival, Navy, by the score of 32-13. They scored 20 points in the opening period and then ran into their stiffest opposition of the year as Navy more than held its own for the remaining three quarters. The midshipmen from Annapolis were unbeaten up to this contest, though tied by Notre Dame.

A crowd of 100,000 filled the Philadelphia Municipal stadium for the game, which marked the return of the service classic there for the first time since their 1941 meeting a week before the attack on Pearl Harbor. President Truman and his family were in the vast assemblage. The cadets massacred Notre Dame, Pennsylvania, Duke and all other opponents, except Michigan, which made the best fight next to Navy in holding the West Point eleven to 28-7.

Navy, which defeated Pennsylvania, Duke, Michigan and Georgia Tech, among others, was generally ranked the second best team in the U.S., but in the final nation-wide poll of the Associated Press Alabama squeezed ahead of the midshipmen by 942 points to 941. Alabama went through with a perfect record, though it did not have too strong a schedule. Indiana was ranked fourth and then followed Oklahoma A. & M., Michigan, St. Mary's of California, Pennsylvania, Notre Dame and Texas.

Indiana, under Alvin (Bo) McMillin, won the Western Conference championship for the first time in the 46 years it has been a contender and went through unbeaten for the first time in history, though tied by Northwestern. Michigan finished second in the conference. McMillin was voted the coach of the year. Colonel Blaik was second in the balloting and Lou Little of Columbia was third.

Alabama won the Southeastern conference crown, paced by its great passer, Harry Gilmer. Duke took the honours again in the Southern conference. In the East, Pennsylvania, which lost only to Army and Navy, was ranked the best team after the service elevens and retained the honours in the ivy group. This group, which has no official champion, adopted an agreement, effective in 1946, barring athletic scholarships and imposing other restrictions to make their football the purest of the pure. Yale, defeating Princeton and Harvard, took the unofficial laurels in the Big Three. Columbia had its best season in years, losing only to Pennsylvania.

Missouri won the Big Six crown. Texas finished at the top in the Southwestern conference, Southern California in the Pacific Coast conference and Denver in the Big Seven.

Southern California got the bid to the Rose Bowl for the third year in a row and Alabama was chosen as its opponent in the game on New Year's day at Pasadena. Alabama was the winner of the classic by the score of 34-14, marking the first time the Trojans have ever been beaten at Pasadena.

Oklahoma A. & M., led by Bob Fenimore, defeated all opponents and was picked with St. Mary's to play in the Sugar Bowl at New Orleans. St. Mary's, which had one of the year's outstanding backs in Herman Wedemeyer, vanquished all opponents on its schedule until it was upset by U.C.L.A. in its final game of the season. The Sugar Bowl contest resulted in a 33-13 victory for Oklahoma A. & M.

Texas and Missouri met in the Cotton Bowl at Dallas. The game was won by Texas, 40-27.

For the Orange Bowl at Miami, the selections were Holy Cross and Miami university of Florida. Holy Cross, with one of the game's best backs in Stanley Koslowski, won from all opponents during the season except Temple. In the Orange Bowl the team from Worcester, Mass., lost to Miami, 13-6.

The 1945 season was marked by the return of numerous

war veterans to the campus to reinforce squads that had been made up in good part of freshmen and other inexperienced players. Many of these servicemen did not become eligible until the second half of the season began in November. At that time, also, there were shifts of navy personnel, with the result that some teams were weakened and others strengthened.

Among the returning war veterans who distinguished themselves on the football field were Pete Pihos of Indiana, Bob Evans of Pennsylvania, Meryll Frost of Dartmouth, Len Will of Columbia, Frank Barzilauskas of Yale and Dick Fisher of Ohio State. Frost, who spent 18 months in the hospital having plastic surgery done on his face after crashing in a flaming bomber in Italy, was the shining light of the Dartmouth team, whose coach, DeOrmond (Tuss) McLaughry, came back after serving as a major in the marine corps.

Numerous other coaches returned from the service in 1945. They included Dick Harlow of Harvard, Bernie Bierman of Minnesota and Wallace Wade of Duke, who served in an advisory capacity to Eddie Cameron. Bierman, one of the most successful coaches in the U.S. for years, found wartime football a different matter and Minnesota lost its last five games.

The coaches who had been away from the game for two or more years found upon their return that the T formation had supplanted the single wing and the Notre Dame box in popular favour. Among the teams who used the straight T, with its quick-opening plays, flankers, man-in-motion and man-to-man blocking, were Army, Navy, Notre Dame, Cornell and Yale. Many teams used a variation of the T, such as the wing-T or an unbalanced-line T, in conjunction with the single wing in most cases. These included Indiana, Columbia, Michigan, Ohio State, Colgate and Princeton.

The changes in the rules did not materially affect the style of football. The most important changes permitted forward passing from anywhere behind the line of scrimmage, as in professional football, and eliminated the out-of-bounds kick-off. Coaches were hard put to work out defenses against the T, and near the end of the season there was a trend to the use of the seven-man line with a diamond secondary, the defense for which Gilmour Dobie was harshly criticized a decade before as being behind the times. The six-man line was most widely in use and the five-man line was much in evidence.

The 1945 season saw most of the colleges that had dropped football resume full-scale varsity competition. They included Princeton, Vanderbilt, Baylor, Detroit, Oregon, Oregon State and Washington State. Harvard, starting informally, added Yale to its schedule after a two-year lapse of this ancient classic. Colleges that continued to remain out of the picture were Stanford, Fordham, Georgetown, Duquesne, Manhattan and Santa Clara.

Blanchard and Davis of Army topped all other players in national celebrity. Other backs who were named on most All-America teams were Wedemeyer of St. Mary's, Gilmer of Alabama and Fenimore of Oklahoma A. & M. Frank Dancewicz of Notre Dame, Pihos of Indiana, Koslowski of Holy Cross, George Taliaferro of Indiana, Clyde Scott of Navy, Ollie Cline of Ohio State, George Clark of Duke and Evans of Pennsylvania also were honoured.

The outstanding linemen were DeWitt Coulter, tackle, and John Green, guard, of Army; Warren Amling, Ohio State guard; Dick Duden, Navy end; Vaughn Mancha, Alabama centre; and George Savitsky, Pennsylvania tackle. Al Nemetz, Army tackle; Hubert Bechtol of Texas and Henry Foldberg of Army, ends, and Dick Scott, Navy centre were picked on some teams. Others honoured were Robert Ravensberg of Indiana, Max Morris of Northwestern and Bob Skoglund of Notre Dame, ends; Tom Hughes of Purdue, Tom Dean of Southern Metho-

dist and Jim Kekeris of Missouri, tackles, and John Mastrangelo of Notre Dame, Jim Carrington of Navy, Joe Dickerson of Penn and Jim Lecture of Northwestern, guards.

It was a big year for football at the box office. For the first time within memory, two games attracted 100,000 or more spectators each on the same day. At Los Angeles, 103,000 saw Southern California defeat U.C.L.A. while Army and Navy were playing before 100,000 at Philadelphia.

Attendance was generally up 35% over 1944. All-time records were broken in the Western and Southern conferences and for the biggest crowd in all Dixie for a regular season game. Michigan and Ohio State played to 85,000 fans at Ann Arbor, Army and Notre Dame to 75,000 in New York, and Navy and Notre Dame to 82,000 in Cleveland. Notre Dame, Michigan and Ohio State each drew more than 500,000 people, and Pennsylvania set a record at Franklin Field with 477,000. The Western conference drew 1,983,683 spectators, 172,303 more than the previous high mark of 1941.

**Professional Football.**—Professional football, too, had a highly prosperous year, even though the quality of the football was markedly below normal standard, as in college football. The New York Giants, badly weakened by losses of manpower to the armed forces, were eliminated early from the race for the championship but, nevertheless, had their best season at the box office. The Washington Redskins played to a sell-out crowd regularly at home. The play-off for the championship between the Redskins and the Cleveland Rams at Cleveland in freezing weather set a record with its gross of \$164,542.

The Rams, under a new head coach in Adam Walsh, centre on the famous Four Horsemen team of Notre Dame, were the surprise eleven of the National Football League. The Rams, with the prize newcomer of the year in Bob Waterfield, displaced the Green Bay Packers as the top team in the Western division while the Chicago Bears, formerly the scourge of the professional circuit, were badly weakened in the line and never were in the running.

In the East, the Washington Redskins came out on top, although the Philadelphia Eagles were rated the strongest in their division, if not in the entire circuit. The Giants killed off the Eagles' chances of winning sectional honours by overcoming their 21-0 lead to win by 28-21 on the passes of the ancient Arnold Herber. The following week the Redskins clinched the Eastern honours by clearly outplaying the Giants to win by 17-0 and did not have to rely on the passes of the renowned Sammy Baugh. In the play-off for the championship between the Redskins and the Rams, the Rams won by 15-14, to succeed the Green Bay Packers, as the new kings of the league.

In the final standing, the order of finish in the Eastern division was Washington, Philadelphia, New York, Boston and Pittsburgh; in the Western division, Cleveland, Detroit, Green Bay, Chicago Bears and Chicago Cardinals. Steve Van Buren of the Eagles set a league record in scoring 18 touchdowns and was high scorer for the year.

The Brooklyn team lost its grounds at Ebbets Field and merged for 1945 with the Boston Yanks. Before the end of the season a sensation was created when Dan Topping, owner of the Brooklyn club, joined forces with the new All-America conference, which was to begin operations in 1946. Topping, part owner of the New York Yankees Baseball club, negotiated with the New York Football Giants for a division of dates in New York, planning to put a team in the Yankee stadium in the National league.

When he was unable to make a satisfactory deal with the New York Football Giants, Topping jumped the National league and went over to the new All-America conference. His team was called the New York Professional Football Yankees, and the conference, established in New York at the stadium, loomed as a real challenge to the National Football league for public patronage. A football war between the two leagues, similar to the baseball wars of old, seemed to be in prospect.

**Canada.**—Football in the dominion was back almost on a prewar basis and the East-West playoff for the Grey cup was resumed after a year's lapse. The Big Four, the Intercollegiate, the Western Canada and the Ontario Rugby Football unions all were operating again, though the last two played shortened schedules.

The Toronto Argonauts won the Grey cup, emblematic of the dominion championship, by defeating the Winnipeg Blue Bombers in the play-off, 35-0. Ted Morris, former brilliant back on the team, was the new coach of the Argonauts and developed one of the strongest clubs Toronto has known. Behind a powerful, experienced line Argo had a set of fleet young backs, led by Joe Krol.


Krol signed with the Detroit Lions of the National Football league at the start of the season. His return to Canada and appearance in the Argonauts' lineup stirred up a heated controversy over the question of eligibility. He was finally declared eligible after a member of the Big Four executive committee had resigned.

The Argonauts earned the right to represent the East in the Grey cup play-off by defeating Balmy Beach, champions of the Ontario union. The University of Western Ontario, intercollegiate champion, declined to take part in postseason games.

Their victory over the Bombers gave the Argonauts their fourth Canadian championship in 13 years. The game was played in snow-flecked Varsity stadium in Toronto before 19,000 spectators. The passing of Krol and the running of Billy Myers, Royal Copeland, Fred Doty and Doug Smythe yielded six touchdowns, four conversions and a single. On the final play of the game Myers ran 70 yards for a touchdown.

(A. D.A.)  
Great Britain.—Wales was again outstanding in the Rugby union game





SGT. CHARLES TRIPPI of Georgia university, captain of the Collegiate All-Stars, has the ball in this play during the 12th annual all-star game. The Green Bay Packers, National Football league professional champions won the game at Chicago on Aug. 30, 1945, with a score of 19 to 7

in Great Britain in 1945, for it beat England twice, at Swansea and at Gloucester, and in each case fairly easily. England and Scotland had two very good games, and honours were easy. There was one superb game in the services competition—that between the army and the R.A.F. at Coventry. The army won by 18 points to 15. France surprisingly beat the army in Paris by 21 points to 9. But when the Frenchmen came to Richmond in April they were quite outplayed by a British empire side. Cambridge won both university matches, and the sevens competition was won by Nottingham, thanks to a brilliant display by Jack Heaton, the former Lancashire and England player. It was expected that the Twickenham ground would be reopened for the first time for the England and New Zealand match on Nov. 24. The best Rugby league sides were Bradford Northern and Halifax, and England beat Wales at Wigan.

In Association football England completed a splendid record for wartime football, its 29 matches against Scotland and Wales resulting in 19 victories and only 5 defeats. The last season opened with a grim struggle at Liverpool where England and Wales drew (2-2), and closed with rather a lucky draw for England against France at Wembley (2-2). The Frenchmen played excellent orthodox football, all in the best traditional English style. S. Matthews was as good as ever, and so was T. Lawton. The "find" of the year was Swift (Manchester City), who looked like becoming a great goalkeeper. Bolton Wanderers beat Chelsea in the cup winners' match at Stamford Bridge; Rangers beat Motherwell for the Scottish southern league cup, and Linfield beat Glentworth (4-2) for the Irish cup.

Great interest was aroused in the sporting world generally when a Russian Association football side paid a short visit to Great Britain in November. They were the Dynamos, the champion club of Moscow. They played four games—against Chelsea, the Arsenal, Cardiff City and Glasgow Rangers. Two they won and two they drew. Their football was quick, clever and clean, and the positioning and passing were in the best traditions of English Association football. In the first peacetime university matches Oxford and Cambridge drew the Association match and on Dec. 12 at Twickenham Cambridge won the inter-university Rugby match by one goal and two tries (11 points) against Oxford's one goal and one penalty goal (8 points).

(D. R. G.)

**Foreign Economic Administration.** The Foreign Economic Administration was created by executive order 9380 issued September 25, 1943, and represented a merger of several agencies whose functions pertained to international economic activities. The constituent agencies merged were: Office of Economic Warfare, Office of Lend-Lease Administration, parts of the Office of Foreign Relief and Rehabilitation Operations, and that part of the Office of Foreign Economic Coordination of the department of state that dealt with foreign economic operations. In addition, the functions of the War Food administration and the Commodity Credit corporation with respect to the procurement of food in foreign countries were transferred to the Foreign Economic Administration by executive order 9385 of

Oct. 6, 1943. The Office of Economic Warfare included certain corporations which were transferred to the office July 15, 1943: U.S. Commercial company was to engage in the acquisition, sale or carrying of strategic materials, principally to compete with enemy countries with respect to goods which might be of use to the enemy, and to engage in programs to rid the western hemisphere of axis and axis-influenced interests in the communications and related fields. After its integration in FEA, the company performed many of the FEA commercial operations, such as its regular foreign procurement program, and procurement abroad for the needs of liberated areas.

The Rubber Development corporation was authorized to perform all activities relating to the development of foreign rubber sources and the procurement of rubber in foreign countries.

The Petroleum Reserves corporation engaged in buying or otherwise acquiring reserves of crude petroleum from sources outside the U.S.

The Export-Import Bank of Washington aided in financing and facilitating exports, imports and exchanges of commodities between the U.S. and any of its territories or insular possessions and any foreign country and its agencies or nationals. In 1940 the bank was further granted authority to make loans to assist in the development of resources, stabilization of economies and orderly marketing of products of the countries of the western hemisphere.

By executive order 9630 of Sept. 27, 1945, the Foreign Economic Administration was terminated and its functions transferred to other agencies. Transferred to the department of state were all functions of the Administration and its agencies with respect to lend-lease; participation by the U.S. in the United Nations Relief and Rehabilitation Administration; activities in liberated areas concerned with supplying the requirements of these areas and procuring materials in these areas; the gathering, analysis, and reporting of economic and commercial information abroad; and the planning of measures for the control of occupied territories.

There were transferred to the Reconstruction Finance Corporation the Rubber Development corporation, the Petroleum Reserves corporation and the U.S. Commercial company, their functions, capital stock, assets and liabilities; and the functions

of the administration with respect to the procurement of commodities abroad, exclusive of such functions transferred to the department of agriculture.

Transferred to the department of commerce were all the functions of the administration and its agencies with respect to: export control; the Technical Industrial Intelligence committee; the facilitation of trade, including functions affecting foreign trade and domestic commerce and the functions of the Clearing Office for Foreign Transactions and Reports; and the final liquidation of the administration and those functions not otherwise transferred.

The functions of the Office of Foreign Food Programs and all other functions of the administration with respect to food, food machinery and other food facilities were transferred to the department of agriculture.

Liquidation of the lend-lease program at the end of the year was in the hands of the liquidation commissioner in the state department. The export-import functions and trade promotion activities of the Foreign Economic administration were performed in the newly created Office of International Trade in the department of commerce.

The functions of the Foreign Economic administration performed during the war may be described as follows:

(1) The administration of the Lend-Lease act, which included arranging for the procurement, purchase, and transmission of supplies, services and information to countries eligible for lend-lease aid and arranging for the receipt by the U.S. of reverse lend-lease aid from these countries. This was the major task of the administration, for lend-lease aid amounted to more than \$42,000,000,000 by July 1, 1945, and reverse lend-lease totalled approximately \$6,000,000,000.

(2) The procurement and development of vital materials abroad. This involved the location of strategic commodities needed in the war effort, development operations to increase their production and arranging for storage and transport. In the case of certain commodities such as quinine and manila fibre, it was necessary to find entirely new sources of supply to replace those lost to the enemy; in the case of other commodities, such as copper, although domestic production was great, war needs were greater, and it was found necessary to import almost one-third of U.S. requirements.

(3) Control, for war purposes, through export licensing and other similar methods, of the exports of all commodities from the U.S. Through these controls, supplies from the U.S. were prevented from reaching the enemy; what were needed for the U.S.'s own war effort and civilian requirements were conserved at home; and commercial exports were channelled to the fighting Allies and to other friendly nations producing supplies for U.S. war production.

(4) Assembly and analysis of information relating to the enemy war economy and to economic conditions within neutral countries for purposes of economic warfare, such as black lists, blockade measures, and preclusive buying, and to assist the military in strategic bombing and planning. The black list, officially known as the Proclaimed List of Certain Blocked Nationals, was a list of persons and firms, principally in neutral countries, found to be co-operating with the enemy. No export licences were issued to anyone on this list.

(5) The preclusive purchasing abroad of commodities which were of importance to the enemy for military or civilian needs and which otherwise might have fallen into their hands. These purchases supplemented the War Trade Agreements program, whereby, in return for permission to obtain through the Allied blockade essential supplies carefully limited to the needs of their own people, the neutrals were pledged to prohibit re-export to Germany of any of these supplies, or commodities similar



"END OF THE LINE." Aug. 21, 1945, marked an abrupt end to the flow of foodstuffs and other lend-lease materials from the U.S. Hal Coffman of the Ft. Worth Star-Telegram noted the troubled reaction of Allied nations who faced a hungry winter.

in nature, and to prohibit or reduce their exports to Germany of critical materials which they produced. Preclusive buying operations were conducted jointly with the British in Spain, Portugal and Turkey. The most important commodities in the preclusive program were the ferroalloys, tungsten and chrome and ball bearings.

(6) The provision of aid for relief operations in liberated areas. In 1944 and 1945 FEA was given the responsibility for the procurement of goods in the U.S. for the army's civilian relief program and for the United Nations Relief and Rehabilitation administration. In addition, FEA assisted the "paying governments" to obtain supplies in the U.S.

For a time, FEA was responsible for the disposal of goods declared surplus overseas, but that function was later performed in the office of the liquidation commissioner, department of state.

The FEA, through the USCC, undertook new activities in 1945 in connection with the facilitation of trade with liberated areas. For instance, importers who had difficulty in re-establishing contacts in western European countries could call upon the USCC to help them. A subsidiary corporation to USCC was formed to expedite shipments of copra from the Philippines. This organization was known as the Copra Export Management company and was composed of representatives of corporations which had formerly been engaged in the copra trade in the Philippine Islands.

The FEA was composed of two major bureaus—the Bureau of Areas and the Bureau of Supplies—together with a number of staff officers and the subsidiary corporations. The Bureau of Areas functioned on a country or area basis. It was responsible for FEA policies and programs relating to particular countries, and represented the agency in its relationships with those coun-

tries. It dealt with the state department with respect to clearing all programs in the light of the U.S. foreign policy; and it dealt directly with the representatives of foreign governments and supervised the foreign missions of the FEA.

The Bureau of Supplies was responsible for the execution of foreign economic programs on a commodity basis. Within the framework of the country or area policies, it regulated the flow of exports, both lend-lease and commercial, and executed foreign procurement and development operations. It was responsible for all related service functions such as warehousing, transportation and shipping, and represented the FEA on intra- and inter-governmental agencies engaged in the allocation of U.S. and world commodity resources. (R. W. T.)

**Foreign Exchange:** see EXCHANGE CONTROL AND EXCHANGE RATES.

## Foreign Investments in the United States.

Foreign investments in the United States were estimated at \$13,350,000,000 on April 30, 1945, an increase of roughly \$1,000,000,000 during the previous 12-month period. The major portion of the rise reflected a sharp increase in security prices although there were net foreign purchases of almost \$120,000,000 of U.S. securities, and publicly reported foreign short-term balances increased by \$77,000,000. The number of enterprises (direct investments) established or purchased by foreigners was smaller than in previous years and appeared to be limited to oil production and brewing.

As indicated in the accompanying table, the value of foreign investments in the U.S. had risen by about 35% from Aug.

Approximate Value of Foreign Investments in the United States,  
1939, 1941, 1945  
(In millions of dollars)

Type	Aug. 31, 1939	Dec. 31, 1941	April 30, 1945
Long term:			
Stocks and bonds*	3,450	2,650	3,950
Direct	2,200	2,150	2,300
Miscellaneous	650	650	600
Total long term	6,300	5,450	6,850
Short term	3,150	3,700	6,500†
Grand total	9,450	9,150	13,350†

The above long-term estimates would probably be raised considerably when the treasury department released the details of its survey of foreign property in the United States in 1941.

\*Includes estimated holdings of \$100,000,000 of United States, national, state and municipal securities.

†Includes an arbitrary estimate of \$500,000,000 of foreign holdings of U.S. currency in 1944. No attempt was made to estimate currency holdings for other years.

Sources: Long-term data from International Payments Unit, Bureau of Foreign and Domestic Commerce, United States Department of Commerce. Short-term data from the Federal Reserve Bulletin of various dates, as adjusted by the Department of Commerce.

1939 to 1945, last war year, after having declined by \$300,000,000 between the beginning of the war and the attack on Pearl Harbor. The decline in the early period was mainly the result of the sale of investments by the British and a weakening of security prices in general, offset in part by an increase in foreign banking balances. Between the time the U.S. became a belligerent and April 1945, security prices advanced rapidly, foreigners purchased \$175,000,000 of U.S. securities, and foreign balances increased by roughly \$2,300,000,000. The increase in the latter reflected, on the one hand, the large volume of U.S. wartime purchases of goods and services from foreigners and, on the other hand, the inability of foreigners to purchase commodities in the U.S. and to transport them overseas in the quantities that might otherwise have been expected. The increase in the value of long-term investments occurred in spite of the seizure by the United States government of perhaps \$200,000,000 of former axis properties. In addition to the investments noted in the table, foreign gold under earmark in the U.S. for official foreign account amounted to \$1,135,000,000, \$2,215,000,000 and \$4,133,000,000, respectively, on the dates noted for

1939, 1941 and 1945. This asset was generally not regarded as an investment regardless of geographic location, although considerable mobility existed in the movement of foreign official funds from short-term balances to gold, and vice versa.

During 1945 the administration of controls over foreign assets in the U.S. continued to be focused on enemy and enemy-controlled properties and those of other foreigners whose relations to the former axis powers were suspect. Under a division of functions first established in 1942, the responsibility for this control was shared primarily between the treasury department and the Office of Alien Property Custodian, until June 1945. In that month President Truman, in an executive order, authorized the Alien Property Custodian to seize German and Japanese cash, gold and securities in the U.S. These assets had been frozen during the war by the treasury's Foreign Funds Control division and according to press reports amounted to about \$220,000,000. The action was interpreted as a step toward the ultimate seizure and distribution of the assets to claimants against both countries. However, the disposition of these funds and the proceeds of the sales by the custodian of enemy-controlled enterprises in the U.S. remained a matter for congressional decision. It was generally recognized that the potential funds available from these sources—roughly \$220,000,000 of short-term assets, gold and securities, and \$235,000,000 of vested properties—would fall far short of meeting merely the claims resulting from damage to U.S. properties in both countries and the losses to U.S. investors in German and Japanese bonds.

Up to Nov. 1945 the custodian had offered for public sale the government's interest in about 20 of the 387 business enterprises seized by his office. Among those so offered during 1945 were two former meeting places of the German-American bund. One of these was the well-known Camp Nordland in Andover township, Sussex county, N.J. The custodian also took further steps to destroy the corporate structure formerly controlled by the giant German chemical cartel, I. G. Farbenindustrie. The cartel's indirect holdings of the class B common stock of the Winthrop Chemical Company of Delaware, an important manufacturer of chemical products, were sold to the Sterling Drug, Inc., of Delaware, under terms that virtually prevented its return to German control after the war through "fronts," "cloaks," or other devices. At the time of the transaction the attorney general pointed out that after World War I this same property had been sold by the Alien Property Custodian to the U.S. but that it had ultimately found its way back to I. G. Farben interests. To prevent the recurrence of this experience he had recommended that restrictions be placed on the transfer of title or control of the shares.

The custodian also noted that prior to World War II, axis concealment of the true ownership of some U.S. firms had been exceedingly skilful. Indeed, in one case, it was so successful that the U.S. managers of the American Potash and Chemical corporation apparently had not known that German concerns were the beneficial owners of the company. The company was an important producer of varieties of potash, chloride, borax and other chemicals used in the manufacture of many military explosives, armour plate, ordnance articles and instrument glass used in bomb sights and gunnery fire-control devices.

In his second report, released in 1945, the custodian noted the following among the contributions to the war effort by firms he was liquidating.

Among the assets of business enterprises now in liquidation the Alien Property Custodian has discovered a variety of pieces of property which have proved to be of direct assistance in the prosecution of the war. The following are examples:

(1) A scale model of the Fiat plant at Turin, Italy, was found among the records of the Fiat Societa Anomina and turned over to the U.S. army intelligence service. It is understood that this model was used in plans for bombing the plant, which manufactured aeroplanes for the axis.



(2) Three large-scale maps showing in minute detail the cities of Osaka, Nagoya and Yokohama, Japan, were found among the property of Japan Products Co., Inc., and turned over to the U.S. army intelligence service.

(3) The files of the U.S. branch of the huge Japanese firm of Mitsui and Co., Ltd. contained a large number of books, maps, plans, specifications of machinery, etc. This material has been searched by the proper authorities and has yielded valuable information.

(4) The books and pamphlets found in the stock of Gosha-do, a Japanese book store, proved of great value to the war effort. Different items from this collection have been used by the Office of War Information, the army, the navy and the Office of Strategic Services.

(5) Two Japanese typewriters were among the assets of the Pacific Trading company. These typewriters were handed over to the U.S. army intelligence service and on the day following their receipt they were flown to General MacArthur's headquarters where, this office is informed, they have proved most useful.<sup>1</sup>

After the war with Japan had been won, the custodian announced that there was a substantial amount of vestible Japanese-owned property in the Philippine Islands and that he had established a branch office there. The major part of the Japanese assets was believed to consist of plantations in the Davao area, and there was also some cash that could be taken over. Several times during 1945 the custodian's office extended the time limit within which any person, except a national of a designated enemy country, might file a notice of a claim arising as a result of a vesting order. In November the deadline was extended to April 1, 1946, in order to protect the equity of prospective claimants.

The treasury department took two important steps during the first ten months of 1945 designed to free friendly funds from its control. The first lifted all liberated areas out of the category of enemy territory and the second, relating solely to France, suggested a pattern that might be applied to the assets of nations of other overrun Allied countries. These involved the lifting of the treasury's import and export controls over payments to and from blocked countries, and, in the case of France, released French assets (mainly banking balances, bullion and securities) in the U.S. from the treasury's jurisdiction. The complete release of the latter, however, was dependent upon certification by the French government that such assets were in fact French owned, although the U.S. reserved the right to join in the clearance of individual accounts. The certification requirement provided the French government with an opportunity to check the beneficial ownership of all property and to prevent the release of property which was held in French names but was actually enemy owned. At the time of the announcement the French government expressed the conviction that the treasury's freezing controls had placed a disadvantage on the enemy by preventing him from looting these assets while at the same time preserving them for the French people. A defrosting procedure similar to the one relating to French assets was applied to Belgian assets in Nov. 1945. (See also EXCHANGE CONTROL AND EXCHANGE RATES.)

(M. AB.)

**Foreign Relief and Rehabilitation Operations, Office of:** see FOREIGN ECONOMIC ADMINISTRATION.

**Foreign Trade:** see INTERNATIONAL TRADE.

**Forests.** To determine the amount of timber standing in the forests of the United States, current rates of growth and drain, the condition of forest lands and methods of management, the U.S. forest service in 1945 began a reappraisal of the forest situation in the U.S. Completion of the project was not expected before 1946. There was little doubt, however, that it would show that serious depletion of growing stocks had occurred in certain areas as a result of heavy demands during World War II, and that timber was being taken from the forests of the U.S. faster than it was being replaced by new growth.

The problem of decreasing forest resources is world-wide,

<sup>1</sup> Annual Report, Office of Alien Property Custodian, fiscal year ending June 1944.

according to a report of the Technical Committee on Forestry and Primary Forest Products of the United Nations Interim Commission of Food and Agriculture, issued in 1945. Despite the fact that forests can be managed to provide ample wood supplies and vastly increased social benefits, according to the report only 15% of the world's timberlands are being handled as a renewable and productive resource. The committee estimated that two-thirds of the world's forests receive neither care nor protection.

"Among the world's raw materials, wood ranks second only to food," the report said. "Forests are the economic backbone of some of the world's most advanced prosperous nations. . . . Over 90% of the world's annual wood harvest is retained for domestic consumption, yet the remaining 10% has reached third place in value among all commodities entering international trade. . . . In the face of rapidly multiplying uses for wood which create ever-mounting wood needs, the world is confronted by the inescapable fact that the forests—sole source of wood—are steadily diminishing."

The technical forestry committee, under the chairmanship of Dr. Henry S. Graves, dean emeritus of the Yale school of forestry, included representatives of Great Britain, Canada, the soviet union, France, Norway, Brazil, Czechoslovakia, China and the U.S.

To meet the problem of the destruction of forests by war and the enormous prospective need for wood following the war, the committee urged international action in the collection and unification of forestry statistics as a first step in balancing the world's forestry budget and planning its expansion. The United Nations organization, it stressed, should undertake to aid member nations in the development of techniques in growing, harvesting and utilization of wood products, and research into the values of thousands of tree species still of unknown quality.

The importance of wood in World War II brought the forest products laboratory, maintained by the U.S. forest service at Madison, Wis., into the forefront among technical war agencies. Many new products and processes, developed to meet war needs, held promise of creating new industries in the postwar years. Laminated wood, improved plywoods and wood and paper base plastics were finding an increasing variety of uses. Such laboratory developments as "impreg," "compreg," "papreg," "staypak" and the "uralloys," were receiving growing industrial recognition. Technical information had been developed upon which could be based an industry for the production of industrial alcohol from wood waste on a scale sufficient to meet any conceivable demands.

From logging to finished lumber products, about two-thirds of the average tree is wasted. The forest service postwar research program gave special attention to measures that would make profitable the utilization of material now wasted. Foresters urged the development of diversified manufacture so that in a given locality the waste or by-product of one plant would become the raw material of another. More complete utilization of the forest crop, the forest service said, would help in some measure to close the gap between annual growth and drain.

Japanese balloon bombs presented a new threat to forests of the western U.S. in the early months of 1945. Scores of balloons carrying incendiary bombs were released in Japan to be driven by prevailing westerly winds to the North American continent. The forest service and co-operating agencies initiated special protection measures, including the expansion of its "smoke-jumper" corps (parachuting fire fighters) who could be delivered quickly to fires in inaccessible areas. Although the balloon barrage lasted several months, no serious fires resulted.

In 1944 acreage burned by forest fires in the U.S. was held to a little more than one-half the annual average of the preceding

five years, and during the first half of 1945 it looked like this favourable record might be repeated. In the late summer months, however, there were many serious fires in the western states. The year's most disastrous fire occurred in Tillamook county, Oreg. This fire raged for nearly two months, despite the efforts of several thousand fire fighters. It spread over 130,000 acres, covering much of the same area burned by the big Wilson river fire of 1933, and completing the devastation of what was once one of the finest Douglas fir timber areas of the Pacific north-west.

By June 30, 1945, the forest service, in co-operation with state forestry agencies, had set up 100 forest farming and farm woodland marketing projects, covering 403 counties, under the Norris-Doxey Farm Forestry act of 1938. Forty additional farm forestry projects were transferred from soil conservation service to the forest service in July. In each project the services of a trained forester were made available to woodland owners to provide technical advice and assist in working out woodland management and marketing problems. Farm forests occupy 18% of all land in U.S. farms and furnish approximately one-third of the country's timber cut. In general, however, farm woodlands are producing one-third to one-half of what they could, under improved forestry practices.

Books and pamphlets on forests and forestry published in 1945 included *Behold Our Green Mansions*, by R. H. D. Boerker (University of North Carolina Press); *Your Forests*, by Martha B. Bruere (Lippincott); *Careers in Forestry* and *Let's Talk About Timber Supplies* (U.S. department of agriculture).

(C. E. R.)

**British Empire.**—The year 1945 represented a turning point in empire forestry. For nearly six years the efforts of all empire foresters had been devoted to producing the munitions of war, and now came a somewhat sudden change over from wartime to peacetime demand. Nevertheless, in spite of reduced staff, in all forest departments there was thought for the future and in many parts of the empire plans for postwar forest policy were drawn up. One result of the war was to draw the attention of governments more closely to the importance of a settled forest policy in which forestry, both protective and productive, must take its rightful place with other forms of land use. With this it was hoped that the great importance of stocktaking as a preliminary to systematic management would not be overlooked. In many parts there had been considerable overcutting of the sustained yield even before the war. Stress was being laid not only on the necessity for an adequate percentage of land under forests, but also on the distribution of such land to meet demands for forest produce.

With the end of the war in the far east, the important forest areas of Burma, Malaya and the East Indies were freed and early reports tended to show that the main forest areas had suffered very slightly. There had been, however, considerable wanton damage in the more accessible forests owing to the lack of control during Japanese occupation.

In Canada and Australia the war emphasized the value of their forests and, in Canada especially, attention was directed to the more complete utilization of the crop.

In many parts, especially South Africa, South Australia and New Zealand, the forest policy of large plantations of exotics had been more than justified and during the war these countries had to rely mainly on fellings and thinnings in their young plantations.

(H. R. Bd.)

Figures available from South Africa in December showed that the output of coniferous plantations in the union had increased from 2,000,000 cu.ft. in 1937-38 to 17,000,000 cu.ft. in 1944-45. During a most critical phase of the war these areas had supplied more than half the softwood requirements of Africa.

**Great Britain.**—The year 1945 marked the launching, with the beginning of a new planting season on Oct. 1, of the forestry commission's postwar program put forward in June 1943. This aimed at an eventual increase of Britain's forested areas to 5,000,000 ac. within a 50-year period. Within the first decade it was proposed to replant 600,000 ac. of felled or neglected timberland and plant 500,000 ac. of hitherto bare land. Towards this the first year was to contribute 10,000 ac. of replanting and 25,000 ac. of planting.

On Nov. 30 the minister of agriculture announced that parliament would be asked to replenish the forestry fund by a total sum of £20,000,000 during the financial years 1946-50. This amount should provide for the afforestation and replanting of 365,000 ac., allow for additional land for future planting and for ancillary services, and, where necessary, provide modern, up-to-date houses for workers in state forests.

An important item of policy, which the government accepted, was the dedication scheme submitted by the forestry commissioners. Under this, owners of private woodlands, in return for recommended scales of state assistance, would undertake to "dedicate" their lands to timber production on approved lines. Should there be refusal to co-operate in this way, the land might be compulsorily acquired. Increased facilities for education, training and research into all branches of the work, including timber utilization, would be associated with this large development program.

**BIBLIOGRAPHY.**—*Report on Postwar Forest Policy*, by the Forestry Commissioners (His Majesty's Stationery Office, Cmd. 6447).

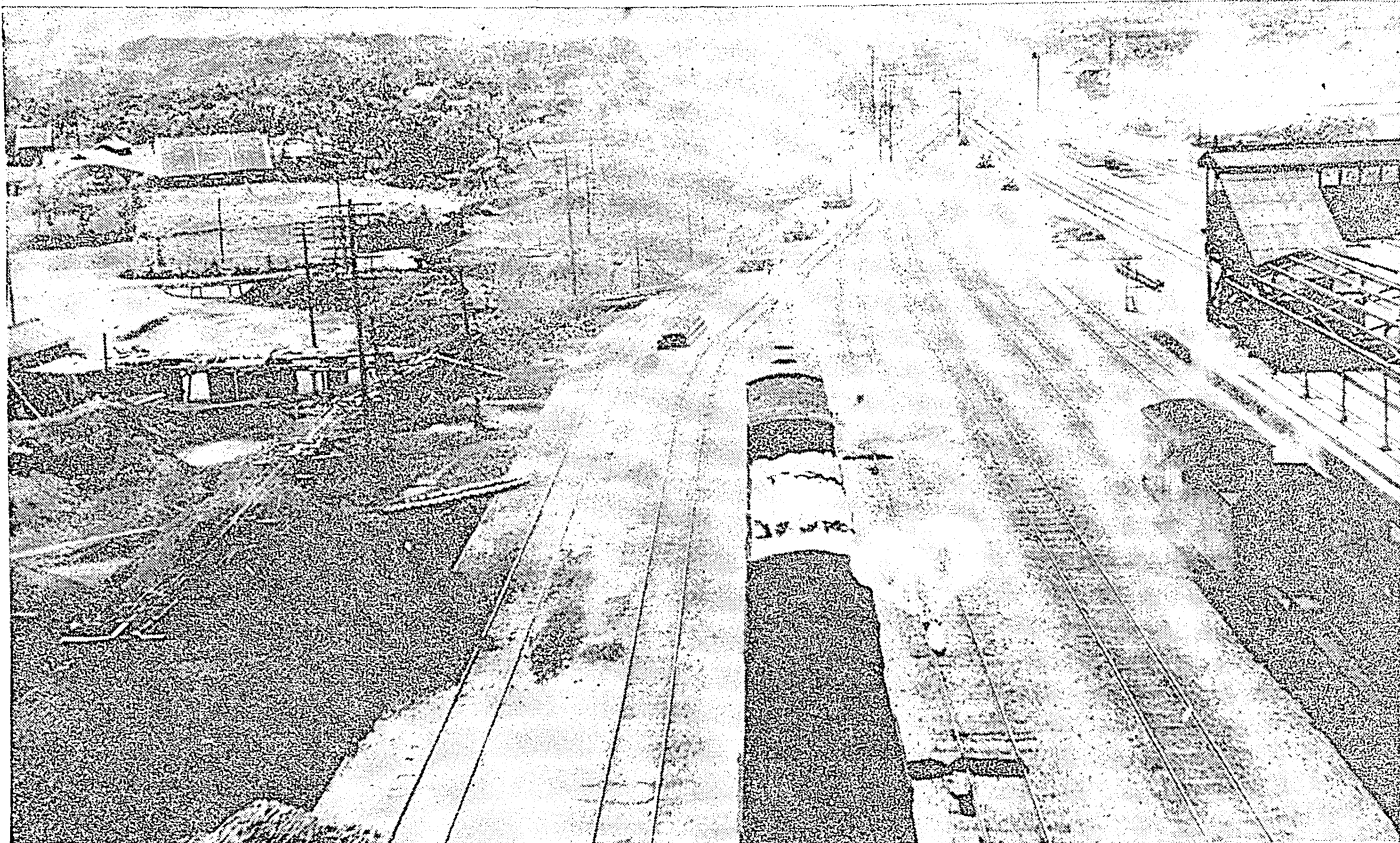
**FILMS.**—*Conservation of Resources; Far Western States; Maritime Provinces; Northwestern States; Pacific Canada* (Encyclopædia Britannica Films Inc.).

**Formosa** (TAIWAN), a Japanese colony from 1895 until 1945 and restored to Chinese sovereignty after the Japanese surrender in 1945, is a large island in the western Pacific, separated from China to the west by the Taiwan straits and from the Philippines to the south by the Bashi and Balintang channels. Under Japanese rule the Pescadores (Bōkotō) and other outlying islands formed a political division of the Taiwan government-general. Area 13,429 sq.mi.; pop. (1940) 5,872,084. Most of the inhabitants of Formosa are of Chinese stock and are ethnically related to the Chinese of the neighbouring mainland province of Fukien.

Capital, Taihoku (326,407, census of 1940) in the northern part of the island. Other large towns: Tainan (142,133), Takao (152,265); Keelung (Kirun) (100,151).

**History.**—No details of the plans for Chinese administration of the island were available at the end of 1945. The last Japanese governor-general (appointed 1944) was Admiral Kiyoshi Hasegawa. Formosa was of considerable strategic importance for the Japanese program of southward expansion. A large naval base was maintained at Mako, in the Pescadores. Formosa served as an advanced base for the Japanese invasion of the Philippines in 1941. It was bombed periodically by U.S. planes but was by-passed in the course of the advance to the north and was not invaded before the Japanese surrender in Aug. 1945.

**Education and Economics.**—There were 143 primary schools, with 1,108 teachers and 43,671 pupils for the Japanese, and 788 schools, with 7,242 teachers and 445,396 pupils for the natives in 1937. Japanese was the language of instruction. The Formosan budget was 183,014,971 yen in 1938-39 and 260,530,226 yen in 1939-40 (the yen was officially valued at 23.48 U.S. cents before the beginning of the war in the Pacific). Overseas trade, almost entirely with Japan and its colonies, amounted to 592,938,000 yen (exports) and 408,650,000 yen (imports) in 1939. Formosa is one of the world's chief sources of camphor, and there were government monopolies of camphor, salt, opium and tobacco.



LOW-FLYING medium U.S. bombers released the bombs shown floating down on parachutes during a raid in 1945. Their targets were trains in the yard at Chickunan, Formosa

There was a record sugar crop of 2,364,550,976 *kin* (the *kin* is approximately one and one-third U.S. lb.) in 1939. The rice crop increased from 330,000 tons in 1899 to about 1,600,000 tons in 1938. Tea and jute are other products, and the island contains deposits of gold and iron. There were 646 mi. of government and 317 mi. of privately owned railways in Formosa in 1937 besides 1,246 mi. of industrial railways. There were 217 telegraph offices, with 734 mi. of line and 2,946 mi. of telephone lines.

There were 633,053 savings bank depositors in 1937, with deposits of 27,136,748 yen. (W. H. CH.)

**Forrestal, James** (1892- ), U.S. secretary of the navy, was born on Feb. 15 in Beacon, N.Y. He studied at Dartmouth college, 1911-12, and at Princeton university, 1912-15. He enlisted in the U.S. navy in 1917, and was assigned to its aviation force. He trained with the royal flying corps at Toronto, Canada, and was made an ensign in Nov. 1917. Forrestal resigned from the navy with the rank of lieutenant in 1919, and resumed an earlier connection with Dillon, Read and Co., a Wall street banking firm, becoming its president in 1937. In Aug. 1940 he became undersecretary of the navy, serving in that capacity until the death of Secretary Knox, whom he succeeded on May 19, 1944. Forrestal was an advocate of a large postwar navy and the peacetime draft. He aroused the ire of some Republican congressmen when he declared (Sept. 8) that publication of facts not disclosed in the Pearl Harbor reports would "compromise sources of information . . . of great value to our national security." He actively opposed the measure to unify the armed services under a civilian secretary.

Forrestal offered (Nov. 28) a substitute plan which provided for a permanent national security council which would include joint chiefs of staff for the armed services and a "chief of staff to the president."

**Foundations:** see DONATIONS AND BEQUESTS. See also SOCIETIES AND ASSOCIATIONS.

**Four-H Clubs.** Approximately 1,700,000 rural young people in the United States between the ages of 10 and 21 years were members of 4-H clubs in 1945. A rededication of their "heads, hearts, hands and health" toward the goal of final victory for the nation characterized the attitudes and achievements of these members, guided by the 175,000 local volunteer leaders, under the direction of county extension agents co-operatively employed by the United States department of agriculture, state colleges of agriculture, and county extension organizations.

The year 1945 marked the culmination of the greatest period of accomplishment in 4-H club work. In keeping with the 4-H seven wartime goals, club members produced and conserved, after Pearl Harbor, enough food to feed 3,000,000 fighting men for one entire year, as a part of their work in gardening, in raising crops and livestock, and in conserving the surplus. They collected thousands of tons of scrap for war purposes. They bought or sold to others more than \$400,000,000 in war bonds and stamps. Throughout the war, they increased their efforts to improve their own health and that of their homes and communities. They helped to conserve needed farm and home supplies and equipment. They gained a deeper appreciation of the democratic way of life by practicing democracy more intently as they met together for mutual help and for service to others. At such meetings, through discussions of some of the important social and economic forces at work, they gained also a deeper appreciation of the good neighbour spirit at home and abroad and the steps to take in building a just and enduring peace.

Because of wartime conditions, the only national 4-H event held in 1945 was the 24th National 4-H Club congress at Chicago, Ill., Dec. 2-6. The ten 4-H club guideposts were launched in accordance with the general theme, "4-H in a Changing World." These guideposts were planned to help 4-H members to analyze their own situations, needs and interests in the new atomic-energy age to the end that they might participate in building programs which would more adequately prepare them for citizenship, physically, mentally and spiritually. These ten 4-H guideposts were: (1) Developing talents for greater usefulness; (2) Joining with friends for work, fun and fellowship; (3) Learning to live in a changing world; (4) Choosing a way



to earn a living; (5) Producing food and fibre for home and market; (6) Creating better homes for better living; (7) Conserving nature's resources for security and happiness; (8) Building health for a strong America; (9) Sharing responsibilities for community improvement; (10) Serving as citizens in maintaining world peace.

(M. L. W.)

**France.** Fully liberated in 1945, France is situated in the west of Europe; bordered north by Belgium and Luxembourg, northeast by Germany, east by Germany and Switzerland, southeast by Italy and south by Spain; with the Mediterranean sea on its southeast coast, the Atlantic ocean on the west and the English channel and the North sea to the north. Capital, Paris; government, a republic; president of the provisional government, elected by the National Constituent assembly, General Charles de Gaulle. Area, 212,736 sq.mi.; territory liberated from the Germans after V-E day included a narrow stretch of eastern France in Lorraine and small pockets in Alsace, as well as four small coastal areas along the Atlantic. Population (1936 census) 41,197,056, but probably reduced by approximately 1,000,000 in consequence of war and postwar deaths resulting directly from World War II. Of the 2,300,000 prisoners of war, forced labourers and political and racial deportees, all survivors had been returned by the end of 1945. Language: French; religion: Catholic; c. 1,000,000 Protestants.

**History.**—The year 1945 was memorable for the final liberation of all French territory in Europe and the empire from the axis enemies; the restoration of republican practices and institutions, including bitter political strife; the political but not yet constitutional establishment of the Fourth Republic; the persistence of great material hardship, together with pronounced but spotty economic recovery; revival of free cultural activity; abandonment of France's historic role as dominant diplomatic power in Europe and the assumption of a new policy of serving as the point of equilibrium between the United States (and Great Britain) in the west and the soviet union in the east; and continued diplomatic efforts to advance the French thesis that the Rhineland and the Ruhr must be detached from future German political and military control. These achievements and aspirations are discussed in detail below.

**Political-Constitutional.**—France made great headway during the year 1945 in scrapping what was left of the antirepublican Vichy apparatus of government and the emergency legislation and regulations of the early liberation period. The outstanding political developments were the series of free and open elections in October. For the first time in French history women had the vote. At the spring elections for the municipal councillors of more than 35,000 communes (corresponding roughly to the townships and villages of the U.S.), more than 20,000,000 French men and women turned out at the polls. In the popular vote the parties of the Left won 60% of the total vote cast, their gains being most pronounced in communes having a population of 4,000 or more. But the Centre and Right parties carried most of the smaller communes, especially the rural, and obtained control of substantially more than 70% of all the municipal councils in the entire country. Hence, while the election definitely forecast the renewal of the trend toward the Left which had begun in 1932, nevertheless so far as local government was concerned, the political fulcrum still rested right of centre.

The same trend toward the Left was revealed in the cantonal elections, held several months later, for the members of the general councils of the departments. The great winners were the Socialist candidates, while the Radical Socialists suffered the most severe losses. The latter, notwithstanding their misleading name, are neither radical nor socialists; they are the

great, traditional middle-of-the-road party broadly representative of the interests of the peasant proprietors and the petty *bourgeoisie* of trades, crafts and the liberal professions.

The general election of October 21, 1945, was the most important of the three, and the first of its kind after the general elections of 1936 which had returned the Popular Front to power. First, the voters elected deputies to the first regularly elected national assembly in nine long years. The Provisional Consultative assembly, instituted at Algiers in the fall of 1943, had passed into history two months earlier. Composed of nominated deputies representing the Resistance and the anti-Pétain wings of the old political parties, it had served its country well as an interim guardian of the legislative republican tradition; but its role was ended. Secondly, the voters had to vote "yes" or "no" on two very important questions of a referendum: (1) whether or not the new national assembly would at the same time be a constituent assembly, *i.e.*, be empowered to draft a new constitution to replace the 1875 constitution of the Third Republic; and (2) if the verdict were "yes," whether or not the country would accept the plan originally drawn up by De Gaulle but modified by the Consultative assembly to regulate the relations between the new assembly and the executive branch of the government. As De Gaulle had originally worded the second question, the new assembly would not have been sovereign. As finally modified by the Socialist party under Leon Blum's inspiration, it incorporated the responsibility of the government (De Gaulle and the cabinet), at least after a fashion, to the assembly.

Since even the modified definition of relations had been rejected for entirely different reasons by the communists on the Left and the radical socialists on the Right-Centre, the second proposition was in a sense a test of General de Gaulle's standing in the minds as well as in the hearts of his countrymen. Conversely, the voting on the first proposition was actually a way of determining whether liberated, post-Resistance France would go forward and establish a Fourth Republic, or firm in its traditionalism, march backward to a patched-up Third Republic.

More than four-fifths of all registered voters went to the polls. The result seemingly was convincing proof that the France of 1945 had turned its back upon the institutions, the leaders and the conservative defeatist spirit of the republic which had committed moral suicide at Munich before collapsing in shattering physical defeat in 1940, since the voters gave an overwhelming, almost unanimous "yes" to the first question of the referendum. Thus the most important task of the assembly was to draft a new constitution. To the second proposition the voters gave a more than two-to-one affirmative reply. This was a tribute to De Gaulle all the more amazing in that the opposition to his proposal was systematically and strongly organized. It was at the same time a highly disturbing symptom of political division, for the 33% "no" vote, largely Communist, was a powerful protest against the danger of one-man rule as represented by De Gaulle and also an attack on the Vichy economic bureaucrats whom he was keeping in office.

Of the 586 seats in the assembly, 435 were won by three great parties of the Left, the Communist (152), the (Catholic) Popular Republican (151) and the Socialist (132) in the order named. If the rise of the Communist as the leading party, with 27% of the total vote, was surprising, the success of the Resistance-born Popular Republicans was astonishing, even to themselves. The Radical Socialist, for years the dominant political party of the Third Republic, was decimated; and the vote cast for the parties of the Right was negligible. The new assembly, which held its first session on Nov. 6, 1945, was predominantly a young body, the average age of the deputies being in



A DP (displaced person), one of millions of foreigners in Germany liberated during 1945, returns to his village at Annoeulin, France. Released by U.S. troops after five years of imprisonment, he cycled, hitchhiked and rode freight trains on the 400-mile journey home

the middle thirties. Thirty-two women sat in its midst. The colonies too were represented. It included 86 professors and teachers, 59 white-collar workers, 43 journalists and 36 farmers. It was young France, the France of the Resistance and post-liberation. But De Gaulle still towered over the parties.

Thus the political line in France in 1945 was no longer drawn between the Left and the Right; it divided instead the three parties that nominally were of the Left, though it was not sure how Left the Popular Republicans actually were. The points of agreement among them were many. They all accepted the social principles laid down in 1944 by the National Council of Resistance. They stood resolutely against everything that smacked of the Vichy administrative practices. They were stalwart defenders of the individual liberties of thought, expression and conscience. They subscribed to the ideal of social and economic democracy. They all believed in a strong international organization. But agreement ended there, since they started from conflicting principles and disagreed vehemently over methods. The Communists and, to a great extent the Socialists, advocated and agitated for a sweeping program of nationalization of economic enterprise; the Popular Republicans—most of whom were Catholics in religion and not a few former conservatives in politics—opposed what they called the materialistic and extremist policies of the Marxist parties. Their left wing wished the nationalization of selected monopoly industries, and within such publicly controlled and administered ventures the maintenance of freedom of initiative and personal responsibility. But their right wing members were keen defenders of private property who would keep a large sector of French economy free for private enterprise without state control or supervision. They endorsed the ideal of a secular state and the lay school, but they reserved themselves the right during the constitutional debates which were forthcoming to argue the question of Catholic schools and state subsidies. That was not all. Whereas the Com-

munists were anxious to have the new constitution (which the assembly was to draft within a period of seven months from the election and then submit to a national referendum) provide for a strong single chamber and a weak executive, the Popular Republicans, who were enthusiastic hero worshippers of De Gaulle, demanded a stronger executive with scant opportunity for the chamber to overthrow the cabinet. A strong one-chamber parliament seemed to be favoured. Finally, on foreign policy, the Popular Republicans (and most of the Socialists) were in favour of a pact with Great Britain and the creation of a "western bloc," while the Communists, whose enthusiasm for soviet Russia ran high (too high in the opinion of De Gaulle and many other Frenchmen), opposed this development out of fear that it would line up western Europe, with the United States behind it, in an unfriendly coalition against the soviet union. These currents and cross currents buffeted the Socialists more than the other groups. As the key party, the Socialists faced both ways: some of them looked to the Communists, and an equally important section had friends and ties with the Popular Republicans.

These differences were not easily to be composed, and parliamentary clashes were to be expected. In these circumstances it was not surprising that Frenchmen in 1945 looked anxiously into the future and feared that the outcome would be a swing to an authoritarian regime. By the end of 1945 the France of the Fourth Republic had weathered one great political storm, and De Gaulle had gained his first major victory over the Communist opposition. On Nov. 13 he was elected president of the provisional government by the unanimous vote of the assembly. But he broke almost immediately with the Communists, when he refused to give them one of the three cabinet posts, foreign affairs, war or interior, which they claimed as the largest party in the assembly. In taking his stand he also made an appeal to the nation which the Communists strongly resented as a reflection on their patriotism. Although he proffered his resignation, the assembly re-elected him, this time the Communists voting against him; and within a few days he worked out a compro-



mise solution which salved the wounded feelings of the Communists without, however, giving them the desired cabinet positions. In his cabinet of national unity each of the three leading political parties received an equal number of posts. The Communists obtained the key ministries dealing with economic matters, the Popular Republican, Georges Bidault, kept the ministry of foreign affairs, the Socialist, Adrien Tixier, retained the ministry of the interior, while De Gaulle himself, in addition to being virtual premier, became defense minister, naming a Communist as one of his four subordinates.

Apart from these political and constitutional developments, the most spectacular happenings in domestic policy were the treason trials of Marshal Henri Petain and the former premier, Pierre Laval. After a drawn-out and dreary trial in which most of the prewar political leaders appeared for the prosecution, and unloaded responsibility for defeat on Petain, the high court found Petain guilty of intelligence with the enemy (Aug. 15, 1945) and sentenced him to death. But De Gaulle accepted the court's recommendation that the sentence not be carried out, and accordingly commuted it to life imprisonment. Two months later, after a brief, melodramatic trial, Laval was sentenced to death by the same court. He attempted to commit suicide, but was revived by physicians long enough to be executed by a firing squad. Late in the year the government did away with all special provisions for the trial of indicted collaborators, a measure which only aggravated the complaints of the former Resistance press that the purge and treason trials were being hamstrung.

*Economic.*—French economy in 1945 improved over 1944, but progress was slow and spotty. Prices continued to rise, and the black market remained a cheerless reality. War and disease had cut heavily into the population. The death rate for children, according to estimates, rose 50% above 1944. Tuberculosis was up 40% after the end of World War II, particularly in the 25-29 age group. Twenty per cent of teen-age children were undernourished. Once again the French people faced a cold and hungry winter. The greatest shortages were coal, raw materials and new machinery, food, skilled manpower (even though supplemented by German prisoner of war labour), timber for building and facilities for rail and water transportation. More than anything else, coal was lacking. Domestic production was up sharply, but France had always been dependent on coal imports. The nonarrival of expected imports from the United States and the expected reparations quota from the Ruhr mines slowed up the entire pace of industrial activity. Drastic restrictions were in force on the private consumption of coal and electricity, and many industrial enterprises were running only three days a week.

A few selected figures will serve to illustrate both the difficulties and the progress. Railroad traffic, while still far below normal, made considerable gain: 1,550 mi. of war-damaged tracks and hundreds of bridges were repaired; 7,800 locomotives were in use versus the 2,900 available in 1944; passenger-mile traffic increased tenfold; 2,000,000 tons of traffic cleared the ports as against 40,000 in 1944. Rebuilding and new construction were only in the blueprint stage, although the government was hopeful that its carefully drawn program would be implemented in 1946, because in none of such important activities as steel, electricity, textiles, shoes, chemicals, or glass had increased production reached the half-way mark of prewar figures. Least pronounced of all was the recovery in agriculture, where for lack of fertilizers, machinery, livestock, fodder and manpower, and because of mined fields and heavy drought, the situation was desperate. The wheat crop alone was estimated at little more than half of normal.

Meantime, the long awaited program of social reform had only begun in true earnest. The political Left and organized labour were bitter over the delaying governmental tactics. They

also feared that the unpurged Vichy bureaucracy together with the new De Gaulle bureaucrats would combine to thwart the practical execution of any reform program. On Dec. 2, 1945, the assembly voted the nationalization of the Bank of France and four large private banks and placed all commercial credit institutions under sharp governmental supervision. According to the plan, stockholders would receive compensation for their shares in the form of negotiable and interest-bearing bonds; the existing personnel was to be retained; and the new governing boards would be composed of representatives designated by the government, capital and labour without having members of the assembly or the civil service serving on the boards. In addition to this long step toward nationalizing private credit, which had so frequently in the past dominated governmental policy, the assembly began a preliminary investigation looking toward nationalizing electricity.

France was also slowly restoring its prewar commercial relations with other European states as well as with the United States. By Dec. 1945, it had made commercial and financial agreements with Great Britain, Belgium, the Netherlands and Czechoslovakia. In the last week of the year the assembly passed a series of important measures which were expected to be of profound significance for future economic developments. It ratified the Bretton Woods agreement, endorsed the credit agreement with the Export-Import bank, whereby an additional credit of \$500,000,000 was made available for French purchases over and above the unexpired credits under lend-lease, and finally voted to devalue the franc and establish a new rate of exchange of 119.107 francs to the U.S. dollar. Manifestly, the desire behind these measures was to speed up the plan of foreign help, especially from the United States, without which French economy and reconstruction could not be revitalized.

PIERRE LAVAL testifying in defense of Henri Petain (seated right). Convicted of intelligence with the enemy on Aug. 15, 1945, Petain was given the death sentence, later commuted to life imprisonment. Laval was subsequently tried on similar charges and executed on Oct. 15





Whether devaluation would help was, however, an open question.

*International.*—The key to French foreign policy in 1945 was the steadfast determination of Bidault, and De Gaulle behind him, to have France serve as the point of equilibrium between the two great world forces—the United States in the west and the soviet union to the east. Concretely, the French problem had resolved itself into reaching agreement with Great Britain and the United States on the one hand and the soviet union on the other over Germany, the Mediterranean and the middle east. The French very realistically took the stand that without agreement on Germany there could be no real stability for Europe and the world, since unless and until France balanced the interests of the United States and Great Britain with those of the soviet union over the German settlement, the western and the eastern powers would remain alarmingly at odds everywhere else where they had overlapping interests. Hence a pact with Great Britain, serving as the nuclear centre of a wider and future “western bloc” to include all the countries west of the Rhine, remained a pivot of French policy. While France and Great Britain had composed their long rivalry and differences in Syria and Lebanon by their pact of early Dec. 1945, they had yet to reconcile their divergent views over the German question.

The French position on Germany was clear. Before any discussion of program for central administration in Germany or German economic rehabilitation, the Allies had to agree to destroy the German industrial potential by permanently removing the Saar, the Rhineland and the Ruhr from German military and political control. Simultaneously, provisions had to be worked out to ensure international economic utilization of the resources of these vitally important industrial areas. Without these measures, France would have no security, and the world no peace. Russia had already gained security on its frontier against Germany—why not France—was the argument. And to a state which had undergone the French experience of three invasions from 1870 and had lived under the fear that the United States forces might soon withdraw from their zone of occupation, such an argument was indeed real. Consequently, the French viewed with great anxiety the real or fancied intention of the United States to centralize the German administration and return it to the Germans in advance of the settlement of the Rhineland and the Ruhr, as well as the British intention of keeping the Ruhr politically within a future German state while temporarily assuming control over its industrial resources.

This anxious concern over Germany also helped explain the truculent efforts of France to prevent the “Big Three” from assuming sole responsibility for the shaping of the world to be. On the whole, although the French methods caused irritation, they brought De Gaulle’s government results. France became a permanent member of the Security council of the United Nations organization. It won a separate zone of occupation in southwestern Germany, and its representative sat on the Allied Control council in Berlin. At the Berlin conference France was invited to send its representative to the Council of Foreign Ministers of the “Big Five” (U.S., Great Britain, Russia, France and China) who were to conduct preliminary negotiations leading to the final peace settlement. And at the Moscow meeting in Dec. 1945, France was invited to sit with the representatives of the three great powers in drafting peace terms for Italy (though not for the Balkan enemies). Toward its former enemy, Italy, France followed a friendly policy, welcoming such democratic tendencies as Italy was permitted to make manifest; and toward the Spain of General Francisco Franco, France was cautiously exploratory, waiting for the United States and Great Britain to accept its proposal of joint talks on future relations with anti-Franco Spanish republicans in exile.



FRENCH WOMEN, voting for the first time, outnumbered men at the polls during the municipal election of April 29, 1945, which was also the first French election held after 1940

Outside of Europe a storm was brewing in the southeast Pacific where France was wooing the nationalists of Indo-China with a reform project promising large autonomy within a new colonial federation while at the same time combating the forces of the nationalists (the Viet Nam) with tanks and planes. (See also ANTI-SEMITISM; FRENCH COLONIAL EMPIRE; INTERNATIONAL LAW; WORLD WAR II.)

BIBLIOGRAPHY.—Kenneth Pendar, *Adventure in Diplomacy. Our French Dilemma* (1945). (L. Gy.)

**Franco, Francisco** (1892– ), Spanish soldier and statesman, was born Dec. 4, at El Ferrol, Galicia, and was graduated from the military academy of Toledo in 1910. After a varied military career, in which he saw service in Morocco, he became army chief of staff in 1935. Franco played a prominent role in the early days of the Spanish civil war (1936–39) and following the death of Gen. José Sanjurjo, he became the military leader of the rebels. After a bitter three-year struggle, in which he had received considerable aid in the form of men and matériel from Hitler and Mussolini, Franco defeated the loyalists in 1939 and emerged as the “caudillo” (leader) and prime minister of Spain. In the early days of axis victories in World War II, Franco affirmed Spain’s solidarity with Germany and Italy in the struggle against “bolshhevism.” When Allied arms began to triumph, he hastened to profess his neutrality and he denied that Spain had even been fascist or secretly allied with the axis powers. In 1945, following the collapse of Germany, he declared (May 20) that Spain was not a “dictatorship.” He followed this with an intimation (July 17) that a plan had been worked out under which the traditional monarchy would replace his regime. Then on Oct. 22, he issued a “bill of rights” which included freedom of worship and expression and the right to petition, provided these liberties did not run counter to the “fundamentals of the state.” (See also SPAIN.)

**Fraser, Sir Bruce Austin** (1888– ), British naval officer, was the son of an army general. Educated at Bradfield, he later joined the royal navy and was a gunnery officer in World War I. In 1926, he constructed an improved fire-control table which provided for greater accuracy in long-range firing. He was a flag captain in the East Indies and then was assigned to the battleship “Warspite” as chief of staff of the Mediterranean fleet. From the “Warspite,” Fraser went to the admiralty as Third Sea Lord

and Controller (1939-42), and in May 1940 he was promoted to vice-admiral. Adm. Fraser was second in command of the British Home fleet (1942) and commander in chief of the Home fleet (1943-44). In 1944, he was promoted to the rank of full admiral and given command of the British Eastern fleet which was based at Ceylon. This force assisted the land operations of Lord Louis Mountbatten's troops in the Burma-India theatre. On Dec. 10, the British admiralty announced formation of a new British Pacific fleet—one of the largest ever mustered by the royal navy—with Sir Bruce as commander in chief. Units of this naval force joined the U.S. 5th fleet in attacks against the Ryukyu Islands and the Tokyo area in the spring and summer of 1945. At the surrender ceremonies aboard the U.S.S. "Missouri," Sir Bruce represented the United Kingdom and signed the Japanese surrender document Sept. 2, which formally ended World War II.

**Fraser, Leon** (1889-1945), U.S. banker, was born Nov. 27 in Boston, Mass. A graduate of Columbia university, New York city, in 1910, he received his Ph.D. degree in 1915. He was admitted to the New York bar in 1914, although he held no law degree, and became an instructor in public law at Columbia. At the start of World War I, Fraser, a pacifist, organized a group opposed to the Plattsburg training camps, and this imperilled his position on the Columbia staff, from which he was subsequently dropped. When the United States entered the war, he enlisted as a private and was sent overseas at his own request. By the end of the war, he was a major and judge advocate in the A.E.F., he had won the D.S.M. and he was decorated by the French, Belgian, Italian and Yugoslav governments. He later became associated with the bureau of war risk insurance and was executive officer and an acting director of the Veterans' bureau. After leaving government service in 1922, he went to Paris to practise international law. Fraser was appointed to the vice-presidency and directorship of the Bank for International Settlements at Basle, Switzerland, in 1930; he was president of that body and chairman of the board, 1933-35. He became vice-president of the First National Bank of New York in 1935 and president of that institution in 1937. Fraser was found dead, presumably a suicide, at his estate in North Granville, N.Y., April 8. Notes which he left told of a melancholia condition which was steadily becoming worse.

**Freemasonry:** see MASONIC FRATERNITY.

**Freer Gallery of Art:** see SMITHSONIAN INSTITUTION.

**French Colonial Empire.** 'Total area (excluding Syria and Lebanon) (approx.) 4,579,000 sq.mi.; total pop. (est. Dec. 1939) 67,591,000. Certain essential information on the French colonies, protectorates and mandates is given in the table on page 330.

**History.**—Political unrest in north Africa and Indo-China marked the year 1945. In north Africa the unrest was caused largely by scarcity of food. The committee for north African affairs met in February under the chairmanship of General Charles de Gaulle to discuss the position. Visits of investigation were made by ministers and by a delegation from the assembly, the question being debated in the assembly itself in July. In Indo-China, after a period when the Nationalists were in virtual control of the country, a measure of order was restored and French authority reinstated with the help of British forces, assisted by Japanese troops. In April a new department of the ministry for colonies was created, to plan economic and social development in the colonies. Measures such as the granting of limited self-government to Indo-China and the convening

of a largely elected assembly in Madagascar were accompanied by increasing emphasis on the close integration of France with its empire, while in official quarters the term "France overseas" was substituted for that of colonies. An ordinance of August entitled France's overseas possessions, with the exception of Indo-China and of the protectorates of Tunisia and Morocco, to send 33 representatives to the constituent assembly.

**Algeria.**—Disturbances which started early in May in Oran, Algiers, and Sétif, spreading to Canrobert, Bougie, Philippeville and Blida, continued sporadically throughout June. Conditions approaching famine existed in parts of the country, which proved the opportunity for leaders of an Arab nationalist movement called "Friends of the Manifesto" party. Estimates of casualties varied but they ran into four figures. More than 2,400 arrests were made including those of the leaders, Fehrat Abbas and Dr. Saadane. The Egyptian government sought to obtain a reprieve for those condemned to death. Meanwhile the French government sent cereals intended for France, in order to relieve the economic situation, and Adrien Tixier, the French minister for the interior, visited Algeria in June. The government decided to grant family allowances to Algerian workers. The harvest was again bad. The electoral campaign for the municipal elections opened in the middle of July. The elections resulted as follows: "France Combattante" (including communists, socialists and Resistance) 31; Moslems 15; Conservatives 5.

The port of Oran was formally returned to the French authorities by the Allies in February. Trade through normal commercial channels began in March.

**Tunisia.**—General Charles Mast, resident-general, visited Paris in April, and in July the bey, Sidi Mohammed Al Amin (Sidi Lamine Pasha), accompanied by his son, visited France and German battlefields, returning to Tunisia at the end of the month. The ports of Sfax and La Goulette were again in use by April. A drought in the spring was followed by a bad harvest, the bread ration in April being 250 grams a day. Disturbances resulted in the retention of a ban on meetings at Sfax and Gabès and an order in July that persons circulating rumours likely to cause disorder were to be tried by courts-martial. The bey, on his visit to France, pleaded for the lives of Tunisians condemned to death by French military tribunals. Further incidents occurred in September. In November it was announced that 1,200 Italian families who had been actively pro-fascist during the war would be expelled to Italy.

**Morocco.**—In March it was estimated that 2,000,000 people in Morocco were suffering from hunger. The same month the right to hold meetings was suspended. Drought resulted in a harvest one-quarter the normal size and the bread ration was 250 grams a day, while prices had increased 400-500% from 1939. The sultan, Sidi Mohammed ben Youssef, visited French and German battlefields in June, returning to Morocco at the beginning of July. A visit by a consultative assembly delegation resulted in a debate in the assembly at the beginning of August in the course of which Georges Bidault, French foreign minister, outlined plans for reforms in Morocco, including a penal code, the reform of justice, no discrimination between French and Moroccans and the improvement of education. A dam in course of construction at Bin Al Ouidan was expected to produce 300,000,000 kw.hr. per annum.

**French West Africa.**—It was decided to build a French air and naval base at Dakar. A postal service functioning every second day between the United States and Dakar was established in February. A dam was planned at Richard-Tollin, in Senegal, and a sawmill in the Ivory Coast to enable lumber to be exported to the U.S. Wages increased and trade largely returned to private channels during the year. The harvest was good. Pierre Louis Maestracci was appointed governor of Senegal in succession to M. Dagain.

**French Equatorial Africa.**—The weekly production of meat in the Chad was estimated at between 4 and 5 tons and the production of cotton for 1945 at 45,000 tons, which was double that for 1939.

**Madagascar.**—In accordance with the agreement signed on Dec. 25, 1944, the naval base of Diego Suarez was handed back to France by the

ANNAMITE NATIONALISTS, captured during the Indo-Chinese insurrection which began in Sept. 1945. Rebels fought the return of French colonial rule and were opposed by British and French troops in Saigon



British in January. A decree of Feb. 14 established a government of southern Madagascar, comprising Fianarantsoa, Fort-Dauphin, Tuléar and Morondava with a governor appointed by the minister for the colonies but under the authority of the governor-general of Madagascar, Pierre de Saint-Mart. A representative council set up in April was convened at Tananarive in September. The council consisted of 60 delegates, 30 of whom were elected on a wide franchise and 30 appointed.

**Réunion.**—Damage caused by a cyclone in January was estimated at 60,000,000 francs (1 franc [Oct. 1945] 2.0189 cents U.S.). A cyclone in July caused much damage.

**French Somaliland.**—General Casseville replaced General George Lelong as general officer commanding East Africa.

**French India.**—Women were entitled to vote in the general elections held in October.

**New Caledonia.**—Local elections were held in June.

**Martinique.**—Georges Parisot, the new governor, arrived on Jan. 14. There was a strike of employees in the new sugar factory in June.

**Indo-China.**—An inter-ministerial committee to deal with the reconquest of Indo-China was formed in Paris in February, and De Gaulle made a statement the same month reaffirming France's sovereignty in the colony. The Japanese, by seizing control of the administration in March, disarming French troops and imposing martial law, forestalled effective French resistance which was in process of organization. Sporadic French resistance continued throughout April and May growing progressively weaker, largely owing to an insufficient supply of arms by air.

Declarations of independence in Annam, Cambodia and Luang Prabang followed the Japanese seizure of control, and Annam changed its name to Vietnam and proclaimed a new flag and national anthem. The emperor of Vietnam was Bao Dai and the prime minister Tran Trong Kim. Meanwhile the French government announced plans for limited self-government in Indo-China. A federation of Tongking, Annam, Laos, Cochinchina and Cambodia was to have a federal government, under a governor-general, composed of both Indonesians and French. The Japanese declared the full independence of Indo-China on Aug. 15, after an offer of surrender had been made, and proceeded to arm the Indonesians.

## French Colonial Empire

1945

Country and Area sq. miles (approx.)	Popula- tion (est. Dec. 31, 1939) (000's omitted)	Capital, Status, Governors, Premiers, etc.
<b>AFRICA</b>		
French Equatorial Africa, 847,700 . . . . .	3,500	Brazzaville, Governor-General: M. Charles Bayardelle.
Gabon, 106,500 . . . . .	410*	Libreville, colony, Governor: M. Vuillaume.
Middle Congo, 139,700 . . . . .	747*	Brazzaville, colony, Governor: M. G. Fortune.
Ubangui-Shari, 214,600 . . . . .	834*	Bangui, colony, Governor: M. H. Sautôt.
Chad, 386,900 . . . . .	1,432*	Fort Lamy, colony, Governor: M. Rogué.
Cameroons, 161,200 . . . . .	2,655†	Yaoundé, mandated territory, Commissioner: M. Nicolas.
Algeria, 845,400 . . . . .	7,600	Algiers, colony under jurisdiction of the Minister of the Interior, Governor-General: M. Yves Chataigneau.
Morocco, 165,800 . . . . .	8,000†	Rabat, protectorate, under the Minister of Foreign Affairs, Sultan: Sidi Mohammed. Resident General: M. Gabriel Puaux.
Tunisia, 48,800 . . . . .	2,730	Tunis, protectorate, under the Minister of Foreign Affairs, Bey: Sidi Mohammed al Amin. Resident General: Gen. Charles Mast.
French West Africa, 1,807,060 . . . . .	14,800	Dakar, Governor-General: M. Pierre Charles Courrière.
Senegal, 77,000 . . . . .	1,723‡	St. Louis, colony, Governor: M. Maestracchi.
Mauritania, 330,000 . . . . .	383*	St. Louis, colony, Governor: M. Laigret.
French Guinea, 97,000 . . . . .	2,011*	Conakry, colony, Governor: M. Fournau.
Ivory Coast, 183,000 . . . . .	3,850*	Abidjan, colony, Governor: M. A. Latrielle.
Dahomey, 43,000 . . . . .	1,352*	Porto Novo, colony, Governor: M. Laurent de Villedeuil.
French Sudan, 577,000 . . . . .	3,569*	Koulouba (Bamako), colony, Governor: M. Calvel.
Niger, 500,000 . . . . .	1,747*	Niamey, colony, Governor: M. J. Toby.
Dakar and Dependencies, 60,126,129*	781	Dakar, colony, Governor: M. A. Mercadier.
Togoland, 20,000 . . . . .	781	Lomé, mandated territory, Commissioner: M. Jean Noutary.
French Somaliland, 8,380 . . . . .	50	Jibuti, colony, Governor: M. Chalvet.
Madagascar and Dependencies, 236,900 . . . . .	4,122‡	Antananarivo, colony, Governor-General: M. Pierre de Saint-Mart.
Réunion, 920 . . . . .	221‡	St. Denis, colony, Governor: M. J. Capagorry.
<b>AMERICA</b>		
St. Pierre and Miquelon, 93 . . . . .	4	St. Pierre, colony, Administrator: M. Pierre Garrouste.
French Guiana, including Inini, 34,740 . . . . .	37	Cayenne, colony, Governor: M. Surlemont.
Guadeloupe, 690 . . . . .	310	Basse-Terre, colony, Governor: Maurice Bertaut.
Martinique, 386 . . . . .	260	Fort-de-France, colony, Governor: M. Georges Parisot.
<b>ASIA</b>		
French India, 190 . . . . .	329‡	Pondichéry, colony, Governor: M. Louis Bonvin.
French Indo-China, 283,000 . . . . .	23,700	Saigon, Governor-General: Admiral Thierry d'Argenlieu.
Annam, 55,800 . . . . .	5,656*	Huê, protectorate, Resident-Superior: ?
Cambodia, 69,200 . . . . .	3,046*	Pnom-Penh, protectorate, Resident-Superior: ?
Cochin-China, 25,400 . . . . .	4,616*	Saigon, colony, Governor: ?
Laos, 88,800 . . . . .	1,012*	Vientiane, colony, Governor: ?
Tongking, 43,800 . . . . .	8,700*	Hanoi, protectorate, Resident-Superior: ?
Kwangchow Wan, 310 . . . . .	250	Fort Bayard, territory (leased from China), Administrator: ?

\*Pop. 1936 census. †Pop. 1941. ‡Pop. Dec. 31, 1944. §Pop. 1943.

French Colonial Empire—Continued  
1945

Country and Area sq. miles (approx.)	Popula- tion (est. Dec. 31, 1939) (000's omitted)	Capital, Status, Governors, Premiers, etc.
<b>OCEANIA</b>		
French Territories in the Pacific . . . . .	..	Commissioner General in the Pacific: M. J. Tallec.
New Caledonia and Dependencies, 7,310 . . . . .	55	Nouméa, colony, Governor: M. J. Tallec.
New Hebrides, 5,700 . . . . .	50	Vila, Franco-British condominium, High Commissioner: M. J. Tallec.
Pacific Islands, including Society Is., Tuamotu Is., Tubuai Archipelagos, etc., 1,540 . . . . .	45	Papeete, colony, Governor: Col. Orselli.

The sudden collapse of Japan found British and Chinese troops the only forces in a position to occupy the country, which they proceeded to do early in September. The Indonesians were in virtual control of the administration of the country and actively pursuing a policy of victimization of the French. Despite numerous incidents, the British were able to declare martial law on Sept. 20 and to make possible a successful French coup d'état in Saigon by which French authority was restored. The coup d'état was followed by fighting in which surrendered Japanese troops assisted the British and French while other Japanese helped to organize Annamite resistance. Meanwhile French reinforcements were rushed to the area with British help, General Jacques Leclerc arriving early in October and the new high commissioner, Admiral Thierry d'Argenlieu, proceeding later. An Anglo-French pact was signed in London in October by which Great Britain recognized France's rights in Indo-China. In November it was announced that Cambodia had been granted internal autonomy. Meanwhile in the north Chinese troops not only entered Tongking as had been agreed but also Laos, which provoked a French protest. A French general who had previously been refused permission by Chinese forces to enter Hanoi was enabled to do so only after strong representations had been made by the French to the Chinese government. An independent Viet-Minh administration was in control at Hanoi; while Chinese troops were in occupation of the area. (See also PACIFIC ISLANDS, FRENCH; SYRIA AND LEBANON.) (D. K. M. K.)

**French Possessions in America.**—The colonies of France in America fall into three regional groupings: the small islands of St. Pierre and Miquelon (area, 93 sq.mi.; pop. about 4,000) at the mouth of the Gulf of St. Lawrence; French Guiana and Inini (area, c. 34,740 sq.mi.; pop. c. 37,000) on the east coast of South America north of the Amazon river; about 6 islands in the Lesser Antilles, the most important of which are Martinique (area, 386 sq.mi.; pop. 260,000) and Guadeloupe (area, 690 sq.mi.; pop. 310,000). Population of the other small Antillean islands was estimated at about 23,000 in 1942.

Gov. Georges Parisot took over his post as governor of Martinique in Jan., 1945; his appointment had been made by Gen. Charles de Gaulle the previous year. Elections held in Martinique in August resulted in a definite leftist trend as in France. In Fort-de-France, the capital, 29 communists were reported elected to the 32-member city council, and throughout the island the Socialist party carried 11 communes, the Radical socialists 7, and the communists 3.

The economic situation in the Caribbean colony improved slightly in the first half of 1945, but continued to be affected by a greatly reduced production of the major crop, sugar cane, due to shortages of equipment and fertilizer. Guadeloupe, able to raise more foodstuffs and cattle than Martinique, was better off. There was considerable labour unrest, and the sugar cane grinding season in Martinique was delayed by wage controversies until the governor in March decreed a 25% wage increase. Two other measures tended to reduce import prices: one decree cut profit margins for merchants, the other temporarily suspended tariff duties on certain basic food items.

A new loan of 200,000,000 francs (1 franc [Oct. 1945] 2.0189 cents U.S.) was reported as proposed for a public works program in Martinique covering improvement of port and harbour facilities and the construction of airports. For a similar program in Guadeloupe 10,000,000 francs had been included in plans for construction, and French Guiana had been authorized in 1944 to borrow 1,200,000 francs for improvement of port and transportation facilities.

French possessions outside of the Caribbean received little mention in 1945; St. Pierre and Miquelon were noted as having operated under republican laws, with regulations of the Vichy government voided in the latter part of 1944.

**Finance.**—The Martinique budget for 1945 estimated receipts at 250,319,000 francs (1944: 243,806,000 francs), expenditures at 250,319,000 francs (1944: 243,806,000 francs). The budget for Guadeloupe for 1945 totalled 199,377,000 francs, not including a public works budget of 10,000,000 francs.

**Trade.**—Sugar production in Martinique reached a new low of 2,990 metric tons in 1944, with estimates for the 1945 crop placed at 9,182 metric tons. Rum production in 1945 was estimated at about 22,000,000 litres (1944: approx. 18,000,000 litres). Guadeloupe exported about 47,000 metric tons of raw sugar in 1944; 572,289 proof gals. of rum were also exported to the U.S. during the year.

**Resources.**—Main French Guiana products were: gold, cabinet woods, cacao, fish glue, rum. St. Pierre and Miquelon were dependent on fishing. The French West Indies produce sugar and rum, vanilla, coffee, bananas and cacao. (D. Rb.)

**French Congo:** see FRENCH COLONIAL EMPIRE.

**French Equatorial Africa:** see FRENCH COLONIAL EMPIRE.

**French Guiana:** see FRENCH COLONIAL EMPIRE.

**French Guinea:** see FRENCH COLONIAL EMPIRE.

**French Indo-China:** see FRENCH COLONIAL EMPIRE.



**French Literature.** Alterations in the French literary scene which were discernible in outline immediately after the liberation of Paris, deepened as World War II came to a close, and by midsummer, 1945, it had changed so radically that little remained of the essential features of "pure poetry" and "pure intellectualism" that characterized so much French writing between the two wars. For not only were the ranks greatly thinned by the four-year toll of death, collaboration and exile, but also, the gruelling experience of the occupation years, during which only the most fragmentary (usually clandestine) literary production was possible for the noncollaborator, was accompanied by deep probings of the literary conscience, the fruit of which proved to be a sterner concept of the writer's relation to society than was witnessed in France from the time of Émile Zola, or Victor Hugo. A *littérature engagée* (a responsible literature) was demanded by Jean Paul Sartre, one of the dominating figures of Resistance and postwar French letters, who, introducing his new review *Temps Modernes* (Oct. 1945) wrote:

"Were we dumb and immobile as stones, our very passivity would constitute an action. The abstention of one who devotes his life to writing novels about the Hittites entails taking up some kind of attitude. The writer is situated in his time; each word has its reverberations, each silence, too. I hold Flaubert and Goncourt responsible for the repressions which followed the Commune, because they wrote not a single line to prevent them. It might be said that it was none of their business. But was the case of Calas the business of Voltaire? the sentencing of Dreyfus the business of Zola? the administration of the Congo the business of Gide? Each one of these writers in some particular circumstance of his life, weighed his responsibility as a writer. The occupation has taught us ours. Since, by our very existence, we influence our time, we must decide that this influence shall be deliberate. . . . It is not by chasing after immortality that we shall make ourselves eternal. We shall not make ourselves absolute by reflecting in our works the desiccated principles which are sufficiently empty and negative to pass from one century to another, but by fighting passionately in our time, by loving it passionately, and by consenting to perish entirely with it."

This viewpoint, although only formulated publicly by Sartre in 1945, was the same that animated all the Resistance writers during the occupation. Its statement, therefore, constituted both a reaffirmation of intention and a new appeal to the literary conscience. It is significant that not only Sartre himself, whose preoccupations along these lines were further manifest in his *L'Age de Raison* and *Les Sursis*, constituting the first two volumes of a trilogy entitled *Les Chemins de la Liberté*, but also such writers as Simone de Beauvoir, author of *Le Sang des Autres* and a philosophical treatise entitled *Pyrrhus et Cinéas*; as Albert Camus, for many months leading editorialist of the newspaper *Combat*, whose much discussed plays *Caligula* and *Le Malentendu* were produced during 1945, and whose new work *La Peste* was ready for publication; as Romain Gary, whose remarkable and widely praised *Education Européenne* was awarded the *Prix des Critiques*; as Roger Vailland, author of *Drôle de Jeu*, generally considered to be the most profound work yet to have appeared on the subject of the Resistance; in other words, that most of the more gifted, younger writers had already consciously or unconsciously, espoused the cause of *la littérature engagée*.

In addition to the impetus resulting from this determination, already evidenced in the works of André Malraux, to restore to literature its status of social function, particularly with regard to intention, literary activity was further accelerated by the creation in Paris of what promised to become the first authentic literary-philosophical "school" after the early 1920s, when surrealism first made its appearance. Again under the leadership of Sartre (see his *L'Être et le Néant*) the movement known as "Existentialism," many of whose tenets stem from Martin Heidegger and Søren Kierkegaard, although accused by some of advocating the "negation of all creation and hence of all morality," and attacked by others with the sharp barbs of ridicule, nevertheless continued to constitute a decided pole of attraction for most of the more alive and original elements in current French literature. Even so aggressive an attack as Julien Benda's *La France Byzantine*, which, although directed chiefly at what he termed the "anti-intellectual" attitude of such writers of the older generation as Paul Valéry (who died July 21, 1945, at the age of 73), André Gide, Marcel Proust, Jean Giraudoux, Alain (Emil Chartier), et al., but which referred in passing to the Teutonic origin of the masters "of one of our most fashionable philosophies" as "an immense victory for Germany," left "Existentialism" well supported by most of the literary *avant-garde*. It should be noted here, however, that Camus, whose *Le*

*Mythe de Sisyphe* (1944) opposed the "existentialist" philosophers, declared in an interview, *Les Nouvelles Littéraires* (Nov. 15, 1945), that although he and Sartre had much in common he did not consider himself an "existentialist."

One of the most impressive features of French letters in 1945 was that of luxuriant abundance, and this despite almost insurmountable material difficulties. In Paris alone more than a dozen weekly newspapers published original and critical literary material of excellent quality and two of these, *Les Lettres Françaises* and *Les Nouvelles Littéraires*, devoted practically their entire space to literary matters. In addition to these, some 25 literary and artistic reviews, appearing monthly or quarterly, eight of which were new, furnished ample opportunity of expression to all schools and shades of thought. Among these, mention should be made of such prewar periodicals as *La Revue de Paris*, *Cahiers du Sud*, *L'Amour de l'Art*, *Esprit*, all of which maintained a high literary standard; as also a number of more recent reviews such as *Les Temps Modernes*, *L'Eternelle Revue*, *Poésie '45*, *Confluences*, *Fontaine*, *L'Arche*, *La Nef*, certain of which originated in other cities and only went to Paris after the liberation.

A number of new names, too, were added to the list of already established publishing houses, which fact, according to many indications, would seem to have created a more favourable "climate" for the younger newcomers than had existed for many years. Both newcomers and established writers, however, fared well, and there was hardly a writer of repute who was not represented in the year's output, either by a reprint, or by a new work. To mention only a few titles: *La Marche à l'Etoile*, a long short story, by "Vercors" (published in a new edition of the 24 vols. constituting the entire clandestine *Editions de Minuit*); *Les Mandrins*, novel, by Joseph Kessel; *L'Etoile et la Clef*, novel, by Loys Masson; *Mon Village à l'Heure Allemande*, novel, by Jean Louis Bory (Prix Goncourt 1945); *Le Premier Accroc Coute Deux Cents Francs*, novel, by Elsa Triollet (Prix Goncourt, 1944, distributed early in 1945); *Plusieurs Femmes*, by G. du Genet; *Noces*, by Camus; *Inventaire de l'Abîme*, essays, by Georges Duhamel; *Nous Autres Français*, essay, by Georges Bernanos; *A l'Echelle Humaine*, essays, by Léon Blum; *Sainte Marguerite de Cortone et Le Baïllon Dénoué*, by François Mauriac; *Servitude et Grandeur des Français*, by Louis Aragon; *Anthologie de l'Humour Noir* (re-edition) by André Breton; *Voltaire*, by Valéry; *Sur Nietzsche et Volonté de Chance*, by Georges Bataille; *Gigi*, by Colette; *Péguy*, by Romain Rolland (in 2 vols. of 300 pages each); *La Poésie Moderne et le Sacre*, by Jules Monnerot; *Seuls Demeurent*, poems by René Char; *Poèmes et Paroles pendant la Guerre de Trente Ans*, poems, by Paul Claudel; *Dignes de Vivre*, poems, by Paul Eluard; *Univers de la Parole*, essays on poetry, by Roland de Renéville, etc.

Many beautifully presented deluxe editions were also published, among which may be mentioned: *Le Bain avec Andromède*, by Robert Desnos (who died in Germany, after liberation from a concentration camp); *En Avril 1944: Paris Respirait Encore*, by Eluard, with illustrations by Jean Hugo; as well as works by Claudel, Aragon, Léon-Paul Fargue, Gérard de Nerval, Giraudoux and others.

Two books by Breton: *Arcane 17*, illustrated by Echaurren Matta, and *Le Surréalisme et la Peinture*, appeared in New York, as did a popular edition of *Anabase*, by St. Jean Perse. *Le Serpent dans la Galère*, a long poem inspired by Paris under the occupation, by Georges Duthuit, with numerous illustrations by André Masson, also appeared in New York, in a limited deluxe edition. Gide's translation of *Hamlet*, begun some 20 years before and completed in Tunisia during World War II, was published in New York.

*Les Lettres Françaises*, the excellent wartime literary review which appeared in Buenos Aires from 1941, ceased publication in the spring, because of the return to France of its director, Roger Caillols.

No account of the year's literary activity would be complete that did not mention the brilliant revival of the theatre as an important literary form. Such plays as Camus' *Caligula* and *Le Malentendu*; as Sartre's *Les Mouches* and *Huis-Clos*; as de Beauvoir's *Le Sang des Autres* (adapted from her novel); as Giraudoux's posthumous *La Folle de Chaillot*; served to stimulate public interest in the theatre to the point of making it necessary to seek new locations to house the numerous plays ready to be staged.

Despite its interest in native production, the French public also showed great curiosity concerning the literature of other countries (of which they were so long deprived), and many translations from a variety of foreign literatures were published. Notable among those from the English language were works by Aldous Huxley, Evelyn Waugh, Katherine Mansfield, Elizabeth Barrett Browning, Erskine Caldwell, Eugene O'Neill, John Steinbeck, etc.

In the United States, the Philosophical library published *The Creative Mind*, by Henri Bergson; an important anthology of Aragon's prose and poetry was published in translation, as well as a new "bedside" edition of translated French short stories, brought up to date to include such writers as Malraux, Kessel, Sartre and Antoine de St. Exupéry. A number of articles and short anthologies dealing with current French literature, appeared in the *Sewanee*, *Yale*, *Partisan* and *Kenyon* reviews. In London, the review *Horizon* devoted several numbers to the presentation of the Paris literary scene to English readers. (E. Js.)

**French North Africa:** see FRENCH COLONIAL EMPIRE.

**French Pacific Islands:** see PACIFIC ISLANDS, FRENCH.

**French Somaliland:** see FRENCH COLONIAL EMPIRE.

**French Sudan:** see FRENCH COLONIAL EMPIRE.

**French West Africa:** see FRENCH COLONIAL EMPIRE.

**Frequency Modulation:** see RADIO.

**Friedeburg, Hans Georg von** (1895-1945), German naval officer, was born

July 15 at Strasbourg. After Grand Admiral Karl Doenitz became the reich fuehrer in the final days before Germany's surrender in 1945, Adm. Friedeburg was appointed commander-in-chief of the German navy, Doenitz's old post. Friedeburg was assigned the task of negotiating the surrender, announced by the Allies on May 4, of all German forces in Holland, northwest Germany and Denmark, including Helgoland and the Frisian Islands, to Marshal Montgomery's 21st Allied army group. The following day (May 5), he said that the German navy must meet "with armed resistance every attempt at disarmament." This was an empty statement, however, as negotiations for the final surrender of the reich already had begun and Friedeburg himself was one of the German signatories to the unconditional surrender document signed at Reims, France, May 7, 1945, that closed the European phase of World War II. Friedeburg also signed the Berlin document formally ratifying the surrender, May 8. On May 23, he and other members of the Doenitz government and the German high command and general staff were taken into custody by Allied officers and interned, temporarily, aboard the German liner "Patria" in Flensburg harbour. Although precautions had been taken by the Allied officers to prevent the Germans from committing suicide, Friedeburg succeeded in evading the Allied escort officers and swallowed poison. His death was reported May 23.

**Friends, Religious Society of.** The Religious Society of Friends represents a spiritual movement which had its origin in England more than 250 years ago under the leadership of George Fox. Its central doctrine proclaims that a divine light dwells in each individual, revealing that which is evil and raising up that which is good.

In organization the Religious Society of Friends is composed of 53 yearly meetings and annual conference groups with an approximate membership of 164,000, representing 30 countries. In the United States in 1945 there were 27 yearly meetings with a membership of approximately 113,000. In Great Britain there is one yearly meeting with a membership of approximately 19,694.

The Five Years meeting with headquarters at 101 S. Eighth St., Richmond, Ind., held its quinquennial session in Oct. 1945. Eleven yearly meetings are affiliated with this body, which carries on its work through boards on peace, missions, Christian education, public morals, evangelism and social order. Its board of missions conducts mission work in East Africa, Cuba, Jamaica, Mexico and Palestine. The mission board celebrated its 50th anniversary in Aug. 1944. The official publication of the Five Years meeting is the *American Friend*. The Friends general conference with headquarters at 1515 Cherry St., Philadelphia, Pa., was to hold its next conference in 1946. Six yearly meetings belong to this conference group and are drawn together by their common interest in religious and secular education, social service and the advancement of Friends' principles. The *Friends Intelligencer* is the weekly religious journal representing this group of Friends.

The Conservative group of Friends have no central organization, but the six yearly meetings keep in close correspondence with one another. Philadelphia yearly meeting with headquarters at 304 Arch St. might naturally be included in this group, but it also has closer association both with the Friends general conference and the Five Years meeting.

The four remaining yearly meetings are more evangelistic and fundamentalist in nature and outlook. They conduct mission work in Africa, China, India and in Bolivia, South America.

The American Friends fellowship council with headquarters at 20 S. Twelfth St., Philadelphia, Pa., was established in 1936 to help promote the spirit of unity and understanding throughout

the Society of Friends in America. Among its activities is the Wider Quaker fellowship which is composed of persons who belong to other religious groups but who also desire fellowship with Friends. The three yearly meetings in Canada hold joint sessions. The two yearly meetings in New England had after June 1945 a united yearly meeting. Both orthodox and general conference yearly meeting groups in New York city, Baltimore, Md., and Philadelphia hold some joint sessions. This tendency toward unity and co-operation between the various groups was a marked trend after 1939.

The Friends world committee for consultation was organized at the Friends world conference held at Swarthmore, Pa., in 1937. There are three main sections of the committee as follows:—The European section including Denmark, Ireland, France, Germany, Great Britain, Holland, Prague group, Norway, Sweden and Switzerland. The American section includes the yearly meetings in the U.S., Canada, Mexico, Cuba and Jamaica. Also in this section should be the work the California yearly meeting does in Alaska, Guatemala and Honduras. The far eastern and African section includes East and South Africa, Hawaii, Madagascar, Pemba, China, Japan, India, Syria and Palestine, Australia and New Zealand. The work of the committee is promoted through intervisitation, national and regional conferences and publications.

The Friends committee on national legislation with headquarters in Washington, D.C., keeps in close touch with national legislation of interest to religious groups. Through its monthly newsletter, American Friends are kept informed on important legislative issues.

The American Friends service committee, 20 S. Twelfth St., Philadelphia, Pa., with branch offices in Los Angeles, Calif., Seattle, Wash., Chicago, Ill., and Boston, Mass., is the organization in the Society of Friends in America, which unites with the Friends service council in England in work of relief and social welfare throughout the world. The service committee carries on its work through its sections on foreign service, social-industrial, peace, clothing and civilian public service.

Through its foreign service section relief work was undertaken in the occupied countries soon after the cessation of hostilities in Europe. In 1945, relief work was carried on in Finland, France, Spain, Italy, North Africa, India and China. In the U.S. the social-industrial section carried on a program of rehabilitation projects in underprivileged areas and race relations education in localities where race tension was high. Thirteen annual institutes on international relations were held throughout the various sections of the U.S. as a part of the education program of the peace section.

Civilian public service was a program in which approximately 7,000 conscientious objectors were permitted by selective service to do work of national importance under civilian direction. Together with the Brethren and Mennonite service committees, the Friends directed this program from its beginning in 1940. The projects included soil conservation, farm service, fighting forest fires, acting as guinea pigs for medical research and serving as attendants in mental hospitals and training schools for mentally deficient children. Because of the end of World War II this program was to terminate early in 1946. (See also CHURCH MEMBERSHIP.) (HA. H.)

**Frings, Joseph** (1887— ), cardinal archbishop of Cologne, was born at Neuss, Germany, on Feb. 6. He was ordained in 1910, and served as rector of the Major seminary at Bensburg for many years.

He was named archbishop of Cologne in 1942 to succeed Joseph Cardinal Schulte. During World War II he fearlessly condemned nazi bombings and atrocities; defiantly censured

"evils perpetrated by the nazis" in numerous pastoral letters; remained with his flock throughout terrible bombings of Cologne, sharing their sufferings and privations, and even during bombardments never abandoned his episcopal residence, which was located in the heart of the city. He presided at the Fulda conference of the German hierarchy.

In 1945 he had laid plans to restore the famous Cologne cathedral to its former splendour by 1948, the year of the 700th anniversary of its foundation.

On Dec. 23, 1945, it was learned that he was among the 32 new cardinals appointed by Pius XII. He was created and proclaimed a cardinal on Feb. 18, 1946.

**Fruit.** The 1945 season in the United States, was one of varied returns of fruits ranging from several high record crops to some near-failures. The estimated combined total of 13 fruit crops was down 5% from 1944 but higher than any other year and 35% above the 1923-32 average. The greatest loss was that of apples which was only about a half crop. At the same time peaches made a new record production. Citrus fruits were abundant, grapefruit making a high record and oranges yielding only 2% less than 1944. Prices held firm through the year, consumers continuing the high rate of fruit consumption which had been growing during World War II. The decrease of military needs did not come into effect to any appreciable extent in the 1945 season.

Table I.—U.S. Apple Production in Leading States, 1945 and 1944

State	1945 bu.	1944 bu.	State	1945 bu.	1944 bu.
Washington . . .	25,840,000	31,100,000	Ohio . . . . .	984,000	395,000
California . . .	9,240,000	6,144,000	Indiana . . . .	828,000	1,363,000
Virginia . . . .	3,145,000	14,580,000	Missouri . . . .	817,000	660,000
Oregon . . . . .	2,774,000	3,432,000	Maryland . . . .	689,000	1,863,000
Illinois . . . . .	2,684,000	2,418,000	Connecticut . . .	511,000	1,523,000
Pennsylvania . .	2,470,000	9,100,000	New Mexico . . .	472,000	760,000
Idaho . . . . .	2,465,000	1,900,000	Utah . . . . .	420,000	629,000
New York . . . .	2,160,000	17,010,000	Massachusetts . .	410,000	2,747,000
West Virginia . .	1,625,000	4,356,000	Tennessee . . . .	405,000	351,000
New Jersey . . .	1,295,000	2,090,000	Wisconsin . . . .	316,000	805,000
Colorado . . . .	1,275,000	2,002,000	Arkansas . . . . .	312,000	568,000
Michigan . . . .	1,250,000	7,625,000	Montana . . . . .	290,000	400,000

**Apples.**—The commercial apple crop was a near-failure in 1945 being the smallest of late years. The United States department of agriculture estimated the total at only 64,400,000 bu. compared with 124,754,000 bu. in 1944 and a ten-year average of 119,046,000 bu. 1934-43. The crop was shortest in the eastern and central states which together had only one-third of the United States crop compared with two-thirds in 1944. The very early warm weather, followed by spring freezes and bad weather for pollination were the causes of the failure. Insect damage was also severe and accounted for the low quality of the fruit harvested. Commercial production in the western states was 8% below 1944, only California having a crop larger than in 1944. Summer and fall varieties were better crops than the winter sorts. The summer varieties were 21% short of 1944, fall varieties 41% and winter varieties 47% less. Winter apples usually amount to four-fifths of total commercial production.

Prices of apples were at ceilings, because of the short crop, most of the year. Prices to producers for apples averaged \$2.84 per bu. in October compared with \$2.05 a year earlier. Consumers paid high prices for the choice western varieties which brought from \$3.50 to \$4 per bu. Ceiling prices were advanced 4 cents per bu. on western apples and 7 cents on others, beginning Oct. 1, 1945. A larger proportion of the western crop came to eastern markets. Dryers reduced their purchases because of the high prices. The government issued a set-aside order in October requiring about 25% of all the northwest crop be subject to its purchase.

**Avocados.**—The 1945-46 avocado crop was estimated at 21,800 tons, a gain of 42% over the 15,300 crop of 1944 but below the record of 25,900 in 1943. California production was responsible for the gain, being 18,600 tons in 1945 compared with 9,500 tons in 1944 while the Florida crop was only 3,200 tons compared with 5,800 tons a year earlier.

**Bananas.**—The supply of bananas increased slowly through 1945 but was far short of supplying the demand. The shortage of properly equipped ships and the labour problems of producers were the principal handicaps. The Mexican crop was about the same in 1945 as a year earlier or nearly 20,000,000 bunches of 50 lb. each. Hurricanes destroyed a large area in Chiapas. During the first eight months of the year the United States imported more than 3,800,000 bunches from Mexico. Larger quantities were brought in from Nicaragua, Haiti, Cuba and Puerto Rico. The total supply was expected to exceed that of 1944 when 31,600,000 bunches were imported compared with a prewar normal of about 56,000,000 bunches. Growers' troubles in Central America were the principal handicap on production. High prices in the United States and Canada were an incentive to the prompt revival of the trade.

**Cherries.**—Total production in the 12 cherry states was estimated at 140,660 tons in 1945, 30% less than the 1944 crop and 8% below the

average. Sweet cherry production was the highest on record after 1938 at 95,870 tons but sour cherries amounted to only 44,790 tons, the lowest after 1938 except for 1943. Washington had a record crop of sweet cherries and Oregon and California near records.

**Cranberries.**—The 1945 cranberry crop in the United States was estimated by the U.S. department of agriculture at 649,000 bbl., 76% larger than the very light crop harvested in 1944 and 3% above the ten-year average of 631,660 bbl. 1934-43. The Massachusetts crop which was a near-failure in 1944 was 11% above the average in 1945. Harvest was late but the crop was of good quality. Labour shortage delayed harvest into November in Massachusetts and New Jersey, but was completed early in Wisconsin, Washington and Oregon. The production by states was as follows: Massachusetts 470,000 bbl., Wisconsin 81,000 bbl., New Jersey 49,000 bbl., Washington 36,400 bbl. and Oregon 12,600 bbl.

**Dates.**—A crop of 4,520 tons of dates was harvested in California in 1945 compared with 13,140 tons in 1944 and 5,064 tons average, 1934-43. Early rains damaged the crop and reduced the early prospects.

**Figs.**—California harvested a smaller crop of figs in 1945. Dried figs totalled 30,800 tons or 12% less than the 35,200 tons crop of 1944. The crop for sale fresh and for canning was 14,000 tons in 1945 compared with 19,000 tons in 1944. The Texas fig crop was 1,100 tons for canning, compared with 750 tons in 1944 and an average of 1,180 tons 1934-43.

Table II.—U.S. Production of Grapefruit by States, 1945† and 1944

State	1945 boxes*	1944 boxes*	State	1945 boxes*	1944 boxes*
Florida			California		
Seedless . . .	13,000,000	8,400,000	Desert Valley . .	1,330,000	1,530,000
Other . . . .	19,000,000	13,900,000	Other . . . . .	2,200,000	2,250,000
Texas . . . . .	23,000,000	22,300,000	Arizona . . . . .	4,500,000	3,750,000

\*Net contents of boxes of grapefruit are 60 lb. in California; in Florida and other states, 80 lb. †Estimates for 1945-46 production are preliminary.

**Grapefruit.**—The total grapefruit crop of 1945 was of all-time record size 21% above 1944 and 70% above the ten-year average reflecting the rapid growth in the production of this fruit. The crop was estimated at a total of 63,030,000 boxes compared with 52,130,000 boxes in 1944 and 37,000,000 boxes 1934-43. Florida came back after great loss from the hurricane in 1944. Of the Florida grapefruit used before Dec. 1, 1,900,000 boxes were processed and 2,700,000 boxes sold fresh. In 1944 2,900,000 boxes were canned and 2,400,000 sold fresh. Texas grapefruit production was also expanding steadily. Prices were well sustained through the year. World production of grapefruit was doubled in ten years and new plantings were expected to give an increasing output for several years ahead.

**Grapes.**—The 1945 crop of grapes was the second largest on record, 2,804,500 tons, 2% above 1944 and 13% above the ten-year average, 2,474,000 tons 1934-43. The severe frost damage in the eastern states held the crop to less than half the average. California which usually produces about 92% of the nation's total in 1945 produced 95% or an increase of 6% over 1944 but 4% less than the record production of 1943. All of the increase was in raisin varieties but a smaller percentage of the raisins were dried and raisin output fell off. California's crop of table grapes was 23% above average while the wine varieties were near average. The crop in the Pacific northwest was very good.

**BANANA WAREHOUSE** in Chicago where produce was threatened by spoilage when the truck drivers' strike of May 1945 held up local deliveries

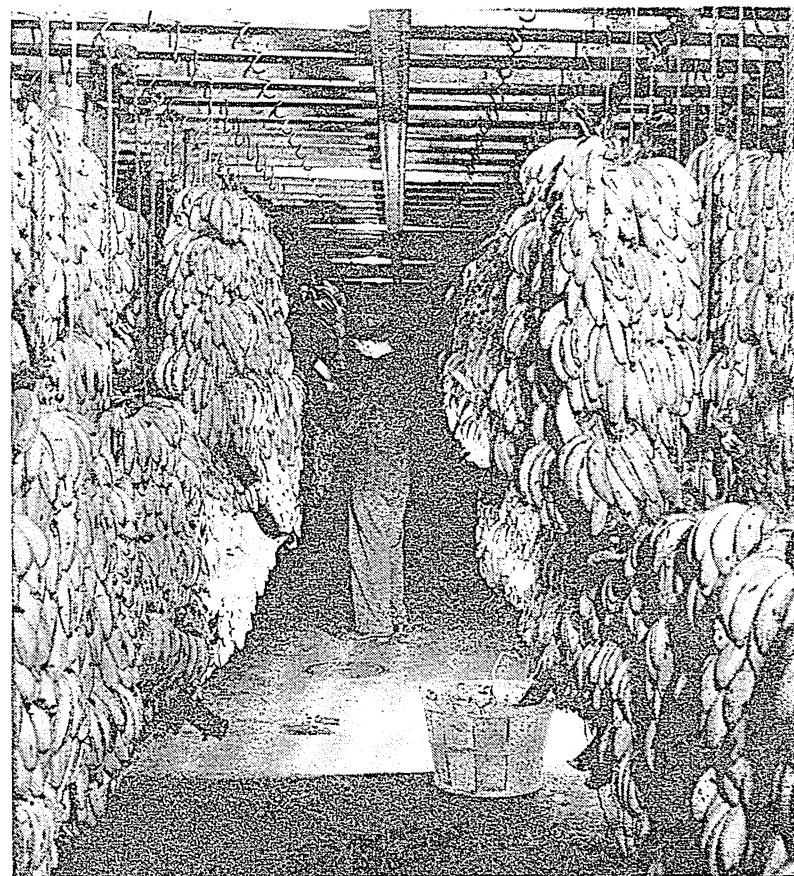




Table III.—U.S. Production of Grapes in Leading States, 1945 and 1944

State	1945 tons	1944 tons	State	1945 tons	1944 tons
California . . . . .	2,678,000	2,514,000	Tennessee . . . . .	1,900	2,300
New York . . . . .	30,000	59,300	Nebraska . . . . .	1,700	1,300
Washington . . . . .	18,000	17,300	Alabama . . . . .	1,500	1,200
Michigan . . . . .	14,600	34,000	Indiana . . . . .	1,400	2,500
Missouri . . . . .	6,500	6,500	Kentucky . . . . .	1,100	1,900
Ohio . . . . .	6,400	24,400	New Mexico . . . . .	1,100	1,000
Pennsylvania . . . . .	6,000	19,500	Arizona . . . . .	1,000	1,500
Arkansas . . . . .	4,700	10,600	Utah . . . . .	900	800
North Carolina . . . . .	3,700	6,600	New Jersey . . . . .	900	2,600
Illinois . . . . .	3,300	3,700	Colorado . . . . .	600	600
Iowa . . . . .	3,000	3,100	Florida . . . . .	600	600
Oklahoma . . . . .	2,500	3,200	Idaho . . . . .	450	450
Georgia . . . . .	2,300	2,200	Delaware . . . . .	450	1,200
Oregon . . . . .	2,300	2,300	Connecticut . . . . .	400	900
Texas . . . . .	2,100	2,100	Virginia . . . . .	250	1,800

**Lemons and Limes.**—The California lemon crop was estimated at 13,900,000 boxes in 1944 and the ten-year average 11,339,000 boxes 1934-43. This compares with the record production of 17,236,000 boxes produced in 1940. Imports of lemons were practically stopped during the war and did not begin in 1945. Prices continued high through the year at around \$7 per box at auction in New York.

The 1945 crop of limes, all grown in Florida, was estimated at 200,000 boxes compared with 250,000 boxes raised in 1944 and 93,000 boxes the average 1934-43. The drought through the citrus belt was the principal cause of a smaller harvest than in 1944.

**Olives.**—The California olive crop did not do well because of unfavourable weather. The total 1945 crop was only 31,000 tons compared with 42,000 tons harvested in 1944 and an average of 41,100 tons 1934-43. The crop of 1943 was a record at 57,000 tons.

Table IV.—U.S. Production of Oranges by States, 1945 and 1944

State	1945 boxes*	1944 boxes*
California . . . . .	51,300,000	60,300,000
Valencias . . . . .	32,400,000	38,200,000
Navels and miscellaneous . . . . .	18,900,000	22,100,000
Florida . . . . .	50,000,000	42,800,000
Early and midseason . . . . .	26,000,000	21,700,000
Valencias . . . . .	24,000,000	21,100,000
Tangerines . . . . .	4,000,000	4,000,000
Texas . . . . .	4,500,000	4,400,000
Arizona . . . . .	1,240,000	1,150,000
Louisiana . . . . .	310,000	360,000

\*Net content per box of oranges in California and Arizona approximates an average of 77 lb.; in Florida, Texas and other states, 90 lb.

**Oranges.**—Total United States orange production in the 1945-46 season was put at 107,350,000 boxes which was 2% less than the preceding record crop but 46% larger than the ten-year average of 73,725,000 boxes. The crop of early and midseason oranges was 3% more than in 1944 while Valencias were 5% below the previous year. The Florida crop might have been larger had not the drought from February to June caused a light set of fruit. The total production of Florida approached that of California for the first time. With the decline of military needs prices of oranges began to decline in the fall months with the appearance of new fruit on the market. In spite of increasing production after 1938 prices advanced steadily until the middle of 1945.

**Tangerines.**—The 1945 Florida tangerine crop was estimated at 4,000,000 boxes, the same as in 1944 but 44% above the average. This fruit was enjoying a new popularity and prices were well sustained.

Table V.—U.S. Peach Production in Leading States, 1945 and 1944

State	1945 bu.	1944 bu.	State	1945 bu.	1944 bu.
California . . . . .	31,419,000	34,044,000	Colorado . . . . .	2,372,000	2,112,000
Georgia . . . . .	8,091,000	4,590,000	North Carolina . . . . .	2,172,000	2,698,000
South Carolina . . . . .	5,760,000	2,460,000	Tennessee . . . . .	1,862,000	686,000
Michigan . . . . .	3,848,000	3,600,000	New York . . . . .	1,742,000	1,824,000
Arkansas . . . . .	2,967,000	2,646,000	Illinois . . . . .	1,638,000	1,470,000
Texas . . . . .	2,774,000	1,517,000	Mississippi . . . . .	1,418,000	1,105,000
Washington . . . . .	2,465,000	2,604,000	Kentucky . . . . .	1,273,000	878,000
Alabama . . . . .	2,440,000	1,380,000	Pennsylvania . . . . .	1,222,000	1,886,000

**Peaches.**—A record peach crop was harvested in 1945 of a total 81,578,000 bu. compared with 75,963,000 bu. in 1944 and 57,201,000 bu., the ten-year average. The previous record crop was 77,846,000 bu. harvested in 1931. All of the principal peach-growing areas had large crops except in a few localities where the early freeze killed some of the crop such as Virginia, West Virginia, Maryland and Delaware. The ten southern states had very favourable weather that resulted in a production 56% above 1944 and 71% above the average. In the far west the yields were high, California clingstones being 35% above average. The freestone crop was also large. Losses due to lack of labour at harvest and packing time amounted to about 5% of production compared with 10% loss in 1944. Prices held up close to ceilings despite heavy shipments through July but receded later in the season. The average for 1945 was about the same as the \$2.29 per bu. received for the 1944 crop.

**Pears.**—Production of pears made a new high record of 33,574,000 bu., 5% above 1944 and 17% above the prewar average. The crop in the west was a third above average but in the north Atlantic states the crop was only one-fourth of average due to the spring frosts. In the three Pacific states production of Bartlett's was 16% above the year earlier and 40% above average.

Prices of pears were close to the ceilings throughout the year. These ceilings which were first applied to pears in 1944 were \$3.60 per box for California pears at the beginning of the season, advancing with the season to \$4.60 per box beginning April 1, 1946, when the last of the

Table VI.—U.S. Pear Production in Leading States, 1945, 1944 and 10-Yr. Average

		10-Yr. Average (In thousands of bushels)					10-Yr. Average (In thousands of bushels)		
State	1945	1944	10-yr. average	State	1945	1944	10-yr. average	State	1945
California . . . . .	12,084	9,167	8,722	Georgia . . . . .	502	500	347	Georgia . . . . .	502
Bartlett . . . . .	1,875	1,250	1,229	Texas . . . . .	496	502	403	Texas . . . . .	496
Other varieties . . . . .	6,302	6,885	4,420	Tennessee . . . . .	467	188	286	Tennessee . . . . .	467
Washington . . . . .	1,620	1,780	1,841	Alabama . . . . .	416	312	291	Alabama . . . . .	416
Bartlett . . . . .	2,250	1,794	1,553	Mississippi . . . . .	401	354	360	Mississippi . . . . .	401
Other varieties . . . . .	2,884	2,560	2,167	Missouri . . . . .	370	175	354	Missouri . . . . .	370
				North Carolina . . . . .	360	354	317	North Carolina . . . . .	360
				Illinois . . . . .	354	335	517	Illinois . . . . .	354
				New York . . . . .	272	1,157	1,053	New York . . . . .	272

stored crop would be marketed. Kieffers sold at prices a little below the previous year but Seckels were higher.

**Plums and Prunes.**—The 1945 plum crop at 73,200 tons was 25% below the 1944 record crop of 98,200 tons. Both California and Michigan had smaller crops. California harvested 71,000 tons compared with 92,000 tons in 1944 and an average of 66,200 tons, 1934-43 while Michigan had only 2,200 tons compared with 6,200 tons in 1944 and 4,930 tons average.

Table VII.—U.S. Production of Prunes in Tons, by States, 1945 and 1944

State	1945 (fresh basis)	1944 (fresh basis)
Western Oregon . . . . .	72,000	46,000
Eastern Oregon . . . . .	19,900	14,400
Western Washington . . . . .	7,700	9,600
Eastern Washington . . . . .	17,200	17,400
Idaho . . . . .	28,000	22,900

Table VIII.—Quantities of Prunes Used Fresh, Canned and Dried, in Tons, 1945 and 1944

State	1945	1944
Used fresh		
Oregon . . . . .	22,600	17,800
Washington . . . . .	14,350	15,550
Idaho . . . . .	27,000	21,900
Canned		
Oregon . . . . .	19,000	14,800
Washington . . . . .	6,000	6,100
Dried		
California . . . . .	211,800	158,800
Oregon . . . . .	7,700	4,100
Washington . . . . .	300	300
Frozen . . . . .	10,200	8,800
Farm household use . . . . .	6,800	6,900

Prune production for all purposes in Idaho, Washington and Oregon was estimated at 144,800 tons (fresh basis) compared with 110,300 tons in 1944 and an average of 142,930 tons, 1934-43. In California production was 212,000 tons (dry basis) in 1945 compared with 159,000 tons in 1944 and an average of 205,000 tons. In 1945, 1,000 tons were reported as unharvested in California and 12,400 tons of prunes in western Oregon.

**Pineapples.**—Florida produced 10,000 crates of pineapples in 1945 compared with 15,000 crates in 1944, 3,000 crates in 1943 and an average of 10,800 crates 1934-43. Imports of pineapple increased 881,000 crates arriving in 1944 compared with 602,000 crates in 1943. Large quantities of prepared and candied pineapple were also being imported. (See also AGRICULTURE.)

FILMS.—Orange Grower (Encyclopædia Britannica Films Inc.).  
(J. C. Ms.)

**FSA:** see FARM SECURITY ADMINISTRATION; FEDERAL SECURITY AGENCY.

**FSLIC:** see HOUSING.

**FTC:** see FEDERAL TRADE COMMISSION.

**Fuel Briquettes.** The production of fuel briquettes in the United States expanded rapidly during the years of World War II, since it provided a satisfactory fuel from otherwise low-grade material. Output increased by 14% in 1944 and value by 22%, from 2,163,998 short tons in 1943 to 2,464,961 tons in 1944. In 1944 there were 30 plants operating in 15 states, with 7 more under construction. Wisconsin had 10 plants and about half the output, using bituminous coal slack that accumulated at the Great Lakes shipping ports.

(G. A. Ro.)

**Fuel Oil:** see BUSINESS REVIEW; PETROLEUM.

**Fuller's Earth.** The production of fuller's earth in the United States increased from 247,258 short tons in 1943 to 294,737 tons in 1944, the highest figure after the record peak of 1930, and nearly double the output of

1940. The refining of mineral oils took 61% of the total, vegetable oils 8%, rotary drilling mud 10% and absorbent uses 19%.  
(G. A. Ro.)

**Furniture Industry.** At the close of 1945, 2,300 factories in the United States manufacturing wooden household furniture had increased by 5% their 1944 production, despite their heavy contribution to the war effort, producing a total output of \$640,000,000 (wholesale) as compared with \$610,000,000 in the previous year. This was the highest volume after 1941, during which year production consisted of household furniture only and reached \$660,000,000. During 1945 the industry also produced approximately \$200,000,000 worth of war supplies, for a total production of more than \$800,000,000, the greatest dollar volume in the industry's history.

While output gained in value, it dropped in units because of increased prices granted newcomers and a 5% increase granted all furniture manufacturers in 1944. As compared with 1941, however, volume showed a much greater loss because only medium- and high-priced furniture was produced in 1945 while low-priced furniture was popular in 1941.

Wage earnings in the wooden household furniture industry reached an all-time peak in 1945 while employment dropped to 117,000, the same as in 1934. Average hourly earnings in 1945 were 89 cents compared with 55.5 cents in 1941 and weekly earnings rose from \$22.64 for a 41-hour week in 1941 to \$39.00 for a 44-hour week in 1945, a gain of nearly 70% in take-home pay. Simultaneously output per man-hour rose to an all-time high to partially offset this wage burden.

Although furniture factories can quickly reconvert from war work to peacetime production, the supply of household furniture after V-J day showed little improvement due to a shortage of manpower and a scarcity of lumber and upholstery fabrics. At the close of the year returning veterans were reapplying for jobs in furniture factories, the army and navy were reducing their lumber and fabric requirements and all indications pointed to capacity production of household furniture by the end of the first quarter of 1946.

Prices set by the Office of Price Administration (OPA) in late Dec. 1945 encouraged manufacturers to return to the production of low-priced furniture. The new prices allowed manufacturers 20% more for low-priced lines, 13% for medium-priced and 6½% for their highest priced goods. Upholsterers were granted smaller increases, 7% and 4%. This brought low-cost furniture prices up 25% above 1941, medium-priced up 18% and the top bracket of each line up 11½% for case goods, but only 12% and 9% for upholstered goods, above the 1941 price-freeze level.

During 1946 few factories were expected to be ready to export any of their output but thereafter U.S. furniture might find its way to Europe as well as Mexico and South America where a small part of each year's output was sold before World War II. England and Canada were returning rapidly to normal furniture production and factories in Italy and Belgium were coming back into production, but Germany's furniture industry was reported prostrate and Russia's badly disrupted. (See also INTERIOR DECORATION.)

FILMS.—*Furniture Craftsmen* (Encyclopædia Britannica Films Inc.).  
(J. A. G.)

**Furs.** The fur industry of the United States was active during the first half of 1945. There was a strong demand for skins except opossum, skunk, raccoon, red fox and a few other long-haired furs. All other furs of North American origin were in demand. There was a good market for South American nutria

and spotted cats. Some furs from Russia and Europe reached the U.S. market late in the year but the quantities were not great and no official import figures were available. London began to import raw furs in the fall of the year and became an active buyer in Canada and the U.S. The import of Persian lamb in 1945 during the period January to October inclusive totalled 4,928,482 skins and these imports were valued at \$45,650,843. These represented imports of raw lamb skins from Russia, Afghanistan and South-West Africa. Russian skins imported totalled 741,458 skins in the above period, valued at \$7,434,839. Imports from Afghanistan totalled 2,275,871 skins valued at \$26,106,220 and from South-West Africa 1,911,153 skins valued at \$12,109,784. Lamb skins from other sources were comparatively small. Imports of rabbit skins were greatly reduced from normal levels but prospects for a resumption of more normal trade with all foreign countries including China were greatly enhanced late in the year.

The American Fur Merchants association reported a total of \$59,388,890 (incomplete) in member sales for the 12-month period Dec. 1944 to Nov. 1945. This total compares with \$44,262,599 in the corresponding period Dec. 1943 to Nov. 1944. This gain was largely due to an increase in prices as well as sales. In addition there were other imports and exports which did not come within the association activities and were, therefore, not recorded in the association figures.

Many new and several old sources of supply were opened during the last quarter of 1945. The ending of World War II in Europe and Asia was the signal for the U.S. industry to regain quickly part of its former foreign markets. The demand in the U.S. for fur apparel was strong. Popular furs such as muskrat, in various dyed shades, Persian lamb (black and gray), mink (wild and ranch), beaver, nutria, Alaska seal and broadtail were the favourites followed by Indian lamb and the increasingly popular mouton.

Rabbit sold well but was slightly in eclipse with the rising of the mouton star. There was a persistent consumer demand for all types of better quality and luxurious fur apparel. The demand was at times stronger than the supply on such items as muskrat, mink, mouton, platinum fox and such luxurious items as stone marten, Russian sable and U.S. and Canadian marten.

The breeding of mink and fox was well maintained in spite of difficulties. Wild mink remained in favour throughout the year and sold at auction up to \$60 and over for finest Canadian skins. Ranch mink was in excellent demand and brought various prices for the best skins between \$50 and \$60. The mutation minks were more numerous and in excellent demand. A new mutation, royal pastel, was introduced at Seattle, Wash., but was not to be sold until Feb. 1946.

The end of the war in Europe and Asia brought a general feeling of confidence to all branches of the fur farming industry. The outlook for 1946 was encouraging with a great revival in the fur farming business anticipated. The year 1945 brought relief to the fur industry in the fact that men released from the army and navy returned to the fur business. They were badly needed since the beginning of 1945 found the number of workers available to the trade at a low point. It was only through the continuous efforts of the workers that production, even though below normal, was maintained. No official production figures were available at the end of the year but the trade had little or no unemployment and this applied to all branches of the trade in all parts of the United States.

According to U.S. government department of internal revenue figures, the fur industry paid \$52,172,280.67 in taxes for the first nine months in 1945, which amount represented 20% of all money collected at retail on the sale of taxable fur and fur-trimmed apparel. This was a gain in revenue as compared with

the amount of tax collected during the corresponding period in 1944 and which totalled \$37,076,362.04. The figures for the 12-month period were not available. The unions gained during the year with new and favourable labour contracts granting them further security of jobs and minor advantages but no official pay increase above prevailing rates. There was a gradual increase in the number of workers who returned following discharge from the army and navy. It was estimated that about 15% to 20% more workers were available to the trade the last half of the year.

FILMS.—*Industrial Provinces; Maritime Provinces; Prairie Provinces* (Encyclopædia Britannica Films Inc.) (W. J. Br.)

**FWA:** see FEDERAL WORKS AGENCY.

**Galen, Clement August von** (1878– ), cardinal archbishop of Munster, was born at Dinklage, Westphalia, Germany, on March 16. He was ordained in 1904, and named bishop of Munster in 1933.

One of the most outspoken and fearless opponents of nazi doctrine and practices, Bishop von Galen never failed to protest to Hitler by telegram or letter whenever the latter violated the concordat he had signed with the Vatican. He condemned from the pulpit and in his pastoral letters the unauthorized "murders" of invalids and the mentally ill. He vehemently denied the charge that all the German people were "equally responsible" for the crimes and atrocities committed during the war. His episcopal palace destroyed by the nazis, he retired to a Catholic hospital at Sendenhorst where he resided until peace was declared.

It was revealed on Dec. 23, 1945, that he was among the 32 new cardinals appointed by Pius XII. He was created and proclaimed a cardinal at consistory on Feb. 18, 1946.

**Gambia:** see BRITISH WEST AFRICA.

**Gandhi, Mohandas Karamchand** (1869– ), Hindu nationalist leader, was born at Porbandar (Kathiawar), India. For his biography, see *Encyclopædia Britannica*. On Jan. 22, 1937, Gandhi announced his retirement from active Indian politics, but by 1940 he was as prominent as ever in Indian affairs of state. The All-India congress on March 20, 1940, delegated to him the direction of negotiations with Great Britain for national independence. On Sept. 17, 1940, the congress committee elected Gandhi its leader. In April 1941, he announced that the congress had temporarily abandoned its aim of independence for India, but he reaffirmed his personal policy of nonviolence. On Dec. 30, 1941, Gandhi resigned from its leadership.

On March 27, 1942, Gandhi conferred with Sir Stafford Cripps; later he rejected the latter's proposals for Indian post-war independence. On Aug. 9, after the All-India Congress party had approved his proposals for a civil disobedience campaign, Gandhi was arrested with 200 other Indian leaders and was held as a political prisoner in the Aga Khan's palace in Poona. He was released in May 1944 because of failing health. Gandhi warned (Feb. 18, 1945) that a new and bloodier war would come about unless India and governments in similar positions were given their independence. Several days before the Simla conference proposed by the viceroy of India, Field Marshal Viscount Wavell, Gandhi said the time had come when he should step aside as leader of India's independence movement. While he approved the parley (June 19) as a "great advance," he did not attend. Some sources ascribed his refusal to attend to Wavell's rejection of his suggestions for changes in the composition of the proposed Indian council. (See also INDIA.)

**Garnet:** see ABRASIVES.

**Gas, Natural.** The marketed production of natural gas in the United States increased from 3,414,689,000 cu.ft. in 1943 to 3,780,232,000,000 in 1944; the corresponding figures for domestic consumption were 3,403,479,000,000 and 3,766,207,000,000. The small differences between production and consumption represent exports, mainly to Mexico. The over-all classification of types of consumption remained substantially unchanged at 6% for commercial, 15% for domestic and 79% for industrial uses, but consumption by petroleum refineries, carbon black plants and public utility power plants ran well ahead of the industrial average, while portland cement showed a decrease. The proportion of the output treated for the recovery of natural gasoline declined from 99% in 1940 to 89% in 1943 and 88% in 1944.

The figures above include only marketed output; gross output in 1943, in addition to the marketed production, included 824,803,000,000 cu.ft. used in repressuring oil fields, 18,953,000,000 put back into the ground for storage, and 624,175,000,000 of loss and waste, making a gross total of 4,942,560,000,000, of which 65% was from gas wells, and 35% from oil wells. No figures were available on production in 1945, but the recovery of natural gasoline in the first half of 1945 was 17% greater than in the same period of 1944, indicating a similar increase in gas production.

Canadian production of natural gas increased from 44,276,000,000 cu.ft. in 1943 to 45,957,000,000 in 1944, and to 37,601,000,000 in the first three quarters of 1945. (G. A. Ro.)

**Gasoline:** see PETROLEUM.

**Gasoline Engines:** see POWER ENGINEERING.

**Gas Turbines:** see POWER ENGINEERING.

**Gaulle, Charles de** (1890– ), French soldier and leader of the forces of Fighting France after the armistices of June 22–24, 1940, graduated from St. Cyr military college at Paris shortly before the German invasion of France in 1914. Wounded three times during World War I, he was captured by German troops at Verdun in 1916, but escaped and saw further action on the western front and in the near east. After 1918, De Gaulle tried to persuade France to mechanize its armies, but the conservative French general staff preferred to place its trust in static defense. When German mechanized armies skirted the Maginot line and overran France in May–June 1940, De Gaulle fled to London, formed, June 23, 1940, a French exile regime, and rallied many French colonies to the Allied cause. In Sept. 1941 the Free French National council was formed with De Gaulle as its president. He aligned his policy with the U.S., Great Britain and Russia and declared his council at war with Japan, Dec. 8, 1941. After Adm. Jean Darlan's assassination, Dec. 1942, De Gaulle shared power in North Africa with his rival, Gen. Henri Giraud, and on June 3, 1943, the two leaders were co-presidents of the newly formed French Committee of National Liberation. But in November, Giraud resigned, leaving De Gaulle in full control. By April 1944, De Gaulle was made supreme commander of French armed forces. He returned to Paris after its liberation and was acclaimed by the populace. On Oct. 23, U.S., Britain, Russia and Canada recognized his regime as both the *de facto* and *de jure* authority for France.

With the defeat of the reich in 1945, De Gaulle reiterated that France must be given "proper recognition" as a great power. He also maintained that the Ruhr and Rhineland should be internationalized. In June, he exchanged bitter recriminations with Churchill over Britain's temporary assumption of



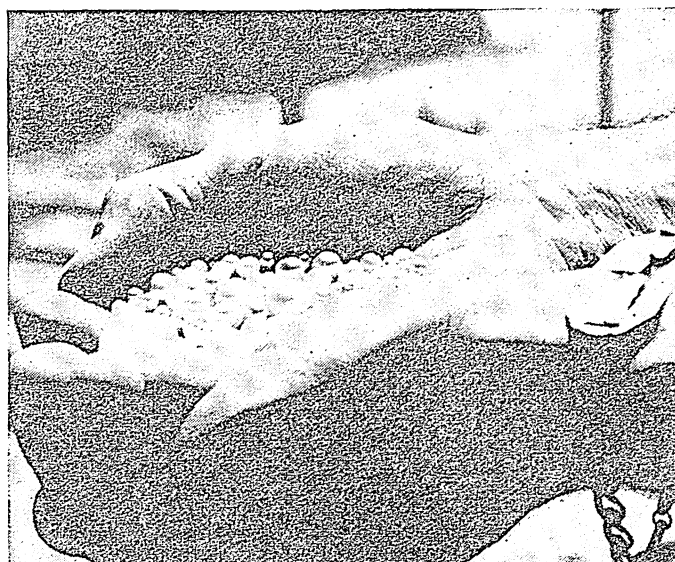
authority in the Levant and in August he visited Pres. Truman in Washington where the two leaders agreed on the necessity of "even closer co-operation" in the future. The French national elections held Oct. 21 were interpreted in some quarters as a victory for De Gaulle personally, although the communists and socialists emerged as the two strongest parties. In accordance with procedure legalized by the elections, De Gaulle resigned Nov. 6 and was unanimously elected interim president of the provisional government by the new constituent assembly.

**Gay, Maisie** (1883-1945), London-born musical comedy and revue actress. She first appeared at Blackpool in the chorus of Seymour Hicks's *The Cherry Girl* in 1903 and within a year was playing Nan in George Edwardes' *The Country Girl*. In three years she played the part more than 1,000 times and became a nationally-known actress. She subsequently played in *Our Miss Gibbs* and *The Quaker Girl* and in many Cochran and Charlot revues. Her most notable creation was the Cockney character Mrs. 'Arris, the renowned invisible companion of Mrs. Gamp. Ill-health caused her premature retirement in 1930. Her real name was Mrs. Harris, her husband being Oscar Harris, theatre manager. She died at Kingsdown, Box, Wiltshire, Sept. 13.

**Gayford, Oswald Robert** (1893-1945), British air force officer, was born May 18. He attended Bishop's Stortford school, Herts., Eng., later joined the royal navy as a seaman and served in that capacity until 1916 when he was commissioned as an observer in the royal naval air service. Following World War I, he saw service with the R.A.F. in British Somaliland and in the near east. Commodore Gayford, who was graduated from the R.A.F. staff college in 1930, became commander of R.A.F. long-range experiments in 1931. He set a world long-distance flight record in 1933 of 5,339 mi. in 57 hr. and 25 min., and some five years later a fleet of three bombers under his command set a new record, flying nonstop 17,162 mi. from Ismailia, Egypt, to Port Darwin, Austr., in 52 hr. He was attached to the air ministry staff, 1936-37, and was commander of an R.A.F. bomber station, 1939-41. He died Aug. 10, according to a London report.

**Geiger, Roy Stanley** (1885- ), U.S. marine corps officer, was born Jan. 25 in Middleburg, Fla. After graduating from Stetson university, Deland, Fla., in 1907, he enlisted in the marine corps and was commissioned a 2nd lieutenant in 1909. During World War I he served with the 1st marine aviation group in France. A graduate of the Command and General Staff school, the Army War college and the Naval War college, he directed marine aviation, 1931-35. In World War II Geiger commanded all army, marine and navy aviation units at Guadalcanal, 1942, and the following year it was disclosed that Maj. Gen. Geiger had succeeded Lt. Gen. Vandegrift as commander of army and marine forces on Bougainville; in July 1944 he commanded the expeditionary force that reconquered Guam Island. Geiger also headed marine forces in the Okinawa landings, April 1, 1945. His promotion to the rank of a lieutenant general was confirmed June 19, and three days later (June 22), he was made commander of the Pacific fleet marine force. Geiger opposed the war department proposal for a merger of the armed forces (Dec. 8) and also objected to the establishment of a separate air force which he maintained was the real purpose of the proposed merger.

**Gems and Precious Stones.** Conditions during World War II more or



PEARLS worth an estimated \$25,000, cupped in the hands of a U.S. soldier stationed on Bahrein Island, centre of the Persian Gulf pearl trade. The holder, while enjoying pearl diving as a recreation during 1945, undoubtedly did not own the pearls

less disorganized the gem industry, except insofar as the stones in question might have had industrial uses applicable in promoting the war program. For this reason diamonds (*q.v.*) fared better than other gems, and sapphires were also in some demand.

The gem-producing areas of Burma, Siam and Indo-China were in enemy hands, and presumably were operated only to a minor degree, if at all. In Ceylon and Madagascar graphite was more important than gems, and had priority on labour. Nothing was heard from the Indian ruby and sapphire fields, but it was possible that the U.S. troops in India provided some market and encouraged some output. The Colombian emerald mines were not operated for several years.

In the United States 4,500 oz. of sapphires were produced, mostly of industrial grades. The estimated total value of crude gem production declined from \$240,000 in 1941 to \$67,000 in 1943 and \$41,000 in 1944. (See also MINERALOGY.)

(G. A. Ro.)

**General Education Board:** see SOCIETIES AND ASSOCIATIONS: *Rockefeller Foundation*.

**General Federation of Women's Clubs:** see SOCIETIES AND ASSOCIATIONS.

**Genetics.** The most significant advances in genetics in 1945 were made in studies on micro-organisms. S. Spiegelman, Carl C. Lindegren and G. Lindegren reported a new case of cytoplasmic inheritance. They hybridized two yeast species and showed that a gene-determined enzyme which fermented the sugar, meliobiose, could be transmitted indefinitely through the cytoplasm as long as the meliobiose substrate was present, even in the continued absence of the gene which initiated the enzyme formation. Millislav Demerec and Ugo Fano discovered more than 700 mutations in the bacterium, *Escherichia coli*, each mutation making the bacterium resistant to one or more of seven strains of bacteriophage. S. E. Luria found mutations in two of these strains of bacteriophage which were able to attack the mutant bacteria resistant to the original phages.

**Human Genetics.**—William G. Lennox, E. L. Gibbs and Frederic A. Gibbs studied the electroencephalograms, brain waves, of 55 pairs of monozygotic and 19 pairs of dizygotic twins. They found that there was an agreement in physical and brain wave tests of identity in about 90% of the cases studied.

Most pairs of identical twins had brain wave records markedly similar in character. M. Zlotnikoff described a human bilateral mosaic, a woman 24 years old, with the right side of the body normal and the left side heavily splotched from head to foot with heavily pigmented areas. B. Glass pointed out that the case could be most satisfactorily explained as a dominant mutation in one cell at the two-cell stage of development. E. B. Sonn and Alexander S. Wiener published four pedigrees of the transmission of one of the rare Rhesus factor alleles and three pedigrees of another of these rare alleles. Laurence H. Snyder, M. D. Schonfeld and E. M. Offerman reported that a significantly high proportion of mothers of 122 feeble-minded children were Rh negative. This would seem to indicate that the Rhesus factor is concerned in some cases of feeble-mindedness.

**Cytogenetics.**—B. M. Slizynski published a new map of the fourth salivary chromosome of *Drosophila melanogaster* with about 130 bands. C. D. Darlington and L. F. La Cour showed that there was an interplay between X-ray effects on the cytoplasm and nucleus of plant cells and that this was dependent upon changes in the amount and form of nucleic acid in the cell. E. B. Lewis demonstrated in *Drosophila melanogaster* that the closely linked genes, star and asteroid, represented repeated loci which have become established in the species. The two loci exhibited position effects.

**Population Genetics.**—S. Gershenson investigated mixed populations of the mutant black hamster and the normal type in the Ukraine over a six-year period. From data based on more than 1,000,000 specimens he concluded that the black hamster was increasing in the west and decreasing in the east. Significant seasonal fluctuations also occurred. From an extensive study of *Drosophila melanogaster* populations in five areas of the United States Philip T. Ives found that from 45% to 67% of the second chromosomes carried lethals or semilethals. He concluded that the species breeds in large populations in the U.S. Harrison D. Stalker studied populations of the fly, *Scaptomyza graninum*, from New York and Missouri and found a higher number of recessive mutants present than in populations of *Drosophila*.

**Hybridization and Speciation.**—By hybridizing tobacco, *Nicotiana tabacum* and *Nicotiana glutinosa* D. U. Gerstel was able to transfer to tobacco a chromosome which carried a factor resistant to mosaic disease. S. G. Stevens found that leaf shape in new world cottons was controlled by a multiple allelic series containing at least four members. These four alleles were differentially distributed to the three species studied, and their phenotypic expression depended on the genetic background of each species. William H. McGibbon hybridized Muscovy and mallard ducks and found that the former species contained some eight cellular antigens not present in the latter. Malcolm R. Irwin and Leon J. Cole demonstrated through hybridization and subsequent backcrosses that cellular antigens specific to the Senegal dove segregated at random in the backcrosses. They concluded that the nine or more chromosomes carrying these factors paired normally with their ringdove chromosome partners in the hybrids. John T. Patterson and Theodosius Dobzhansky crossed two subspecies of *Drosophila pallidipennis*, one from Brazil and the other from Mexico. The subspecies crossed readily but male hybrids were completely sterile. They concluded that "the different components of the process of speciation characteristic for the genus *Drosophila* are largely independent."

**BIBLIOGRAPHY.**—*Genetics*, vol. 30 (1945); *J. Genet.*, 46:2, 3 (1945); *J. Hered.*, vol. 36 (1945). (W. P. S.)

**Geographical Society, American:** see SOCIETIES AND ASSOCIATIONS.

## Geography.

The end of World War II in 1945 found most geographers in an introspective frame of mind. The unprecedented demands placed upon the field of geography during the course of the conflict had on the whole been successfully met, and Allied forces had been provided with the foreign geographic intelligence they had required. The stresses and strains of the years of war had, however, done two important things: (a) revealed certain shortcomings in previous geographic training programs, and (b) introduced new techniques and suggested new avenues of development.

It appeared likely, in 1945, that during the coming years of peace a degree of change would take place in geographic discipline, probably along four principal lines. (1) Graduate training programs in the universities would undergo some revision, some changes in emphasis. (2) Available stores of geographic research materials would be bolstered by the release from government files of declassified intelligence reports and maps. (3) Possibilities inherent in "team research" might be further explored. (4) Emphasis upon the field of maps might be increased.

**Revised Training Programs.**—Wartime administrators had noted three chief deficiencies in the performance of geographers. First, there had often been a lack of ability to sift from available information those facts particularly relevant to the problem at hand.

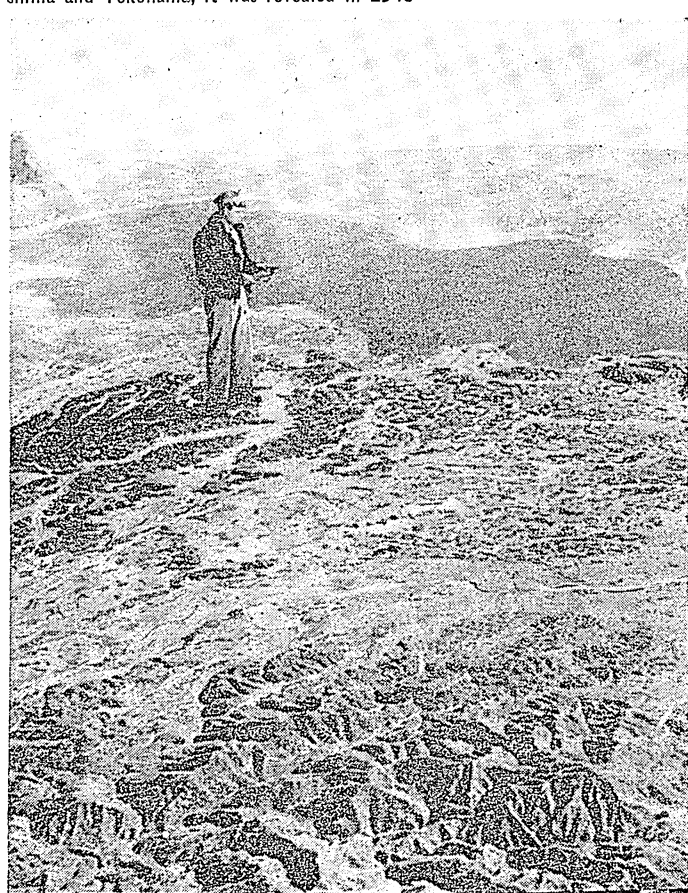
This, though by no means confined only to geographers, had been serious in view of the breadth and diversity of the materials handled by them.

More experience in "problem" assignments at the graduate level appeared to be indicated.

Second, a lack of facility in foreign languages and an unfamiliarity with foreign publications was also a difficulty. Again, greater emphasis in this type of training appeared to be the answer.

Third, there had seemed to be a tendency on the part of some geographers toward superficiality in treatment of func-

STAGE SET showing a huge miniature of Japanese industrial targets, built on a scale of 1 foot to the mile. From this and similar sets, motion pictures were made for briefing B-29 pilots in the bombing of Tokyo, Nagasaki, Hiroshima and Yokohama, it was revealed in 1945



tional problems of various types. This had apparently stemmed from a lack of specialization in graduate study in topical fields, as for instance transportation, minerals, etc.

**Augmented Research Materials.**—The staffs of several intelligence agencies had co-operated during the war in the preparation of a series of reports on specific areas of critical importance. These reports, taken together with numerous accompanying maps, constituted important additions to existing geographic knowledge, and appeared likely to be released. Moreover, large federal mapping agencies, which had contributed much toward adequate coverage of foreign areas, were already taking steps to release surplus stocks of maps.

**Further Use of Team Research.**—A troublesome characteristic of wartime problems had been their complete lack of respect for the boundaries among academic disciplines. As a result, workers in different fields had found themselves compelled to pool their resources—to engage in what was described as “team research.” Under conditions of controlled research and direct responsibility, this technique had met with considerable success, producing results in short periods of time. In 1945, viewing this experience in retrospect, geographers were weighing the possibilities for successful application of team research under conditions of peace in the universities and research foundations, as well as in the government.

**Increased Effort in Maps.**—The proverb “One ‘picture’ saves a thousand words” never carried a more pointed application than during World War II. As geographers developed skill in cartography, maps became more and more important to effective reporting of geographic intelligence. Skills gained during the war would not be lost, and it appeared probable not only that maps would increase in importance to research, but that greater emphasis would be placed on cartography in geographic training programs.

Large numbers of foreign maps had been made available during the war by the development of an aggressive procurement policy in foreign areas. These maps, covering a wide range of topics and areas, were in 1945 a forceful reminder to United States geographers that U.S. cartography had lagged behind that of certain other nations. Furthermore, geographers learned that a great store of map intelligence relating to foreign areas was being produced abroad. It appeared probable that the demand would continue for these maps and that they would be made increasingly available both through government and university efforts.

It appeared possible in 1945 that employment horizons for trained geographers would be broadened in the postwar years. Geographers leaving government employ were turning not only toward educational institutions, but also to the fields of industry and commerce. A number of geographers, particularly younger men who had received much of their experience in practical problems during the years of war, were, at the conclusion of hostilities, moving into employment in large corporations. The field of air transportation, for example, stimulated by the war and expanding on a large scale into foreign commerce for the first time, apparently constituted a receptive field for the application of geographic training. Other businesses, planning expansion into foreign markets in the face of increasing competition, were also indicating interest in the application of the skills of economic geography to their various problems. (See also NATIONAL GEOGRAPHIC SOCIETY; SOCIETIES AND ASSOCIATIONS.)

**FILMS.**—*Our Earth; Far Western States; Middle States; Northeastern States; Northwestern States; Southeastern States; Southwestern States* (Encyclopædia Britannica Films Inc.). (R. S. McC.)

**Geology.** The year 1945 witnessed a return from predominantly wartime pursuits of many geologists to more

normal peacetime interests, although the literature on geology reflected to a large extent the concentration of effort on strategic minerals during World War II.

Concrete illustrations of some of the applications of geology in Great Britain during the war were brought out by E. B. Bailey in the *Journal of Geology* for May 1945. The record of the far-flung activities of the United States Geological survey during the world conflict was not completely disclosed, but it was known that this organization played an important role at the battlefronts as well as behind the lines.

The improvements in technique in prospecting, and of map making and interpretation on the basis of aerial photographs developed during the war was expected to be a boon to geology and the mineral industry for many years to come.

An important book of the year for those interested in the mineral industry in war and peace was *Minerals of Might* by W. O. Hotchkiss. A striking assertion was, that mineral production during the previous 30 years (1915–1945) was as great as that during all the earlier history of man.

It remained to be determined at the council table whether the principle of equal access to mineral raw materials to the nations of the world, victors as well as vanquished, would prevail or if the policy would persist which had caused so many international festers to form in the past.

As a result of the rapid depletion of the reserves of mineral resources during the world conflict and the abnormal pent-up, civilian demand for mineral products, geologists were expected to be employed by industry for exploration and exploitation in much larger numbers than before the war. There was a more general realization that effective discovery and development of mineral deposits required the services of highly trained technicians. The presidential address of J. M. Boutwell on “Economic Geology” which appeared in the Nov. 1945 issue of the magazine bearing the same name was pertinent in this respect.

The problem of conserving known, waning natural resources, including soils, is as much a geological endeavour as the finding of new reserves. All phases of mineral exploration and development were also requiring more research. All these factors presage a growth in opportunities for well-trained geologists which could not be foreseen in prewar years. The greater responsibilities of geologists, both pure and applied, called for a greater effort on the part of educators in stimulating interest in the subject and in training men and women for the profession.

The increase in demand for well-trained geologists, coupled with the abnormally low production of scientists by colleges and universities during the later war years, promised to create a serious shortage of personnel for several years. Some factors which would tend to alleviate this situation are: (1) the return of a large number of veterans to industry and to educational institutions and (2) the awarding of graduate scholarships and fellowships in larger numbers than usual. The National Research council was taking the lead in the latter program.

The revised curricula for geology and geological engineering of many colleges and universities gave greater emphasis to field courses designed to fit the students more satisfactorily for practical work.

The volume of textbooks and other contributions to geology fell off noticeably during 1945. To what extent this was due to paper shortage was not revealed, but it was believed that there was a dearth of manuscripts submitted as a result of the all-out war effort as well as difficulties of publication.

Probably the most important additions of general interest to the field of geology during the year were the books: *Principles of Physical Geology* by Arthur Holmes; *Volcanoes as Landscape Forms* by C. A. Cotton; *The Story of the Great Geologists* by the Fentons, Carroll Lane and Mildred Adams; *Food or Famine, The Challenge of Erosion* by W. Shepard; *Fortress Islands of the Pacific, Their Geography and Strategic Importance* by W. H. Hobbs; and the Daly volume of the *American*



*Journal of Science*, entitled *Problems in Geology and Geophysics*, a symposium comprising 26 topics by 28 authors.

Three stimulating articles of 1945 were: (1) "Late Geologic History of the Pacific Basin," by H. T. Stearns, which appeared in the November issue of the *American Journal of Science*; (2) "Lithology of the Sea Floor off Southern California," by K. O. Emery and F. P. Shepard, in the April *Bulletin of the Geological Society of America*; and (3) "Erosional Development of Streams and Their Drainage Basins; Hydrophysical Approach to Quantitative Morphology," by R. E. Horton in the March number of the *Bulletin* of the same society. The latter contribution is a masterly analysis of stream development based upon hydrodynamic concepts.

The May 1945 issue of the *American Journal of Science* presents a symposium of ten papers on loess, covering such subjects as properties, character, types, origin and significance in the classification of soils.

In the field of volcanology the studies of the active Mexican volcano, Parícutín, being conducted under the direction of the United States Committee for the study of Parícutín Volcano, National Research Council, in co-operation with a corresponding Mexican committee are yielding valuable results. Three fruitful papers by investigators involved in the project appeared in the Oct. 1945 *Transactions of the American Geophysical Union*, viz.: (1) "The Genetic Significance of Parícutín" by L. C. Graton; (2) "Geologic Setting of Parícutín Volcano" by Howel Williams; and (3) "Observations on the Preservation of Plants in the Parícutín Area" by Erling Dorf. (See also MINERALOGY; PALAEONTOLOGY; SEISMOLOGY.)

FILMS.—*Earth's Rocky Crust; Geological Work of Ice; Ground Water; Mountain Building; Volcanoes in Action* (Encyclopædia Britannica Films Inc.). (F. M. V. T.; B. H. P.)

**George VI.** Repeated ovations from great London crowds outside the floodlit balcony of Buckingham palace, where he appeared with the queen and the two princesses on the victory nights of May and Aug. 1945, marked the re-emergence of King George VI from his mostly concealed war-time activities to full public exercise of his royal functions. Both victory rejoicings were followed by a state drive to St. Paul's cathedral for a national thanksgiving service. As part of the May celebrations the king, with the queen and princesses, drove through east and south London. Several historic precedents were set by the king during ceremonial visits to the outlying self-governing parts of his home realm. On June 7 and 8, accompanied by the queen, he spent two full days in the newly-liberated Channel Islands. A month later, this time with Princess Elizabeth also, the king and queen went (July 4-6) to the Isle of Man where the king, first British monarch to do so, presided over the 1,000-year-old Tynwald, the annual open-air reading of the laws. Finally, on July 17 the king opened the Northern Ireland parliament, the first time this assembly had been so honoured.

On Aug. 2 at Plymouth, the king met President Harry S. Truman, calling there on his way home from the conference at Berlin. Visits were exchanged on H.M.S. "Renown" and U.S.S. "Augusta." Messages of congratulation with all the principal Allies were exchanged on the conclusion of peace, and exiled royalties returning to Europe paid calls at Buckingham palace. Home ceremonial occasions included a farewell parade on Dec. 3, 1944, in Hyde Park of 7,000 men in representative detachments from the home guard, then standing down; another, also in Hyde Park, on June 10, 1945, of 2,500 men and women of the civil defense services, on disbanding; and on May 21 the march past Buckingham palace of a two-mile procession of British Legion veterans of World War I. Resuming some of his more social movements the king saw one of his horses win a race at Ascot.

The king broke his autumn holiday at Balmoral for three state visits. With the queen he went on Sept. 25 to open at Ladybower, Derbyshire, the last reservoir of the Derwent valley water scheme which jointly supplies the cities of Sheffield, Nottingham, Leicester and Derby. On Sept. 26 and 27 their majesties paid their second state visit of the year to Edinburgh for victory ceremonies and on Sept. 28 the king spent a day with the royal navy at Rosyth. On Nov. 13 and 14 the king and queen visited Wales in state.

During the flat-racing season which ended on Oct. 31, the king won 13 events with a total of £7,738 in prizes.

On Oct. 25 the king spoke at the centenary celebration in the Albert hall, London, of the Imperial College of Science and Technology and his tribute to science was broadcast, and on Dec. 4, with the queen, the king attended at St. Paul's cathedral the royal artillery memorial service to those who had fallen in the two world wars. (See ENCYCLOPÆDIA BRITANNICA.)

(L. Du.)

**Georgia.** A southern state, one of the original states of the union; popularly called the "Empire State of the South." Area 58,876 sq.mi. (including 358 sq.mi. of inland water); pop. (1940) 3,123,723; urban 1,073,808 (34.4%); rural 2,049,915 (65.6%); native white 2,026,362 (64.9%); Negro 1,084,927 (34.7%); foreign-born white 11,916 (.4%); other races 518. Capital, Atlanta (302,288); the next largest cities are Savannah (95,996); Augusta (65,919); Macon (57,865). On July 1, 1944, the bureau of the census estimated the population of the state at 3,223,727.

**History.**—The general assembly met from Jan. 9 to March 4, 1945. The primary accomplishment was the preparation of a new constitution for the state. This constitution was ratified by the people on Aug. 7. It provided among other things for repeal of the poll tax; establishment of the office of lieutenant governor; allocation of all state revenues to the general treasury from which appropriations were to be made under budgetary control; granting constitutional status to the public service commission and to the state board of correction; permitting towns and cities to issue certificates of indebtedness to acquire power plants of their own.

A special session was held in the summer of 1945 for the purpose of writing into the constitution a provision permitting a governor to run for re-election. The effort failed. Georgia governors under the new constitution at the end of 1945 could not run for re-election until four years had elapsed from the end of their term of office.

State officials at the end of the year 1945 were: governor, Ellis G. Arnall; attorney general, Eugene Cook; secretary of state, John B. Wilson; treasurer, George B. Hamilton; comptroller general, Homer C. Parker; chief justice, R. C. Bell; superintendent of schools, M. D. Collins; U.S. senators, Walter F. George and Richard B. Russell, Jr.

**Education.**—There were in 1943-44 (latest figures available at end of 1945) 363,602 white and 230,174 Negro students enrolled in the elementary schools; 108,832 white and 25,849 Negro students enrolled in the high schools. There were 1,894 white schools (including 854 high schools) and 3,121 Negro schools (548 high schools). There were 10,194 white and 6,221 Negro teachers of elementary grades; 4,982 white and 1,357 Negro teachers of high schools.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—As of June 30, 1945, there were 67,044 persons who received \$9,058,771.50 in old age assistance; 9,987 dependent children, benefits, \$1,181,961; 2,030 blind, benefits, \$348,562.50.

Unemployment benefits paid in Georgia from Jan. 1, 1939, to Oct. 20, 1945, inclusive, amounted to \$18,001,084.67. Payments issued from Jan. 1, 1945, to Oct. 20, 1945, inclusive, amounted to \$1,481,796.00 and were paid to approximately 20,000 persons. As of Oct. 20, 1945, the state of Georgia had a balance in the unemployment compensation trust fund of \$79,504,795.74.

The following budget allotments were made for welfare institutions for the fiscal year ending June 30, 1945: board of pardons and paroles, \$97,176.12; prisons, state department of corrections, \$766,131.16; public welfare benefits, \$5,424,566.32; state institutions, \$2,564,886.79.

At the Milledgeville State hospital on June 30, 1945, there were 8,442 patients; at the Boys Training school, 287; the Girls

Training school for white, 110; the Girls Training school for Negroes, 17; the Georgia Training school for mental defectives, 422.

**Communication.**—There were in Georgia on Jan. 1, 1945, 89,955.4 mi. of unpaved roads; 9,741.9 mi. of paved roads. Expenditures by the state highway department for the fiscal year 1944-45 amounted to \$4,446,878.77 for construction and \$5,152,912.87 for maintenance. Budget allotment to the state highway department for the fiscal year ended June 30, 1945, amounted to \$9,186,180.34; highway grants to counties for the period were \$4,300,000; memorandum allotments to maintain normal annual appropriation for highways for the fiscal year ending June 30, 1945, \$2,703,819.66.

There were in 1944 (latest figures available in 1945) 6,454 mi. of railways in the state. At the beginning of 1945 there were 40 civilian airports in Georgia. Approximate air route mileage within the state amounted to 2,000 mi. On Oct. 1, 1945, there were 289,782 telephones operated by the Bell system and 31,953 by independent companies.

**Banking and Finance.**—There were in Georgia as of June 30, 1945, 251 state banks with seven branches. These banks had total resources of \$651,185,875.60; loans and discounts, \$136,607,318.75; demand deposits, \$444,520,357.70; savings deposits, \$77,972,528.41. On that date there were 48 national banks with total loans and discounts of \$164,165,000; demand deposits, \$816,771,000; time deposits, \$138,046,000.

There were 21 building and loan associations reported at the end of 1944 with total assets of \$14,537,551.93.

Total state receipts for the year ending June 30, 1945, amounted to \$63,193,875.80. Chief sources of revenue in order of importance were: motor fuel tax, \$21,052,733.88; income tax, \$14,085,861.79; cigar and cigarette tax, \$4,630,753.28; general property tax, \$4,062,281.97; alcoholic beverage tax, \$3,600,225.22. Total budgetary allotments for operation and debt amounted to \$58,484,816.38. In addition memorandum allotments of \$4,549,332.79 were made bringing budget allotments to a grand total of \$63,034,149.17. The net obligations of the state of Georgia not covered by cash reserves were \$2,146,679.78 on June 30, 1945.

**Agriculture.**—The value of all Georgia crops produced in 1945 amounted to \$387,348,000. This was 4% above the 1944 total and was exceeded only by the all-time high valuation of \$578,000,000 in 1919. The leading agricultural products for the state in 1945 are shown in the accompanying table.

Leading Agricultural Products of Georgia, 1945 and 1944

Crop	1945	1944	Value, 1945
Cotton, bales	665,000	810,000	\$75,145,000
Cottonseed, short tons	266,000	320,000	13,566,000
Corn, bu.	48,678,000	40,802,000	73,504,000
Peanuts, lb.	704,700,000	683,620,000	57,081,000
Tobacco, lb.	108,035,000	93,780,000	43,884,000
Peaches, bu.	8,091,000	4,590,000	23,868,000
Hay, short tons	840,000	710,000	17,133,000
Potatoes, sweet, bu.	8,010,000	8,272,000	16,420,000
Commercial truck crops			12,091,000
Oats, bu.	15,000,000	13,080,000	12,000,000
Pecans, lb.	36,850,000	33,500,000	10,282,000

Source: U.S. department of agriculture.

**Manufacturing.**—No census of manufactures was taken after 1939. There were, in 1939, 3,150 manufacturing establishments in Georgia that produced goods valued at \$677,402,657, employed 170,165 persons, and paid in salaries and wages \$132,188,496.

**Mineral Production.**—In 1944 (latest complete year) Georgia produced 27 different minerals and mineral products including 80% of the kaolin produced in the United States. Value of mineral and mineral products was \$20,195,547, of which \$19,192,547 came from non-metallic minerals. Clays and clay products headed the list in values, \$6,954,021; stone was second,

\$5,037,596. Metallic minerals were valued at \$1,003,000; coal, \$85,000. Industrial and municipal water produced was valued at \$2,000,000 and water used in hydroelectric installations, \$31,700,460.

Minerals produced include agricultural lime, asbestos, barite, bauxite, cement, clay, coal, fuller's earth, gold, granite, iron ore, kyanite, lime, limestone, magnesium sulphate, manganese ore, manganiferous ore, marble, mica, ochre, peat, sand and gravel, silica, slate, stone, talc and umber. (E. C. Gr.)

**German Literature.** No notable literary work appeared in Germany during the catastrophic events of 1945, but a revival of sound intellectual life was seen in the re-establishment of many good German newspapers. More than 20 had begun to appear in the U.S. zone of occupation, representing various shades of political opinion. They were staffed by able young Germans under the supervision of the Allied military authorities, and carried good literary articles and notes as well as ordinary news. An interesting two-day conference of more than 40 editors was held at Marburg on Oct. 21-22.

Goethe's house at Frankfurt was destroyed by Allied bombing, but the Goethe museum and archives at Weimar were fortunately unharmed and were reopened. (S. B. F.)

**Germany.** A country under Allied military government, in central Europe, extending from the Alps to the North and Baltic seas, and lying mainly between the Oder and Rhine rivers. Capital, Berlin (*q.v.*). Chief cities (1939 census): Berlin (4,332,242); Hamburg (1,692,695); Munich (828,355); Cologne (768,426); Leipzig (701,606); Essen (659,871); Dresden (625,174); Frankfurt-on-Main (546,649); Duesseldorf (539,905); Dortmund (537,000). The population of all these cities was considerably reduced as a result of World War II. Religion (1933): Protestants 62.7%; Roman Catholics 32.5%; Jews 0.7%; others 4.1%.

**Area and Population.**—The area of Germany at the end of 1945 was 143,243 sq.mi. with an estimated population of at least 63,200,000, not including the armies of occupation. According to the census of May 17, 1939, the last available source for reliable statistics, the area of the old German reich, not including Hitler's annexations of 1938 and the following years, was 182,471 sq.mi. with a population of 69,622,483.

As a consequence of World War II, many changes affecting the total population of Germany and its dislocation took place between May 1939 and Dec. 1945. Some of the most important changes were the following. By the Allied Potsdam declaration of Aug. 2, 1945, Germany was deprived not only of all Hitler's annexations of territory, but also of all former German reich territory east of the Oder and western Neisse rivers. (See BERLIN CONFERENCE.) Of this territory east of the Oder, the northern half of East Prussia including Koenigsberg was transferred to the soviet union; the rest of East Prussia, together with most of Silesia and Pomerania and a part of Brandenburg, was transferred to Poland. The transferred territory contained about 40,000 sq.mi. and a population in 1939 of 9,300,000, *i.e.*, nearly a quarter of the area and about one-seventh of the population of the old reich. A large part of the men of working age were taken by the Russian armies to perform labour services in the soviet union. During 1945 what was left of this German east-of-the-Oder population—mainly women, old men and children—were uprooted and deported in large numbers to the truncated reich west of the Oder.

In addition, there were deported into the new Germany west of the Oder more than 2,000,000 German-speaking persons who had lived for generations in Danzig, the Polish Corridor, Czecho-

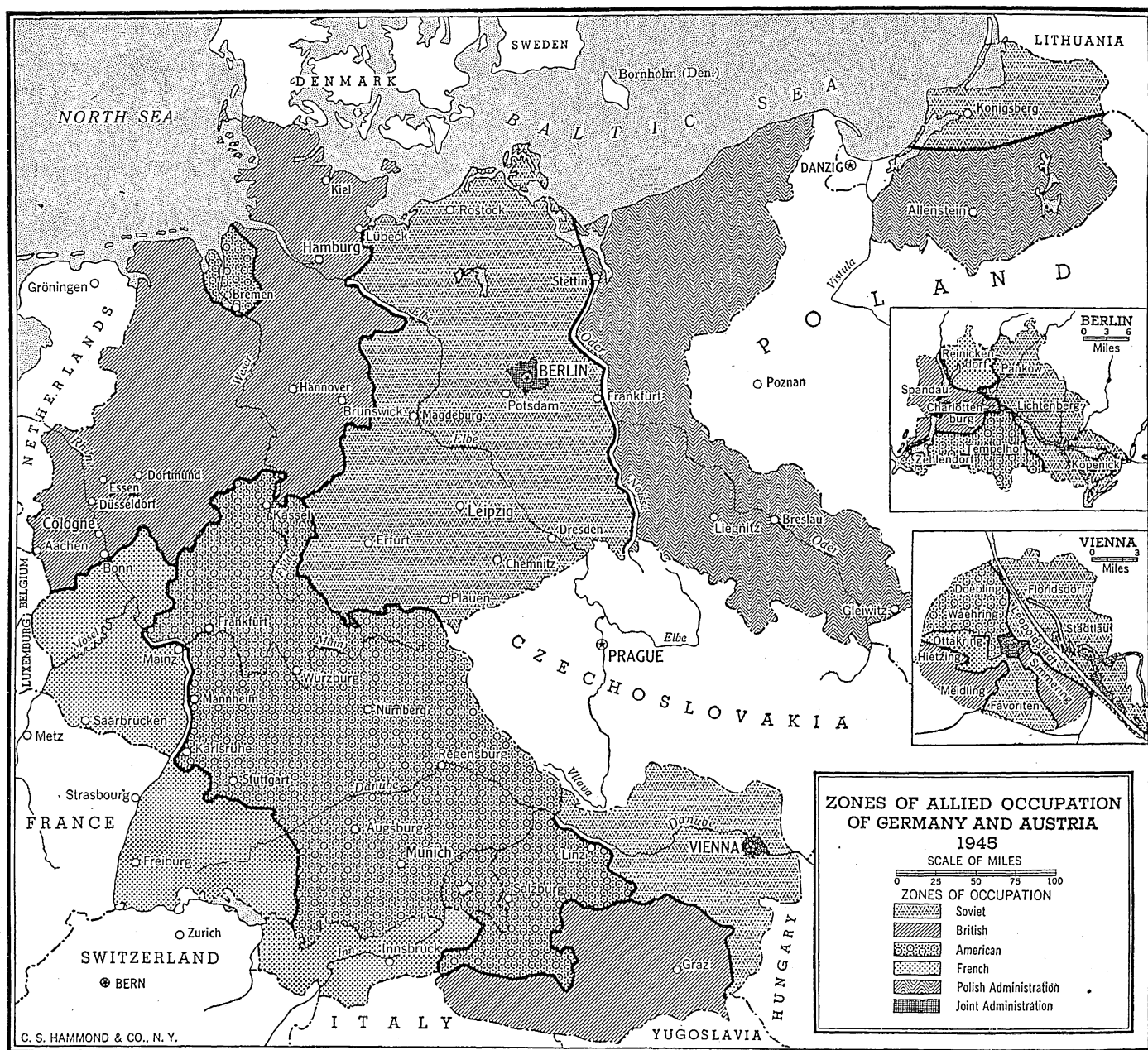
slovakia and Hungary, or who had been transplanted by Hitler during the war from the Baltic provinces and the Austrian Tyrol and given new homes in nazi-conquered lands. It was expected that during 1946 at least 2,000,000 more of these homeless, hungry, destitute deportees would be thrust into Germany to increase the difficulties of the Allied armies of occupation and to aggravate the food and unemployment problems already existing.

In May 1945, there were also 8,600,000 foreign "slave labourers"—6,400,000 civilian workers and 2,200,000 working prisoners of war—whom Hitler had brought into Germany from nazi-conquered lands to labour in the fields and factories in the place of Germans conscripted into the nazi fighting forces. These "displaced persons" were at once liberated by the Allies and repatriated as fast as inadequate transportation and other difficulties allowed. By the end of 1945 there were only about 1,000,000 remaining to be repatriated; these consisted mainly of Poles, Baltic Germans and some Russians, who hated the bolshevists and violently resisted repatriation which would have again subjected them to soviet domination.

The number of Germans in the armed forces who were killed or permanently disappeared and lost may be conservatively

estimated at 4,000,000. In addition, more than 300,000 civilians were killed in air raids. These figures do not include a much larger number who were wounded, permanently disabled, or taken prisoner. More than 2,000,000 German prisoners were detained or transferred abroad to perform labour services in France or Russia. The increased civilian death rate during the war years, because of war privations, disease, suicides, death in concentration camps and purges by the nazi police, was in part offset by the nazi efforts to stimulate the birth rate.

**History.**—The history of Germany in 1945 is the catastrophic story of military defeat, political collapse, and apathetic resignation to Allied military control. The invasion of Germany by the Anglo-U.S. forces across the Rhine and by the Russians across the Oder early in 1945 was preceded by terrific Allied bombing aimed primarily at munitions plants, aeroplane factories, synthetic gasoline works and the whole transportation system. This was so effective that the German armies had little or no air protection, no means of knowing exactly where the Allied armies were striking or rushing forward, and no way of transporting German troops quickly to threatened sectors. As a result, the Allied armies were able to cut behind the German troops and force them to surrender by the hundreds of thou-





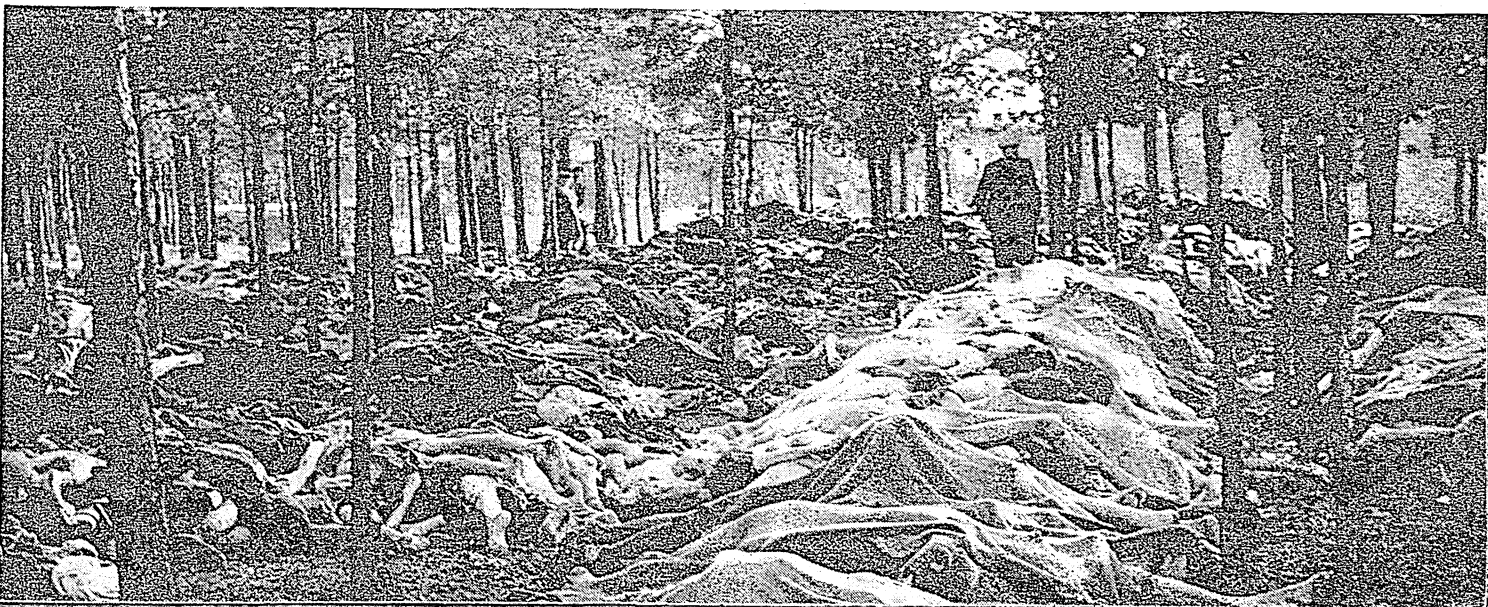


Above: GERMAN GOLD RESERVES, estimated at 100 tons, were discovered by troops of the U.S. 3rd army at Merkers, Germany, on April 7, 1945. They were stored in a 2,100-ft.-deep salt mine together with currency and priceless art treasures

Below: MAIN STREET in a German town as it looked to men of the U.S. 3rd army entering in May 1945. Homes lining the street were either totally destroyed or mere shells of brick

Right: CHILDREN of Berlin, foraging in a U.S. army mess hall during 1945, hunt for scraps to supplement their own thin rations

Bottom: VICTIMS of the Belsen concentration camp awaiting burial. Troops of the British 2nd army who liberated the camp on April 15, 1945, are reported to have found 29,000 persons dying of typhus, typhoid, tuberculosis and starvation



sands. On May 7 the Allied terms of unconditional surrender were signed by German officers at Rheims and confirmed next day in Berlin.

As the German armies collapsed or surrendered, many nazi leaders committed suicide, or tried to disguise and hide themselves. Hitler, after having expelled Goering and Himmler from the nazi party because of their efforts earlier to open peace negotiations through Sweden, shot himself in his air-raid shelter in the Berlin chancellery. Eva Braun, whom he had just married, died with him, and their bodies were said to have been so thoroughly consumed by fire that they could not be found. Across the street next day, in the basement of the propaganda ministry, Goebbels gave poison to his six children, and then shot himself and his wife. A little later, Heinrich Himmler, head of the gestapo, and Field Marshal Ritter von Greim, Goering's newly appointed successor as head of the luftwaffe, swallowed the cyanide of potassium which many nazi leaders carried with them in these last fatal days.

On May 1 Admiral Doenitz announced over the Hamburg radio that Hitler was dead, and that he himself, by Hitler's will, had been appointed his successor as reichspresident. The Allies allowed him and some other generals and admirals to exercise authority for three weeks in order to avert complete chaos and to facilitate the surrender and demobilization of the remaining troops. Then, on May 23, Doenitz and some 300 other highest officers and civilian officials were taken into custody at Flensburg in Schleswig. This marked the final end of the third reich, which Hitler had boasted would endure "for a thousand years."

On June 6 the Allies announced that Germany west of the Oder would be ruled for an indefinite period in four military zones, administered respectively by U.S., British, French and Russian authorities. Greater Berlin (341 sq.mi.; estimated pop. 3,200,000) was to be jointly administered by the four Allies. Unity of administration was to be secured as far as possible by a Four-Power Control council sitting in Berlin, but it could act only by unanimous vote of the four Allies, and this often proved difficult to secure. The approximate area and the estimated population of each of the four zones on Dec. 31, 1945, was as follows.

The U.S. zone (43,136 sq.mi.; pop. 17,800,000) comprised Bavaria and west central Germany, and also an enclave territory around Bremen within the British zone. The U.S. zone had a well-balanced economy with both agriculture and industry. De-nazification was carried out more completely there than elsewhere. Fraternization of U.S. troops with the German population was at first forbidden, but later permitted because the prohibition was difficult to enforce.

The British zone (36,869 sq.mi.; pop. 18,900,000) was made up mostly of Prussian territory, and stretched across north Germany from Luebeck and the Baltic sea to the Dutch and Belgian frontiers. It included a larger population and was more highly industrialized than any of the other zones. The British were more inclined than the other Allies to aid some German industrial recovery, in order to give employment and to furnish the country with needed manufactures and with exports with which to buy food and raw materials from abroad.

The relatively small French zone (21,558 sq.mi.; pop. 6,900,000) included two triangular districts separated from each other: Baden and western Wurttemberg in the southwest; and the Saar and Rhineland in the west. The French wanted their zone closely linked to France or placed under international control.

The Russian zone (41,339 sq.mi.; pop. 16,400,000) lay largely between the Oder and Elbe rivers, and included most of Brandenburg, Mecklenburg, and the industrial Saxon and Thuringian

territories. The Russians at once carried off great amounts of industrial equipment from their zone, and began to divide up the large landed estates in order to create small farms.

**Education.**—In the old reich in 1938 there were 51,118 public elementary schools (*grundschule*) with 7,596,437 pupils; 1,563 elementary "middle schools" teaching English and French with 272,635 pupils; 2,282 secondary schools with 670,895 pupils; 10 technical high schools with 9,554 students; and 25 universities with 48,139 students. The nazis also established many special schools for training "leaders," with emphasis on comradeship, sports, nazi ideology and leadership.

As a consequence of the war, practically all education collapsed in the spring of 1945. In Berlin, for instance, 149 school buildings were destroyed and 36 badly damaged. The Allied military authorities at once took steps to rehabilitate the schools by screening teachers for political reliability, printing new textbooks, and restoring or adapting buildings for school purposes. In Berlin, by December, 213 buildings were being used for primary and secondary education, though only 90 were in sound condition. Lack of coal and scarcity of wood throughout Germany made it often impossible to heat the schools, so that some had to be closed in cold weather. Because of the lack of enough new textbooks, some instruction was given by using films.

By the end of 1945 ten universities (Berlin, Jena, Goettingen, Heidelberg, Marburg, Hamburg, Kiel, Halle, Tuebingen, Freiburg) had again begun instruction in some or all of their faculties, medical, theological and technical courses being the first to be reopened. The buildings of the universities of Berlin, Wuerzburg, Cologne, Munich and Leipzig were largely destroyed, and those of several others were so damaged that new quarters had to be found. Great difficulty was experienced in finding satisfactory professors. More students applied for admission than could be accommodated.

**Defense.**—By the terms imposed on Germany the country was left without any army, navy or air forces. All war equipment was delivered over to the Allies or destroyed. Some munition plants were blown up and machinery in war producing plants, so far as it had not already been destroyed by Allied bombing, was either destroyed or confiscated for removal from Germany as part of Germany's reparation payments. Germany was forbidden to have or to build any aeroplanes either for military or commercial uses.

**Finance.**—The unit of currency is the German mark, nominally equivalent to 40.3325 U.S. cents, but actually hardly worth a quarter as much, because of the inflationary printing of new money. After U.S. troops entered Germany, General Eisenhower provisionally fixed the exchange value of the mark at 10 cents. The Allies seized or compelled the delivery of all monetary gold and paper money in the banks. In Jan. 1945, the reich debt was 315,000,000,000 marks; the note circulation had risen to 47,000,000,000 marks as compared with 3,500,000,000 marks in 1933—an inflationary increase from 50 marks per capita in 1933 to 670 marks in 1944. These conditions contributed to widespread "black market" operations in the summer and autumn of 1945.

**Trade and Communications.**—Germany's prewar trade is given in Table I.

Its trade in 1945 was greatly cut down by the loss of reich territory east of the Oder, by the industrial destruction caused by the war, and by the Allied reparations policy. By the Potsdam declaration of Aug. 2 and subsequent enactments, the Allies provided that Germany was to pay reparations, not in long-term payments reckoned in cash as after World War I, but in the delivery of gold, assets held abroad, and—most important—all machinery and equipment of plants making arms and munitions, ocean shipping, synthetic ammonia and gasoline,



Table I.—Imports, Exports and Balance of Trade, 1932–39

	Total Yearly			Monthly Average		
	Imports Million marks	Exports Million marks	Balance Million marks	Imports Million marks	Exports Million marks	Balance Million marks
1932 . . . . .	4,667	5,739	+1,072	389	478	+89
1933 . . . . .	4,204	4,871	+ 667	350	406	+56
1934 . . . . .	4,451	4,167	– 284	371	347	–24
1935 . . . . .	4,159	4,270	+ 111	347	356	+ 9
1936 . . . . .	4,218	4,768	+ 550	352	397	+46
1937 . . . . .	5,468	5,911	+ 443	456	493	+37
1938* . . . . .	6,052	5,620	– 432	504	468	–36
1939† . . . . .	2,755	2,814	+ 59	458	468	+10

\*Figures do not include Austria and Sudeten area.

†Figures are for the first six months of 1939 only.

aeroplanes, aluminum, magnesium, synthetic rubber and various other equipment. The amount of this equipment was to be determined by Feb. 1, 1946, and it was to be removed from Germany within six years.

The purpose of the reparations provisions was mainly threefold: to deprive Germany of all equipment which might help it prepare for another war; to help the countries which Germany conquered and exploited to bring about their own economic recovery and to become strong industrial nations; and to see that Germany would not enjoy a standard of living exceeding that of the other countries of Europe. The effect would be to reduce so greatly Germany's exports, which normally consisted mainly of manufactured goods, that Germany would have great difficulty in acquiring foreign exchange with which to pay for imports of vitally needed food and raw materials. For two or three years Germany would have to be fed in part by the Allies unless its population was to starve; but it was calculated that by 1948 it might have enough exports to pay for imports to make it self-supporting at a standard of living not much below that of 1932—the worst year of the depression.

German railways and rolling stock, as well as the canal system, were largely destroyed by the war, so that lack of adequate transportation was one of the most serious obstacles to any beginning of economic recovery in 1945.

**Agriculture, Manufactures and Mineral Production.**—Germany's prewar agricultural production is shown in Table II.

Table II.—Agricultural Production from 1932 to 1939

(In thousands of short tons)							
	Rye	Wheat	Barley	Oats	Potatoes	Sugar Beets	Fodder Beets
1932 . . . . .	9,219	5,515	3,543	7,330	51,826	8,681	38,014
1933 . . . . .	9,620	6,177	3,823	7,663	48,579	9,456	33,858
1934 . . . . .	8,385	4,996	3,531	6,010	51,566	11,457	37,262
1935 . . . . .	8,243	5,144	3,733	5,936	45,211	11,648	38,262
1936 . . . . .	8,142	4,879	3,747	6,193	51,062	13,332	41,696
1937 . . . . .	7,628	5,534	4,012	6,526	59,083	17,307	44,685
1938 . . . . .	9,329	6,065	4,604	6,916	53,682	18,960	45,966
1939* . . . . .	...	...	...	...	60,119	19,180	43,541

\*Figures for 1939 are estimated. The total grain harvest was estimated at 30,236,089 short tons, i.e., 6.4% more than the total for 1938.

The year 1945 was a poor harvest year because of the war, lack of agricultural manpower and bad weather conditions. Moreover, in losing the territory east of the Oder, Germany lost about 25% of its agricultural production, thus greatly aggravating the food problem in the new smaller Germany where more than 63,000,000 have to be fed as compared with less than 60,000,000 in the same area in 1938.

Germany's prewar mineral production is shown in Table III.

Table III.—Production of Minerals and Manufactured Products, 1933–37

(In short tons)					
	1933	1934	1935	1936	1937
Coal . . . . .	120,737,785	138,234,593	158,170,460	176,099,700	203,374,350
Lignite . . . . .	139,723,800	151,261,354	162,216,783	177,940,872	203,594,810
Iron ore . . . . .	2,857,162	4,787,289	6,662,301	8,344,411	10,793,722
Lead . . . . .	100,309	108,466	134,811	153,220	174,715
Zinc . . . . .	178,573	234,569	225,972	228,948	214,177
Rock salt . . . . .	2,029,665	2,231,276	2,289,698	2,627,663	3,050,064
Potash . . . . .	8,116,014	10,600,488	12,866,597	12,968,119	15,939,258
Pig iron . . . . .	5,783,217	9,608,418	14,160,366	16,867,946	17,592,708
Steel . . . . .	8,149,524	12,788,554	17,651,681	20,492,749	21,370,290

Most of the lead and zinc and about a third of the coal supply was lost by the transfer of Silesia to Poland. The production

of other minerals in 1945 was estimated at 20%–50% of pre-war amounts. What coal was produced went almost wholly to supply the needs of the armies of occupation or of Germany's neighbours, very little being available for the Germans themselves.

(See also ANTI-SEMITISM; FASCISM; ROMAN CATHOLIC CHURCH; WORLD WAR II.)

BIBLIOGRAPHY.—Count Folke Bernadotte, *The Curtain Falls* (1945); Arnold Brecht, *Federalism and Regionalism in Germany* (1945); G. P. Gooch and others, *The German Mind and Outlook* (1945). (S. B. F.)

**Gerow, Leonard T.** (1888– ), U.S. army officer, was born July 13 in Petersburg, Va. He was graduated from Virginia Military institute, Lexington, Va., in 1911 and was commissioned a 2nd lieutenant on joining the U.S. army. He served in the Mexican campaign and went overseas with the U.S. expeditionary forces to France in 1918. Following the end of World War I, Gerow was stationed in Shanghai and the Philippines. He was chief of staff of the war plans division during the Pearl Harbor incident and until Feb. 1942 when he was promoted to the rank of major general. He went to England in July 1943, where he became commander of U.S. field forces. He later became commander of the U.S. 5th corps (July 1944). Gen. Gerow participated in the Normandy landings in the summer of 1944, the drive on Paris, the Aachen battle and the Ardennes campaign in the winter of 1944–45. In Jan. 1945 he was named for promotion to the temporary rank of lieutenant general and the following March he was assigned to form a new army, the U.S. 15th. Subsequently Supreme Allied headquarters announced that the 15th army would take over the occupation of the U.S. zone of Germany. Gen. Gerow asserted (July 15) that he was leaving the command of the 15th army to become head of a board of U.S. officers to make a detailed study of the war. Testifying (Dec. 5) before the congressional committee investigating the Pearl Harbor attack, Gerow said he accepted the responsibility for not having instructed Gen. Walter C. Short to strengthen the defense measures at Pearl Harbor after the war department warned of the possibility of a Japanese attack.

**G. I. Bill of Rights:** see EDUCATION; LAW; SOCIAL SECURITY; VETERANS' ADMINISTRATION.

**Gibraltar:** see MEDITERRANEAN, BRITISH POSSESSIONS IN THE.

**Gilbert and Ellice Islands Colony:** see PACIFIC ISLANDS, BRITISH.

**Gilroy, Norman** (1896– ), Cardinal archbishop of Sydney, was born at Sydney (N.S.W.) suburb of Glebe on Jan. 22. At 18 he left Marist Brothers college, Kogarah, to take a position in the telegraphic department of the postmaster general's office. He enlisted in World War I, and served as radio operator on a troopship. He entered seminary immediately after discharge from service, and following his ordination in 1923, went to the Urban College of Propaganda in Rome to complete his studies.

He became secretary to the apostolic delegate to Australia in 1924 and secretary to bishop of Lismore in 1931, and served as chancellor of diocese of Lismore from 1931 to 1935, when he was named bishop of Port Augusta. He was elevated co-adjutor archbishop of Sydney, with right of succession, in 1937, and was designated archbishop of Sydney on March 8, 1940.

He carried on a vigorous campaign against the proposed lifting of the legal ban against the communist party in Australia, which was the object of an intensified campaign among the extreme section of trade unions and other organizations.

He was among those nominated to the Sacred College of Cardinals in Dec. 1945. Created and proclaimed cardinal at



consistory on Feb. 18, 1946, he became the first of Australian birth to be elevated to the sacred purple.

**Girl Scouts.** In 1945 the Girl Scouts, by helping relieve the sufferings of war-torn countries, gave tangible evidence of the good will and friendly attitude of the United States towards neighbours across the sea. Through the Juliette Low World Friendship fund, maintained by Girl Scout pennies, the Koloshan orphanage near Chungking received a gift of \$10,000 and the American Relief for Italy received \$1,000 for the purchase of 7,500 lb. of soap. Girl Scouts assisted in the preparation of 250,000 garments for Philippine war relief, and friendship bags filled with toys, clothing and toilet articles were sent to the bombed out children of Britain.

Plans for continued constructive participation in world affairs were made when the Girl Scouts, having been offered an opportunity to design their own plan of work for 1946, chose projects which emphasized world friendship and international understanding. A new share-the-food project was launched for the purpose of helping relieve the food situation in Europe, and the Scouts raised, harvested and canned more than 1,000,000 qt. of fruits and vegetables for overseas relief. An international division was established to develop more world-wide activities and a member of the division attended the first postwar meeting of the World Association of Girl Guides and Girl Scouts held in Switzerland.

The Scouts continued to alleviate the man and woman power shortage by assisting in homes, nurseries, playgrounds, schools and on farms. The rural program was enlarged to care for more girls in farm sections and plans were in the making for further expansion of the Wing Scout program.

At the end of Aug. 1945 total membership was 1,182,423, an increase of 166,359 over the figure at the end of Aug. 1944. (C. M. R.)

**Glands:** see ENDOCRINOLOGY; MEDICINE.

**Glass.** During the greater part of 1945, the United States glass industry operated under increasing handicaps imposed by wartime conditions. Demand for all kinds of glass products remained high, but orders could not be completely filled. Window glass was an important exception because of low activity in new construction.

Employment did not reach the high level of 1944, because men were not available. On the average, 85,000 persons worked in glass factories in the U.S., earning for the year 1945 about \$125,000,000. Strikes in plate-glass plants seriously reduced employment and production during the closing months of 1945. Because of these conditions, the total value of product fell below the \$550,000,000 mark set in 1944.

Bottles and containers again occupied a leading position in U.S. glass manufacturing, in numbers well over 100,000,000 gross. Further progress was made in making lightweight bottles to save transportation costs, and square jars for milk, which became immediately popular because they economize space. Paper continued scarce for wrapping and cartons; lumber for boxes and crates was lacking; freight traffic was hampered by military needs, by lack of help and by weather conditions in the cold months; certain chemicals needed for colouring and decolorizing remained hard to get. However, the fuel supply was above expectations.

The famous antimonopoly suit brought by the U.S. against holders of patents controlling the container industry, which had been decided against the defendants by the trial court, was reviewed by the supreme court, which sustained the basic findings of violation of the antitrust laws but ordered revisions in the severe injunctions laid. The case was remanded to the lower

court, which was to prepare a final judgment in conformation to the high court's opinion.

The extensive use of radar and radio by the armed forces continued to stimulate developments in vacuum tube and bulb manufacture. New glasses, new alloys and improved techniques changed materially the all-important art of sealing conductors into glass.

As an indispensable material for war, glass increased its usefulness as laboratory apparatus, insulation, aeroplane windows and cowls, bullet-resisting panes and optical glass for instruments. The progressive condition of the industry was attested by the fact that U.S. patents in the glass field, during a year when industrial patents were generally few, increased from 188 in 1944 to 195 in 1945. (S. R. S.)

**Glennon, John Joseph** (1862- ) Cardinal archbishop of St. Louis, was born at Kinnegad, County Meath, Ireland, on June 14. He was ordained at Kansas City, Mo., 1884, and served as vicar general of diocese of Kansas City. Consecrated titular bishop of Pinara and coadjutor bishop of Kansas City June 29, 1896, he was transferred to St. Louis as coadjutor to archbishop, April 27, 1903, and became archbishop of St. Louis Oct. 13, 1903.

Oldest member of the U.S. hierarchy in point of service he looks back upon sacerdotal and episcopal careers that are among the most distinguished in the history of the church anywhere.

World War I saw the intensification of Archbishop Glennon's already amazing activity. He had frequently expressed the hope that the United States might be spared the disasters of war, but once war was declared he threw himself unreservedly into the patriotic works that it required. He was one of the signers of the document of Catholic loyalty and patriotism sent to President Wilson on April 19, 1917.

During World War II, Archbishop Glennon constantly urged civilian defense, as a task for each man "joining with his neighbour to save his community." He stressed defense of U.S. rights and liberties, not only against threats from abroad but against abuse in the U.S.

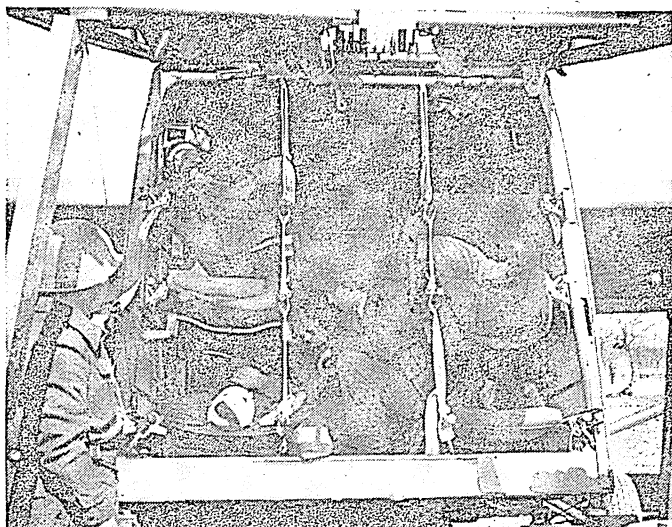
Nominated to the Sacred College of Cardinals, according to an announcement of Dec. 23, 1945, he was created and proclaimed a cardinal at consistory, Feb. 18, 1946.

**Gliding.** Military gliders participated up to the close of World War II in the European and Pacific theatres, in bringing up supplies to the front, thus hurdling the obstacles of jammed roads and lack of airports. The use of gliders for the evacuation of personnel and wounded was dramatized by the glider rescue on June 29, 1945, of the survivors of a wrecked transport plant, from the hidden valley in New Guinea, using glider pickup technique.

Civilian gliding in the U.S. was stimulated tremendously by the government's releasing for sale the army two-place training gliders. As one of the results, the first One Design Contest with ten Laister-Kauffmann two-place sailplanes competing, took place Sept. 2 and 3 of Labour day week end. The first prize was won by Lieut. Donald Pollard, U.S.N.R., with a soaring flight of 2 hr. and 30 min.

Beginning July 1, 1945, the Civil Aeronautics administration regulations permitted an applicant for a license for powered aircraft to submit glider flight time up to 50% of the required solo flight time for the private license and up to 25% for the commercial license.

The three-day Motorless Flight conference held by the Soaring Society of America, Oct. 12, 13 and 14 at Polytechnic Institute of Brooklyn emphasized the technical contributions of gliding and soaring to aviation. The program covered air frames,



AMBULANCE GLIDER with triple-tiered bunks made better time in evacuating wounded soldiers from the Rhine front than was possible over bad roads during the spring of 1945

cargo gliders, research, design and aerodynamics and glider training. Three more glider pilots, Franklin E. Hurtt, Clarence W. See, Jr. and Paul A. Schweizer earned the Silver "C" award granted by the Soaring Society of America, bringing the total in North America to 49.

On Nov. 4, 1945, Paul A. Schweizer and Franklin E. Hurtt established a new national duration record for two-place gliders, of 9 hr. and 17 min., at Elmira, N.Y. (B. Sk.)

**G-Men:** see FEDERAL BUREAU OF INVESTIGATION.

**Goebbels, Josef** (1897-1945), German propaganda chief, was born Oct. 29 at Rheydt in the Rhineland. After Hitler's advent to power in 1933, Goebbels received the newly-created post of reich minister of propaganda and public enlightenment. He was phenomenally successful in indoctrinating the entire nation with Hitler's ideas. The German press, radio and every other possible outlet for public information were under his strict control. After the period of great victories in World War II had ended and that of great defeats had started, Goebbels employed the channels of public information to prop sagging German morale. During 1944, he repeatedly promised the German people that "new and marvelous" secret weapons would snatch Germany from the abyss of certain defeat and result in ultimate triumph. He alternated these glowing promises with dire warnings that complete ruin and destruction faced the reich if it failed to emerge victorious. In early 1945, Goebbels' propaganda became more strident in its hysterical appeal to the people of Germany to stand firm. On April 19, he exhorted the Germans to disregard the rules of international warfare. "All means are fair and permissible in the struggle against the terrible foe," he cried. On April 24, he appealed to the citizenry of Berlin to "hold out" until "reinforcements" arrived from other fronts to defend the capital. Goebbels was believed to have remained in the reich chancellery with Hitler during the paroxysmic "last stand" in Berlin. A soviet communique of May 3, quoting a deposition by Hans Fritzsche, an assistant of Goebbels who was captured by the Russians, said that Goebbels had committed suicide. See also *Encyclopædia Britannica*.

**Goering, Hermann Wilhelm** (1893- ), German reichsmarshal and statesman, was born at Rosenheim, Bavaria, on Jan. 12 and was commander of the famed Richthofen squadron in the German air

force during World War I after Richthofen's death. Goering was an early member of the nazi party and became air minister and minister of the interior in 1933 upon Hitler's accession to the chancellorship. (See *Encyclopædia Britannica*.) On July 19, 1940, Hitler conferred the newly created title of marshal of the reich on Goering. As head of the economics general staff, Goering had supreme control over Germany's economic life. He was generally regarded as second man in Germany during World War II. His prediction in 1941 that the luftwaffe could do 100 to 1,000 times more damage than the R.A.F. was a sorry one, but his position as leader remained intact. In July 1944 he was named mobilization dictator. Goering surrendered to the Allies on May 9, 1945, and was indicted as a war criminal by the United Nations War Crimes commission, May 12. The political will of Adolf Hitler (dated April 29, 1945), disclosed that the fuhrer had ousted Goering from all of his government and party posts for "disloyalty." The prosecutors at the Nuernberg war crimes trial, at which Goering was one of the defendants, charged that the reichsmarshal was one of the chief instigators of the nazi plan to build a greater Germany by ruthless aggression and said he was implicated in the mass murders of Jews and foreign slave labourers. The trial was continuing at the end of 1945.

**Gold.** The two major trends with respect to gold introduced with World War II were still clearly in evidence in 1945. These were: (1) the decline in world output, and (2) the reversal of the prewar flow of gold into the United States, which between 1934 and 1941 had drawn \$18,700,000,000 of

Table I.—Analysis of Changes in Gold Stock of the United States  
(In millions of dollars)

Period	Gold stock at end of period	Increase in gold stock	Net gold import	Earmarked gold	Domestic gold production
1934*	8,238	4,202	1,134	+ 83	93
1935	10,125	1,887	1,739	...	111
1936	11,258†	1,133	1,117	- 86	132
1937	12,760†	1,503	1,586	-200	144
1938	14,512	1,752	1,974	-336	149
1939	17,644	3,132	3,574	-534	162
1940	21,995	4,351	4,745	-645	170
1941	22,737	742	982	-408	169
1942	22,726	-10	316	-458	125
1943	21,938	-789	69	-804	48
1944	20,619	-1,319	-845	-460	36
1945:					
Jan.	20,550	- 69	+ 1	- 58	3
Feb.	20,506	- 44	+ 2	- 37	2
March	20,419	- 87	- 19	- 47	2
April	20,374	- 45	+ 2	- 53	2
May	20,270	-103	-18	- 67	3
June	20,213	- 57	-84	+ 96	3
July	20,152	- 61	- 7	-100	2
Aug.	20,088	- 65	-12	- 63	3
Sept.	20,073	- 15	+14	- 19	4
Oct.	20,036	- 37	- 4§	+ 35	4
Nov.	20,030§	- 6§		- 38	4§
Dec.	20,065§	+ 35§		- 4	4§
Jan.-Dec.	20,065§	-554		-357†	33§

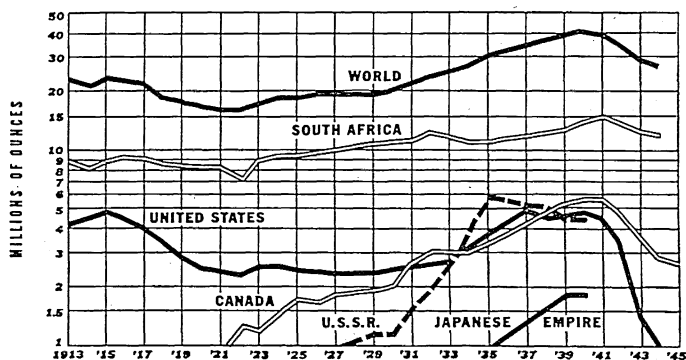
\*Figures based on rate of \$20.67 a fine ounce in Jan. 1934, and \$35 a fine ounce thereafter.

†Includes gold in the inactive account.

‡Gold under earmark at Federal Reserve banks for foreign account amounted to \$4,294,000,000 on Dec. 31, 1945. Of this \$4,191,000,000 was for foreign account.

§Preliminary.

||Not available.



GOLD PRODUCTION: world total and output of the principal producing countries, as compiled by *The Mineral Industry*

that metal from the rest of the world.

The decline in U.S. gold stocks and the building up of reserves elsewhere had resulted by mid-1945 in raising non-U.S. holdings to more than \$13,000,000,000, according to estimates of the New York Federal Reserve bank. Many important nations were publishing only incomplete reports, or none.

While the rest of the world, taken as a whole, was increasing its gold reserves in 1945, stocks of the U.S. fell from \$20,619,000,000 in 1944 to \$20,065,000,000, a decline of \$554,000,000. The cumulative loss for the three years ended Dec. 31, 1945, was \$2,669,000,000, of which \$2,077,000,000 represented earmarking and \$586,000,000 net physical exports.

(See also FEDERAL RESERVE SYSTEM.) (E. H. Co.)

World Production.—War conditions in 1945 made data on gold production inaccessible from most of Europe and Asia and part of Africa and Oceania. The available figures for important producing countries are as follows.

Table II.—World Production of Gold

	(Thousands of fine ounces)				
	1940	1941	1942	1943	1944
United States . . . . .	4,863	4,832	3,583	1,381	1,022
Canada . . . . .	5,311	5,345	4,841	3,651	2,885
Mexico . . . . .	883	800	801	632	509
South America . . . . .	1,880	1,747	1,604	1,442	1,368
India . . . . .	289	286	260	252	228
Belgian Congo . . . . .	555	561	500	453	?
Gold Coast . . . . .	886	885	784	565	?
Southern Rhodesia . . . . .	826	790	760	657	593
South Africa . . . . .	14,097	14,407	14,121	12,800	12,277
Australia . . . . .	1,644	1,497	1,154	751	658
Total (est.) . . . . .	42,153	40,291	35,514	29,429	27,070

The Union of Soviet Socialist Republics, which turns out the bulk of the European total, ceased reporting output several years before World War II. Three-quarters of the Asiatic prewar total came from Japanese territory and the Philippines. Even with data lacking from these and other areas of lesser importance, the figures reflect the widespread decline in gold output during the war years. In many countries this reduction was intentional, in order to concentrate labour and material on the production of more essential metals, but in some countries not involved in the war to any major degree, production was hampered by lack of proper equipment and supplies. A comparison of World Wars I and II shows that in both 1915 and 1940 gold production was higher than in the preceding year, but 1944 dropped 36% below 1940 and 23% below 1939, while 1918 was only 18% less than 1915 and 13% less than 1914.

The following figures were reported for output in 1945: U.S. (ten months) 750,000 oz.; Canada (nine months) 1,961,196 oz.; Colombia (nine months) 402,000 oz.; India (nine months) 141,000 oz.; South Africa (ten months) 10,188,000 oz.; Southern Rhodesia (eight months) 382,000 oz.; Gold Coast (ten months) 455,000 oz.

United States.—The restriction of gold production continued in the U.S. in 1944, with the total reaching the lowest figure after the gold rush to California in 1849. There was little production from mines working primarily for gold, and when the peak of demand for base metals was past, gold recovery from these sources also declined. Losses averaged 27% below the 1943 level, and were well distributed over all producing areas. The total decline in output in the U.S. was 79%, as compared with 36% for the world total. (See also EXCHANGE CONTROL AND EXCHANGE RATES; MINERAL AND METAL PRODUCTION AND PRICES.) (G. A. Ro.)

**Gold Coast:** see BRITISH WEST AFRICA.

**Golf.** The story of golf in the U.S. in 1945 was pretty largely the story of one man and one golf organization. The man was Byron (Lord) Nelson and the organization the Professional Golfers' association to which he, being a professional, belonged.

Nelson, 33-year-old Texan, gained a mastery over his clubs no other player ever attained and, competing in 31 of the 40-odd tournaments arranged by the P.G.A. tournament bureau, won first money in 19 of them.

When the year ended his prize winnings had reached the fantastic total of \$60,600 in war bonds, breaking all previous records. The former high-water mark was \$46,766 which he set in 1944 when he more than doubled the existing mark of \$19,554 made by Sam Snead in 1938.

Nelson's chief triumph came in the P.G.A. championship which he won for a second time by defeating Sam Byrd, one-time New York Yankee outfielder, 4 and 3. The event was played at the Moraine Country club, Dayton, O., and Nelson had to come from behind after being three down at the end of 21 holes.



BING CROSBY (left) and Bob Hope playing an exhibition match at the Tam O'Shanter Country club, Chicago, during the summer of 1945. Proceeds went to the P.G.A. fund for rehabilitation of servicemen

The 1944 winner, Bob Hamilton, competing while on furlough from Ft. Lewis, Wash., was eliminated by Jack Grout of Chicago, Ill., in the opening round. The year 1945 marked the fifth time Nelson had been in the finals after 1939.

In addition he annexed the Canadian open, revived after a two-year blackout, with a total of 280, and also annexed the All-American open at Tam O'Shanter (Chicago) for the fourth time in five years with a score of 269, 19 under par. First prize in the All-American was \$13,200 in bonds, one of the largest sums ever realized by a single player in any one tournament. It raised his over-all collections in the All-American, which he had won in 1941, 1942 and 1944, to \$26,975 in actual cash.

In the course of the greatest winning streak ever attained by any player in the game's history, Nelson won 11 successive tournaments before being finally checked by Fred Haas, Jr., New Orleans amateur, in the Memphis, Tenn., open. Haas, incidentally, was the first amateur to turn back the pros in a P.G.A. event after Kenny Black last turned the trick in the Vancouver, Wash., open in 1936.

Subsequently two other amateurs outdid the pros in the field in which they are supposed to be unbeatable. Lt. Cary Middlecoff of Memphis carried off the honours in Pinehurst's centennial event while Frank Stranahan of Toledo, O., repeated the performance at Durham, N.C.

Harold (Jug) McSpaden, although failing to win a single tournament during the year, finished second in enough of them to wind up as the second-high money winner, his total earnings amounting to \$34,200.

During the year Nelson also established a new P.G.A. scoring record when he won the Seattle, Wash., open with the breath-taking score of 259, his four rounds being 62, 68, 63, 66. That left him 21 under par for a new world's record for a par 70 course.

Only a short while before Ben Hogan, who returned to tournament play after serving three years in the air force, won the Portland, Ore., open with a score of 261, his rounds being 65,



69, 63, 64. In a way this even bettered Nelson's score at Seattle for it was made on a par 72 course and was 27 strokes below par. Another record fell to Nelson's prowess when his year's average turned out to be 68.33, almost a full stroke below the mark he had set in 1944.

At the end of the year Nelson was honoured by being voted the year's No. 1 athlete in the annual Associated Press poll. This was the second successive time he had received the honour and marked the second time in the poll's history any athlete had been twice awarded the distinction. Don Budge, tennis star, received the award in 1937 and 1938. Only one other golfer was ever honoured in the poll, Gene Sarazen being the first choice of the voters in 1932. The tournaments Nelson won in 1945 together with his scores follow:

Phoenix (Ariz.) open, 274; Corpus Christi (Tex.) open, 264; New Orleans (La.) open (in play-off with Harold (Jug) McSpaden after tie at 284); Miami (Fla.) 4-ball (with McSpaden as partner); Charlotte (N.C.) open (in play-off with Sam Snead after ties at 272 and 69); Durham (N.C.) open, 276; Atlanta (Ga.) open, 263; Montreal (Canada) open, 268; Philadelphia Inquirer Invitation open, 269; Chicago Victory open, 275; P.G.A. championship; All-American open, 269; Canadian open, 280; Knoxville (Tenn.) open, 276; Spokane (Wash.) open, 266; Seattle (Wash.) open, 259; Fort Worth (Tex.) open, 273.

Other P.G.A. tournament winners and their scores in 1945 were:

Los Angeles (Calif.) open, Sam Snead, 283; Tucson (Ariz.) open, Ray Mangrum, 268; Texas open, Sam Byrd, 268; Gulfport (Miss.) open. Snead (in play-off with Nelson after tie at 275 and 71); Pensacola (Fla.) open, Snead, 266; Jacksonville (Fla.) open, Snead, 266; St. Paul (Minn.) open, E. J. Harrison, 273; Memphis (Tenn.) open, amateur Fred Haas, Jr., 270; Nashville (Tenn.) open, Ben Hogan, 265; Dallas (Tex.) open, Snead, 276; Tulsa (Okla.) open, Snead, 277; Portland (Ore.) open, Hogan, 261; Tacoma (Wash.) open, Jimmy Hines, 275; Richmond (Va.) open, Hogan, 289; Pinehurst (N.C.) open, amateur Lt. Cary Middlecoff, 280; Durham (N.C.) open, amateur Frank Stranahan, 277; Mobile (Ala.) open, Sam Byrd (in play-off with E. J. Harrison after tie at 283); Montgomery (Ala.) open, Hogan (in play-off with Harold McSpaden after tie at 282); Orlando (Fla.) open, Hogan, 270; Miami (Fla.) open, Henry Picard, 267. (W. D. R.)

**Gonorrhoea:** see VENEREAL DISEASES.

**Göring, Hermann Wilhelm:** see GOERING, HERMANN WILHELM.

**Gorizia:** see TRIESTE; YUGOSLAVIA.

**Gouveia, Teodosio Clemente de** (1889- ), cardinal archbishop of Lourenço Marques, Portuguese East Africa, was born at São Jorge, Madeira, on May 13. He was ordained in 1919; elevated to bishop of titular see of Leuce in 1936; and named archbishop of Lourenço Marques in 1941.

To secure funds for a new cathedral in the archdiocese, his excellency sold all the historical plate in the episcopal residence, accumulated down through the centuries. He was host to His Eminence Emmanuel Cardinal Gonçalves Cerêfeira, patriarch of Lisbon and 12 apostolic delegates at impressive consecration ceremonies of the cathedral in 1945. He has travelled throughout the entire vast archdiocese on foot, by plane and by automobile. He was named by Pope Pius XII to the Sacred College of Cardinals according to an announcement of Dec. 23, 1945, and was created and proclaimed a cardinal Feb. 18, 1946.

## Government Departments and Bureaus.

The following are the leading officers of the more important government departments and bureaus of the United States. The date for the information is Dec. 31, 1945.

Department or Bureau	Name	Post
Department of State . . . . .	*Byrnes, James F. *Acheson, Dean Cohen, Benjamin V. *Benton, William Clayton, William L. Dunn, James C. Braden, Spruille Russell, Donald S.	Secretary Under-Sec'y Counselor Asst. Sec'y Asst. Sec'y Asst. Sec'y Asst. Sec'y Asst. Sec'y
Office of International Information and Cultural Affairs . . . . .	Stone, William T.	Director
Department of the Treasury . . . . .	*Vinson, Fred M. Bell, Daniel W.	Secretary Under-Sec'y

Department or Bureau	Name	Post
Bureau of Comptroller of Currency . . . . .	Delano, Preston	Comptroller
Treasurer of the U.S. . . . .	Julian, William A.	Treasurer
Bureau of Customs . . . . .	Johnston, W. R.	Commissioner
Bureau of Internal Revenue . . . . .	Nunan, Joseph D., Jr.	Commissioner
Bureau of Narcotics . . . . .	Anslinger, Harry J.	Commissioner
Bureau of the Mint . . . . .	Ross, Mrs. Nellie Tayloe	Director
War Finance Division . . . . .	Clark, Vernon L.	Nat'l Director
War Department . . . . .	*Patterson, Robert P. Royall, Kenneth Clairborne, Brig. Gen.	Secretary Under-Sec'y
General Staff . . . . .	*Eisenhower, Dwight D., Gen. of the Army	Chief of Staff
*Women's Army Corps . . . . .	Boyce, Westray Battle, Col.	Director
Army Service Forces . . . . .	Lutes, LeRoy, Maj. Gen.*	Comm'd'g Gen.
Army Ground Forces . . . . .	*Devers, Jacob L., Gen.	Comm'd'g Gen.
Army Air Forces . . . . .	*Arnold, Henry H., Gen. of the Army	Comm'd'g Gen.
Department of Justice . . . . .	*Clark, Tom C.	Att'y-Gen.
Solicitor General . . . . .	McGrath, J. Howard	Solic. Gen.
*Federal Bureau of Investigation . . . . .	Hoover, J. Edgar	Director
Bureau of Prisons . . . . .	Bennett, James V.	Director
Immigration and Naturalization Service . . . . .	Carusi, Ugo	Commissioner
*Post Office Department . . . . .	*Hannegan, Robert E.	Postmaster Gen.
Department of the Navy . . . . .	*Forrestal, James Vacancy	Secretary Under-Sec'y
Chief of Naval Operations . . . . .	*Nimitz, Chester W., Fleet Adm.	Chief of Naval Operations
Bureau of Naval Personnel . . . . .	Denfeld, Louis E., Vice-Adm.	Chief
*Women's Reserve of the U.S. Naval Reserve . . . . .	Horton, Mildred McAfee, Capt.	Director
Bureau of Ordnance . . . . .	Hussey, George F., Jr., Vice-Adm.	Chief
Bureau of Ships . . . . .	Cochrane, Edward L., Vice-Adm.	Chief
Bureau of Aeronautics . . . . .	Sallada, H. B., Rear Adm.	Chief
Bureau of Yards and Docks . . . . .	Manning, J. J., Rear Adm.	Chief
*U.S. Marine Corps Headquarters . . . . .	*Vandegrift, Alexander A., Gen.	Commandant
*Women's Reserve of the U.S. Marine Corps Reserve . . . . .	Towle, Katherine, Col.	Director
*U. S. Coast Guard* . . . . .	Farley, Joseph F., Adm.*	Commandant
*Women's Reserve of the U.S. Coast Guard Reserve . . . . .	Stratton, Dorothy C., Capt.	Director
Department of the Interior . . . . .	*Ickes, Harold L.	Secretary
General Land Office . . . . .	Fortas, Abe	Under-Sec'y
Office of Indian Affairs . . . . .	Johnson, Fred W.	Commissioner
Solid Fuels Administration for War . . . . .	Brophy, William A.	Commissioner
Geological Survey . . . . .	*Ickes, Harold L.	Administrator
Fish and Wildlife Service . . . . .	Wrather, William E.	Director
Bureau of Reclamation . . . . .	Gabrielson, Ira N.	Director
National Park Service . . . . .	Straus, Michael W.	Commissioner
Bureau of Mines . . . . .	Drury, Newton B.	Director
Division of Territories and Island Possessions . . . . .	Sayers, Royd R.	Director
*War Relocation Authority . . . . .	Arnold, Edwin G.	Director
Department of Agriculture . . . . .	Myer, Dillon S.	Director
*Agricultural Research Administration . . . . .	*Anderson, Clinton P.	Secretary
Bureau of Animal Industry . . . . .	Hutson, John B.	Under-Sec'y
Bureau of Agricultural and Industrial Chemistry . . . . .	Cardon, P. V.	Administrator
Bureau of Dairy Industry . . . . .	Simms, Bennett T.	Chief
Bureau of Entomology and Plant Quarantine . . . . .	May, O. E.	Chief
Bureau of Plant Industry, Soils, and Agricultural Engineering . . . . .	Reed, Ollie E.	Chief
Bureau of Human Nutrition and Home Economics . . . . .	Annand, P. N.	Chief
Office of Experiment Stations . . . . .	Salter, Robert M.	Chief
Bureau of Agricultural Economics . . . . .	Stiebeling, Hazel K.	Chief
Extension Service . . . . .	Jardine, James T.	Chief
*Farm Credit Administration . . . . .	Tolley, Howard R.	Chief
*Farm Security Administration . . . . .	Wilson, M. L.	Director
Forest Service . . . . .	Duggan, I. W.	Governor
Office of Foreign Agricultural Relations . . . . .	Lasseter Dillard B.	Administrator
Production and Marketing Administration . . . . .	Watts, Lyle F.	Chief
Commodity Credit Corporation . . . . .	Wheeler, L. A.	Director
Federal Crop Insurance Corporation . . . . .	Hutson, John B.	Administrator
*Rural Electrification Administration . . . . .	Hutson, John B.	President
*Soil Conservation Service . . . . .	Wright, J. Carl	Manager
Department of Commerce . . . . .	*Wickard, Claude R.	Administrator
*Bureau of the Census . . . . .	Bennett, Hugh H.	Chief
Bureau of Foreign and Domestic Commerce . . . . .	*Wallace, Henry A.	Secretary
*National Bureau of Standards . . . . .	Schindler, Alfred	Under-Sec'y
*Coast and Geodetic Survey . . . . .	Capt, James C.	Director
Inland Waterways Corporation . . . . .	Taylor, Amos E.	Director
*Civil Aeronautics Administration . . . . .	Condon, E. U.	Director
Civil Aeronautics Board . . . . .	Colbert, Leo O.	Chairman of the Board
*Patent Office . . . . .	Trimble, South, Jr.	Administrator
*Weather Bureau . . . . .	Wright, Theodore P.	Chairman
Department of Labor . . . . .	Pogue, L. Welch	Commissioner
U. S. Conciliation Service . . . . .	Ooms, C. W.	Chief
Bureau of Labor Statistics . . . . .	Reichelderfer, F. W.	Secretary
*National War Labor Board* . . . . .	*Schwellenbach, Lewis B.	Asst. Sec'y
*U.S. Employment Service . . . . .	Tracy, D. W.	Director
Retraining and Re-employment Administration . . . . .	Warren, Edgar L.	Acting Commissioner
	Hinrichs, A. F.	Chairman
	Garrison, Lloyd K.	Director
	Goodwin, Robert C.	Acting
	Erskine, Graves B., Maj. Gen.	Administrator

\*See separate article or related articles.

\*Resigned effective Jan. 1, 1946.

\*Effective Jan. 1, 1946.

\*Transferred back to dept. of the treasury, effective Jan. 1, 1946.

\*Out of existence Dec. 31, 1945; succeeded by National Wage Stabilization board, W. Willard Wirtz, chairman.

Department or Bureau	Name	Post	Ministry or Department	Name	Post
*Children's Bureau . . . . .	Lenroot, Katharine F.	Chief	Aircraft Production . . . . .	John Wilmot	Minister
Women's Bureau . . . . .	Miller, Frieda S.	Chief	Air Ministry . . . . .	Oliver S. Franks	Permanent Secretary
Division of Labor Standards . . . . .	Zimmer, Verne A.	Director	Assistance Board . . . . .	Viscount Stansgate	Secretary of State
Wage and Hour and Public Contracts Divisions . . . . .	Walling, L. Metcalfe	Administrator	Burma Office . . . . .	Sir William Brown	Perm't Under-Sec'y
Federal Loan Agency . . . . .	Henderson, Charles B.	Acting Administrator	Cabinet Office . . . . .	Lord Soubury	Chairman
*Reconstruction Finance Corporation . . . . .	Schieck, DeWitt	Chairman	Civil Aviation, Ministry of . . . . .	Lord Pathick-Lawrence	Secretary of State
U.S. Commercial Company . . . . .	Truslow, Francis A.	President	Civil Service Commission . . . . .	Sir David T. Monteath	Perm't Under-Sec'y
Rubber Development Corporation . . . . .	Husbands, Sam H.	President	Colonial Office . . . . .	Sir Edward Bridges	Perm't Sec'y and Sec'y of the Cabinet
Federal National Mortgage Association . . . . .	Fisher, Charles T., Jr.	President	Commissioners of Crown Lands . . . . .	The Minister of Agriculture and Fisheries and the Sec'y of State for Scotland (ex officio)	Minister
*RFC Mortgage Company . . . . .	Mulligan, Henry A.	President		G. S. Cleverly	1st Commissioner
War Damage Corporation . . . . .	Gregory, E. B., Lt. Gen.	Chairman of the Board of War Assets			Secretary of State
War Assets Corporation . . . . .					Perm't Under-Sec'y
					Commissioners
*Federal Security Agency . . . . .	Miller, Watson B.	Administrator			
Office of Education . . . . .	Studebaker, John W.	Commissioner			
Public Health Service . . . . .	Parran, Dr. Thomas	Surgeon General			
*Social Security Board . . . . .	Altmeyer, Arthur J.	Chairman			
Food and Drug Administration . . . . .	Dunbar, Paul B.	Commissioner			
Office of Community War Services . . . . .	Miller, Watson B.	Director			
*Federal Works Agency . . . . .	Fleming, Philip B., Maj. Gen.	Administrator			
Public Buildings Administration . . . . .	Reynolds, W. E.	Commissioner			
Public Roads Administration . . . . .	MacDonald, Thomas H.	Commissioner			
Bureau of Community Facilities . . . . .	Field, George H.	Commissioner			
Independent Offices					
*Export-Import Bank of Washington . . . . .	Taylor, Wayne C.	President			
*Federal Communications Commission . . . . .	Porter, Paul A.	Chairman			
*Federal Deposit Insurance Corp. . . . .	Hart, Maple T.	Chairman			
*Federal Power Commission . . . . .	Olds, Leland	Acting Chairman			
*Federal Reserve System, Board of Governors of the . . . . .	Eccles, Marriner S.	Chairman			
*Federal Trade Commission . . . . .	Ayres, William A. <sup>1</sup>	Chairman			
General Accounting Office . . . . .	Warren, Lindsay C.	Comptroller General			
*Government Printing Office . . . . .	Giegengack, A. E.	Public Printer			
*Interstate Commerce Commission . . . . .	Rogers, John L.	Chairman			
Library of Congress . . . . .	Evans, Luther H.	Librarian of Congress			
National Advisory Committee for Aeronautics . . . . .	Hunsaker, Dr. Jerome C.	Chairman			
*National Archives . . . . .	Buck, Solon J.	Archivist			
National Capital Park and Planning Commission . . . . .	Grant, U.S., III, Maj. Gen.	Chairman			
*National Labor Relations Board . . . . .	Herzog, Paul M.	Chairman			
*National Mediation Board . . . . .	Schwartz, Harry H.	Chairman			
Railroad Retirement Board . . . . .	Latimer, Murray W.	Chairman			
*Securities and Exchange Commission . . . . .	Purcell, Ganson	Chairman			
Smithsonian Institution . . . . .	Wetmore, Alexander	Secretary			
Tax Court of the United States . . . . .	Turner, Bolon B.	Presiding Judge			
*Tennessee Valley Authority . . . . .	Lilienthal, David E.	Chairman			
*U.S. Civil Service Commission . . . . .	Mitchell, Harry B.	President			
U.S. Employees' Compensation Commission . . . . .	Swofford, Mrs. Jewell W.	Chairman			
U.S. Maritime Commission . . . . .	*Land, E. S., Vice-Adm. <sup>2</sup>	Chairman			
U.S. Tariff Commission . . . . .	Ryder, Oscar B.	Chairman			
*Veterans' Administration . . . . .	*Bradley, Omar N., Gen.	Administrator			
Executive Office of the President					
Bureau of the Budget . . . . .	Smith, Harold D.	Director			
Emergency War Agencies					
*Office for Emergency Management (in Executive Office of the President)					
Office of Alien Property Custodian . . . . .	Markham, James E.	Custodian			
*Office of Inter-American Affairs . . . . .	Jameson, Francis A.	Acting Director			
*Office of Defense Transportation . . . . .	Johnson, J. M.	Director			
*Office of Scientific Research and Development . . . . .	Bush, Dr. Vannevar	Director			
*Civilian Production Administration . . . . .	Small, J. D.	Administrator			
Smaller War Plants Corp. <sup>3</sup> . . . . .	Maverick, Maury	Chairman			
*War Shipping Administration . . . . .	*Land, E. S., Vice-Adm. <sup>2</sup>	Administrator			
*Committee on Fair Employment Practice . . . . .	Ross, Malcolm	Chairman			
*National Housing Agency . . . . .	Blandford, John B., Jr.	Administrator			
*Federal Home Loan Bank Administration . . . . .	Fahey, John H.	Commissioner			
*Home Owners' Loan Corp. . . . .	Cotter, Charles F.	General Manager			
*Federal Housing Administration . . . . .	Foley, Raymond M.	Commissioner			
*Federal Public Housing Authority . . . . .	Klutznick, Philip M.	Commissioner			
*Office of Price Administration . . . . .	*Bowles, Chester	Administrator			
*Office of War Mobilization and Reconversion . . . . .	*Snyder, John W.	Director			
*Office of Contract Settlement . . . . .	Hinckley, Robert H.	Director			
Office of Stabilization Administrator . . . . .	Collet, John C.	Administrator			
*Surplus Property Administration . . . . .	*Symington, W. Stuart	Administrator			
Petroleum Administration for War . . . . .	*Ickes, Harold L.	Chairman			
*President's War Relief Control Board . . . . .	Davies, Joseph E.	Chairman			
*Board of War Communications . . . . .	Porter, Paul A.	Chairman			
*Selective Service System . . . . .	Hershey, Lewis B., Maj. Gen.	Director			
*United Nations Relief and Rehabilitation Administration . . . . .	*Lehman, Herbert H.	Director General			
Quasi-Official Agencies					
*American National Red Cross . . . . .	O'Connor, Basil	Chairman			
*Pan American Union . . . . .	Rowe, L. S.	Director General			
*National Academy of Sciences and National Research Council . . . . .	Jewett, Frank B.	President, National Academy of Sciences			
	Harrison, Ross G.	Chairman, National Research Council			

Great Britain.—The following were His Majesty's chief officers of state and the permanent officials of the more important of the government departments of Great Britain at the close of 1945:

Ministry or Department	Name	Post
Admiralty, The Board of . . . . .	A. V. Alexander	First Lord
Agriculture and Fisheries, Ministry of . . . . .	Sir Henry V. Markham	Permanent Secretary
	Tom Williams	Minister
	Sir Donald Vandepeer	Permanent Secretary

\*See separate article or related articles.

<sup>1</sup>Effective Jan. 1, 1946.

<sup>2</sup>Resigned, effective Jan. 15, 1946.

<sup>3</sup>Abolished, effective Jan. 28, 1946.

Government Expenditures: see BUDGET, NATIONAL.

Government Printing Office: see PRINTING OFFICE, U.S. GOVERNMENT.

Government Receipts: see BUDGET, NATIONAL.

Governors and Premiers, British: see BRITISH EMPIRE.

Grain: see BARLEY; CORN; OATS; RICE; RYE; WHEAT.

Granite: see STONE.

**Grant, Heber J.** (1856–1945), U.S. cleric and head of the Latter Day Saints (Mormon) Church, was born Nov. 22 in Salt Lake City, Utah, the son of one of the earliest Mormon settlers, who became the first mayor of Salt Lake City (incorporated) in 1851. Heber Grant studied at Deseret (later Utah) university and joined the Latter Day

Saints in 1876. Six years later, 1882, he was elected a member of the Council of Twelve and an apostle. He was named president of the council in 1916 and on Nov. 23, 1918, he was elected to the first-presidency of the Mormon Church. At one time Grant had three wives, but after the church barred polygamy he gave vigorous endorsement to the institution of monogamy; he also frowned upon Mormons who drank alcohol, tea or coffee, or used tobacco, and disapproved of "immodest" dress for Mormon women. He travelled throughout Europe and also in Japan, where he supervised the work of the Mormon missions. In his home state, he was active in business and was president of a number of influential and prosperous Utah firms. He died in Salt Lake City, May 14.

**Grapefruit:** see FRUIT.

**Grapes:** see FRUIT.

**Graphite.** Production of graphite in the United States increased from 7,120 short tons in 1942 to 9,939 tons in 1943, but dropped back to 5,408 tons in 1944. Corresponding shipments were 7,253 tons, 9,597 tons and 5,768 tons. By the end of 1943 the foreign supply had improved to such an extent that the plants erected with government funds were shut down, and War Production board restrictions on the use of graphite were relaxed. There seemed to be little prospect for a substantial postwar industry, since production costs were higher, while quality was lower than Ceylon and Madagascar graphite.

In Ceylon production declined in 1944 as a result of lower prices and many small mines were closed. Exports decreased, but shipments to the United States increased. All trade was controlled by the British ministry of supply until March 31, 1945, when the industry was turned back to private control.

Canada produced 1,903 short tons in 1943 and 1,582 tons in 1944, mainly of foundry grades. (G. A. Ro.)

**Gravel:** see SAND AND GRAVEL.

## Great Britain & Northern Ireland,

**United Kingdom of.** This comprises the main island of Great Britain, with numerous smaller islands off the English and Scottish coasts, and the six northeastern counties of Ireland. It is a constitutional monarchy, with a king and a parliament of two houses: the house of lords consisting of about 670 hereditary peers, 24 spiritual peers, 16 Scottish representative peers, a number of Irish representative peers (in 1944, 12; vacancies are no longer filled) and a few life peers who have held high judicial office; and the house of commons, numbering 640 members, elected by a practically universal suffrage. Flag, the Union Jack, consisting of a red cross on a white field (for England), surcharged on a diagonal white field (for Ireland), surcharged in turn on a diagonal white cross on a blue field (for Scotland). Ruler: King George VI (*q.v.*); prime minister: Clement R. Attlee, (*q.v.*); established church: Protestant Episcopal.

**Area and Population.**—Area 93,991 sq.mi.; pop. (est. Dec. 31, 1939) 47,735,000 (England and Wales 41,417,000). Chief towns (pop. est. June 30, 1938): London (cap.), city and metropolitan police districts, 8,700,000; city and metropolitan boroughs only, 4,062,800; Glasgow (June 30, 1939), 1,131,500; Birmingham, 1,041,000; Manchester (including Salford), 932,300; Liverpool, 827,400; Sheffield, 520,000; Leeds, 494,000; Edinburgh (June 30, 1939), 473,200; Belfast (Jan. 1, 1939), 443,500; Bristol, 415,000; Hull, 318,700.

**History.**—The principal events of 1945 were concentrated in the four middle months. The war in Europe ended on May 8

and a fortnight later the coalition of parties which had governed the United Kingdom from May 1940 under the premiership of Winston Churchill was dissolved. Churchill thereupon formed a "caretaker government" pending the dissolution of parliament and a general election. The dissolution took place on June 15 and the election on July 5. The returns which were made on July 26 gave the Labour party a majority of 158 over all other parties, and Attlee became prime minister. On Aug. 14 the Japanese surrendered. On Aug. 20 Pres. Truman cancelled all outstanding contracts for lend-lease.

The discovery of the means of releasing atomic energy aroused intense speculative interest. The government appointed a committee with Sir John Anderson as chairman to report on the subject and as a result the establishment of a research experimental station to cost £50,000,000 was announced. On Nov. 9 Attlee and Sir John Anderson left for the U.S. for a conference with Pres. Truman, and a joint statement issued by them on Nov. 15 regarding trusteeship of atom power was received with general approval.

**The General Election.**—The result of the election was a surprise even to the victors. No one expected so strong a swing to the left. The great receptions Churchill received during his election tours seemed to presage a different result. The extent of the turnover of votes is shown in the following comparison between the results in 1935, the date of the last previous general election, and 1945:

Year	Conservative, Liberal National, National and Ulster Union		Labour		Liberal		Others	
	Votes	Seats	Votes	Seats	Votes	Seats	Votes	Seats
1935	11,792,332	431	8,325,260	154	1,443,112	21	481,671	9
1945	9,960,809	213	11,992,292	393	2,239,668	12	491,162	22

At the time of the dissolution the Labour party held 163 seats. Its representation was therefore enlarged by 141% although the number of votes cast for it was only 32% more than in 1935. Its success was particularly noticeable in boroughs where formerly it had secured but moderate support. London returned 49 Labour members out of 62 constituencies, compared with 22 in 1935. The party even captured some county and rural seats in East Anglia, Buckinghamshire, Middlesex, Hampshire and in the west. These results were in some degree attributable to transfers of industrial workers and town dwellers into rural areas through the war. The party received much support from the forces and, for the first time, from the non-party floating mass of the electors who might have been expected to vote for Churchill. The Conservatives, together with the National Liberal and National Labour parties, held 393 seats at the dissolution. Of these they lost 181 or 46%, although their total of votes was only 15.5% below that of 1935. This fact, however, in no way reduced the significance of the Labour victory. The Liberals also did much worse than was expected. At the dissolution they held 18 seats and confidently anticipated adding considerably to them.

**Foreign Policy.**—The advent of the new government resulted in no appreciable change in British foreign policy. Attlee in September declared that a good understanding between Britain, the U.S.A. and the U.S.S.R. was the keystone of the arch of world security, and that the grave problems of Europe, of the middle and the far east were not soluble by short cuts or hasty actions. A change of heart was needed and a recognition of the economic interdependence of all peoples. His first requisite, a good understanding between the three great powers, received a serious setback when the council of their three foreign ministers with those of France and China broke up in disagreement on Oct. 2 on the question whether France and China, which had not signed the terms of sur-





THE ANCIENT Tower of London on the Thames was radiant under floodlight during the V-E celebrations in May 1945. Londoners welcomed an end to six years of darkness and war

render with Rumania, Bulgaria, Hungary and Finland, should be admitted to participate in discussing the contents of the peace treaties with them. V. M. Molotov upheld that they were excluded by the Berlin agreement of July 1945 setting up the council. Ernest Bevin maintained that not to admit them was incompatible with the charter of the United Nations.

*The Budget.*—When the regular annual budget for 1945-46 was introduced in April the total expenditure of the country on the war had amounted to £27,400,000,000 of which sum 49% had been paid out of current revenue. Of actual war expenditure 53.3% had been met by taxation, and the amount made available to the government in taxes and savings had been 42% of the total personal income of the country. The deficit, together with debt repayments and other capital transactions, had been covered as to 22% by small savings, 33% by the sale of other loans to the public, 31% by floating debt, and 14% from other sources. The war expenditure for 1944-45 was £4,678,000,000 and was paid as to 22% by reductions in consumption, 44½% from increased production, 7% from reduction in nonwar public expenditure, 14½% from reduced provisions for domestic capital and 12% from drafts on overseas capital. Thus more than a quarter of the cost of the war in 1944-45 was met at the expense of the national capital. The proportion for the five-and-a-half years was more than one-third. The expenditure for 1945-46 was estimated at £5,565,000,000 and the revenue at £3,265,000,000. These estimates were afterwards confirmed by Hugh Dalton in his supplementary budget of October. But the circumstance of the war being ended enabled him to announce some remissions of income tax which would come into effect in 1946-47 and in a full year amount to £315,000,000. In 1944-45, £1,183,000,000 were collected in income tax of which £540,000,000 were paid by the 12,000,000 people coming under the pay-as-you-earn system. Dalton's proposal relieved 2,000,000 of these of all liability, raised the exemption limit from £110 to £120, restored the personal allowance for married couples from £140 to the prewar £180 and for a single person from £80 to £110, and reduced the standard rate of tax from 10s. to 9s. But these reductions were balanced as to £7,000,000 by certain increases in surtax on higher incomes.

*International Financial Position.*—In 1929 the United King-

dom had overseas assets worth about £4,000,000,000. At least half of them were drawn upon during the war. In addition, sterling balances totalling more than £4,000,000,000 had accumulated in London to the credit of overseas countries. Hence Britain's international financial position had deteriorated during the war by not less than £6,000,000,000. The nature of Britain's contributions to the war was one cause of this result. They were mainly of the kinds which do not enter into international accountancy. On the other hand the assistance Britain required was of a kind which does. Moreover the figures omit any reference to the contingent liability of between £4,000,000,000 and £5,000,000,000 under lend-lease. After lend-lease was stopped on Aug. 20, Attlee announced that, excluding munitions, the overseas outgoings received under it up to the surrender of Japan were equivalent to an expenditure of £2,000,000,000 a year, toward which exports of £350,000,000 and other sources of income, some nonrecurring, might contribute £800,000,000. Britain therefore would have to start re-establishing its economy with an initial deficit of £1,200,000,000. Thus the war, by transforming Britain's international financial position, had emphasized the paramount importance to it of exports, not only to pay for essential imports, but also to meet new overseas liabilities arising from its war effort. At the same time the war cut down its exports from £470,000,000 in 1938 to £257,000,000 in 1944 and also reduced its merchant shipping from 40,000,000 dead-weight tons to 19,500,000. In the second place the war had imposed on Britain the necessity to prune down imports and other external expenditures. The British consumer would have to be satisfied with fewer imported goods and at the same time agree to surrender more of the domestic products to the export market.

*Demobilization.*—The capacity to reduce overseas expenditure and to stimulate exports depended upon the speed of reconversion from war to peace. Of the country's total labour strength, 55% was utilized in the forces and in war production. On the military side 5,350,000 men and women were involved. Their demobilization was governed by three factors: (1) the country's unavoidable military commitments at home and overseas—the cost of maintaining forces overseas adding greatly to external expenditure. In October 2,160,000 men were still serving overseas. (2) Transportation. (3) The Bevin scheme. This last was prepared while Bevin was minister of labour and national service. It was founded on the assumption that the war with Japan would continue for 18 months after the surrender of

Germany and on the principle that age and length of service should settle the order of release. Under a class A all serving had been arranged in groups according to their ages and the length of their service. But in order to meet the cases of men whose earlier release was needed for essential industries (such as building, civil engineering and underground coal mining) and essential services (such as teaching) a class B had been formed whose members were released before their class A time on condition that they remained for an indefinite time in these employments. Furthermore, class B releases must not exceed 10% of class A. On the assumption of a continuing Japanese war a release of 750,000 men and women by the end of 1945 was anticipated. With the sudden end of the Japanese war military commitments had to be entirely revised before any accelerated rate of release could be decided. Moreover the chief limiting factor then became, not military commitments, but shipping and transport. Another complication was the wide dispersal of class A groups which made it unfair to discharge men who happened to be in England before others in the same group who were abroad could be brought home. In these circumstances the revised estimates of demobilization were summarized as follows:

	Men	Women	Total
June to December 1945	1,347,800	162,270	1,510,070
January to June 1946	1,446,300	159,480	1,605,780
	2,794,100	321,750	3,115,850

The numbers still in the forces at the end of June 1946 would then be:

	Men	Women	Total
Navy	400,000	15,000	415,000
Army	1,109,900	47,000	1,156,900
Air Force	584,200	68,000	652,200
Nursing Service	—	8,700	8,700
	2,094,100	138,700	2,232,800

**Reorganization of Industry.**—The government decided in the autumn to buy out the shareholders of the Bank of England and to nationalize the coal mining industry, cable and wireless communications and civil aviation. Meanwhile Emanuel Shinwell was agitating to increase the output of coal by 8,000,000 tons during the winter of 1945-46. Sir Stafford Cripps appointed five "working parties," each composed of four employers, four trade unionists, four independent persons and an independent chairman, to examine and report on schemes and suggestions to improve the efficiency of the cotton, pottery, furniture, hosiery and boot and shoe industries. Each party was required to report before Christmas. Other industries were to be subjected to the same process later.

**Housing.**—The coalition government estimated that 300,000 was the largest number of brick houses which could be built during the two years after the defeat of Germany. This would go but a small way toward meeting the accumulated demand arising from a prewar shortage, the cessation of building during the war, the complete destruction of 200,000 houses by enemy action and the reparable damage done to others, in London alone numbering 720,000. Moreover about 4,000,000 houses were more than 80 years old and needed reconditioning. Aneurin Bevan, speaking for the Labour government, refused to commit himself to any estimate of future output owing to the uncertainties of cost and of labour supply. Instead, a monthly progress report was to be issued. Prefabricated houses would help to the extent of 158,480; but the chief responsibility would rest on the local authorities whose powers had been enlarged to meet the emergency.

**Controls.**—When introducing the bill to buy out the shareholders of the Bank of England, Dalton defended it for two reasons: (1) it would bring the law into relation with the fact

that the bank's policy had for many years conformed to that of the treasury; (2) it would ensure the country's banking and financial system conforming with the government's five-year plan and meeting the needs of its investment policy. The opposition was chiefly aimed against clause 4 empowering the bank, if authorized by the treasury, to secure information from, or to issue directions to, the commercial banks. The Supplies and Services (Emergency) bill enabling the government to maintain certain war controls for five years also drew some criticism. The need for such a measure during the transition period from war to peace was recognized by the coalition government. But two years were then considered to suffice, and the Labour government's lengthening of the time to five years aroused the suspicions of the opposition. But the bill passed.

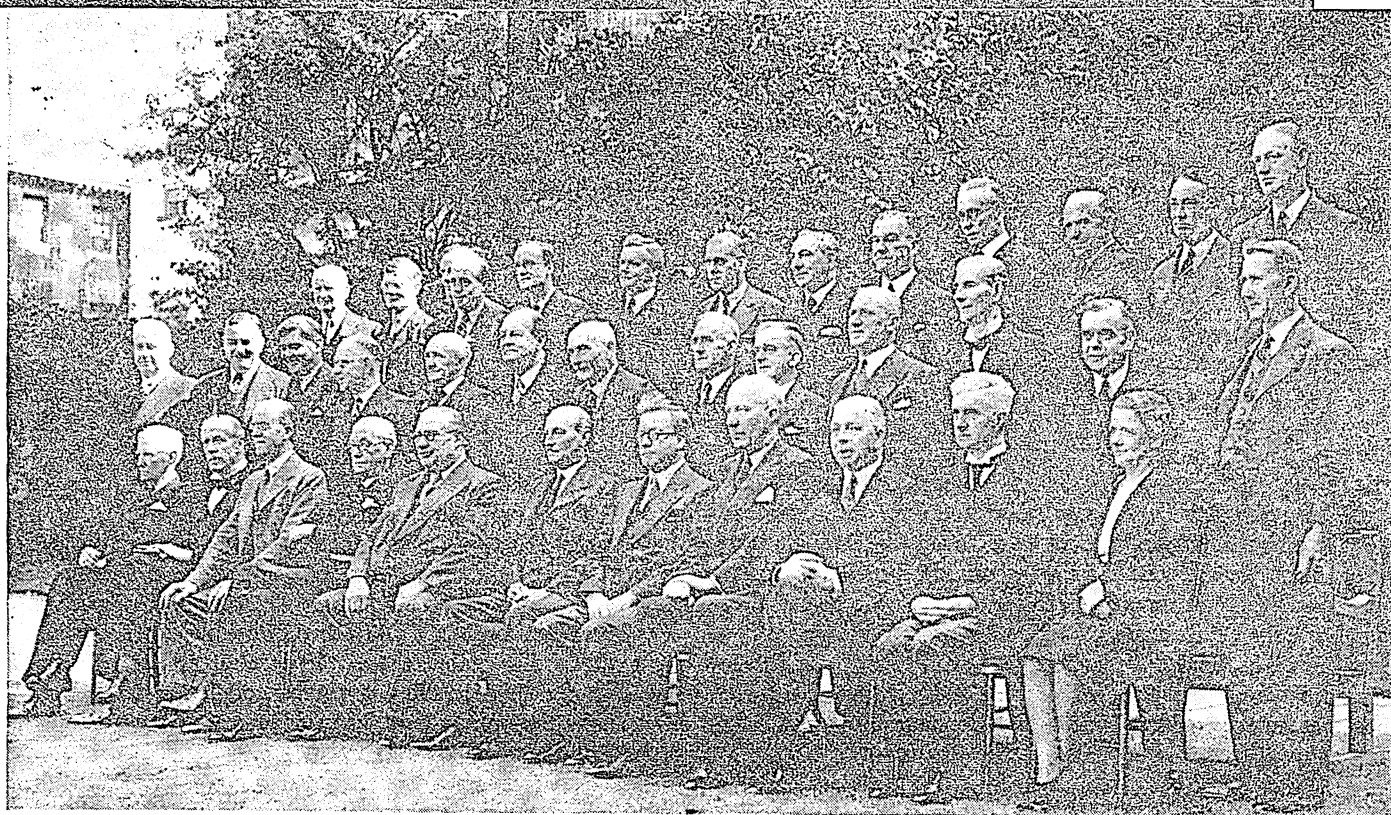
**Cost of Living.**—Subsidies to keep down the cost of living were running at the rate of £70,000,000 in 1940 and £225,000,000 in 1945. Through their means the cost of living in Oct. 1945 was no more than 30½% above prewar level. The government intended to stabilize it at this level at an expenditure of £300,000,000. During the war the general level of wages rose 46% above the prewar level, but average earnings were as high as 82% above it. The latter rise had later fallen owing to the reduction of overtime, and the consequent loss of earning power was a cause of industrial unrest. Nevertheless the government had not suggested imposing any wages ceiling, equivalent to the cost of living ceiling. Dalton in his budget speech was content to rely on the continuing co-operation of the government and the trade unions, both recognizing their common interest in keeping prices and wages on an even keel. The dock strike was a warning that this reliance might not be sufficient.

**Dock Strike.**—Some industrial unrest was to be expected after the war and the dock strike was the outstanding example. Beginning in August over the rates of pay for unloading pit props, it spread to nearly all ports and by the end of September more than 40,000 men were out, although unsupported by the Transport and General Workers' union. Hence the strike was unofficial and was condemned by the government. Soldiers were drafted into the ports to handle cargoes, but even so delays occurred in the turn-round of ships, interfering with the imports of food and with demobilization. The strike ended on Nov. 5; the men returning to work unconditionally and negotiations on their terms of employment were opened at once. (H. A. Wn.)

**Education.**—In 1937-38: elementary, England and Wales—departments under separate head teachers, 29,988, scholars on register 5,150,874; elementary, Scotland—schools 2,895, scholars 617,047; elementary, Northern Ireland—schools 1,700, scholars 191,862; secondary, England and Wales—grant-aided schools 1,398, scholars 470,003; secondary, Scotland—grant-aided schools 252, scholars 156,645; secondary, Northern Ireland—grant-aided schools 75, scholars 14,557; universities, students: England 41,707 (full-time, 36,378); Wales 3,089 (full-time 2,970); Scotland, 10,384 (full-time, 9,841); Northern Ireland, 1,590 full-time students.

**Banking and Finance.**—Revenue, ordinary (est. 1945-46) \$13,160,000,000. Expenditure, ordinary (est. 1945-46) \$22,350,000,000. Revenue, ordinary (actual 1944-45) \$13,030,000,000. Expenditure, ordinary (actual 1944-45) \$24,450,000,000. Notes in circulation (July 27, 1945) \$5,190,000,000. Public debt (national) March 31, 1945, \$90,100,000,000. Exchange rate 1944, £1=403.5 cents U.S. (See Table III.)

**Trade and Communication.**—Roads (March 31, 1938): England and Wales (class I) 20,627 mi.; (class II) 13,070 mi.; Scotland (class I) 6,632 mi.; (class II) 3,967 mi.; Northern Ireland (class I) 1,273 mi.; (class II) 1,933 mi. Railways (Dec. 31, 1938): Great Britain, track open to traffic, excluding sidings, 20,007 mi.; Northern Ireland, standard gauge, 633 mi.; narrow



THE NEW BRITISH LABOUR cabinet formed after the general elections of July 1945. Left to right, bottom row: Viscount Addison; Lord Jowitt; Sir Stafford Cripps; Arthur Greenwood; Ernest Bevin; C. R. Attlee, the prime minister; Herbert Morrison; Hugh Dalton; A. V. Alexander; J. Chuter Ede; Ellen Wilkinson. Middle row: Sir Ben Smith; John Wilmot; Aneurin Bevan; G. A. Isaacs; Viscount Stansgate; G. H. Hall; Lord Pethwick-Lawrence; J. J. Lawson; J. Westwood; Emanuel Shinwell; T. Williams; Sir Alfred Barnes; G. Tomlinson. Top row: William Whiteley; Sir Edward Bridges; F. Soskice; J. B. Hynd; Lord Listowel; E. J. Williams; Lewis Silkin; James Griffiths; Lord Winster; P. J. Noel-Baker; Wilfred Paling; Sir Hartley Shawcross; Norman Brook

Table I.—Overseas Trade 1938-1944

	(in \$ million)						
	1938	1939	1940	1941	1942	1943	1944
Imports	3,705	3,570*	4,630*	4,615*	4,015	4,965	5,265
Exports	1,895	1,768	1,657	1,472	1,090	938	1,038
Re-exports	247.5	185.2	104.8	51.2	18.5	24.6	29.8

\*Including munitions.

gauge 121 mi. Airways (1938): distance flown 14,331,000 mi.; passengers carried 222,200; mail carried 3,867 short tons; freight carried 2,830 short tons. Empire services (airways), traffic ton-miles including passenger ton-miles (1937-38) 7,153,767; (1938-39) 13,734,899; passengers carried (1939) 12,614. Shipping, excluding vessels under 100 tons (July 1, 1939), 17,964,158 gross tons; under construction (July 1, 1939) 791,500 gross tons; shipping (net tonnage with cargo), entered (monthly average 1938) 5,698,000; cleared (monthly average 1938) 4,907,000; entered (Aug. 1939) 6,617,000; cleared (Aug. 1939) 5,525,000. Motor vehicles licensed (Sept. 30, 1938): cars 1,944,394; hackney vehicles (taxis, buses, coaches, etc.) 87,730; commercial vehicles 590,397; motor cycles 462,375; total 3,084,896. Wireless receiving set licences (Oct. 31, 1944), 9,609,503; telephones (Dec. 31, 1939): number of stations (including public and private lines, call boxes, etc.), 3,235,500.

#### Agriculture, Manufacturing, Mineral Production.—

Table II.—Commodity Production in 1,000 short tons

	1938	1943
Wheat	2,040	3,855
Oats	1,176	3,419
Barley	883	1,834
Rye	12	106
Potatoes	3,843	10,978
Beet sugar	333	605
Hops	144	—
Wool	55	42
Flax	4.5	—
Beef and veal	757*	—
Mutton and lamb	283*	—

	1938	1943
Pig meat	457*	—
Butter	52	—
Cheese	48.5	—
Sea fisheries (wet fish) (only)	1,169	345
Whale oil	353	—
Coal	253,724	222,323
Iron ore (metal content)	3,976	6,204
Lead ore	33	—
Aluminum (smelter prod.)	25.7	62.7
Superphosphate of lime	493†	—
Tin ore (metal content)	2.2	—
Benzol	240	—
Steel	11,621	14,564
Margarine	233	—
Rayon	53	44†
Woodpulp	297	—

\*1937-8. †1937. ‡1942.

Table III.—Estimated Revenue and Expenditure 1945-1946

ESTIMATED REVENUE 1945-46		
Income Tax	\$ 5,430,000,000	\$
Surtax	322,000,000	
Estate Duties	463,000,000	
Stamps	76,600,000	
National Defense Contribution and Excess Profits Tax	2,018,000,000	
Other Inland Revenue Duties	4,035,000	
Total Inland Revenue		8,313,635,000
Customs	2,370,000,000	
Excise	2,180,000,000	
Total Customs and Excise		4,550,000,000
Motor Vehicle Duties		121,000,000
Crown Lands		4,035,000
Wireless Licences		19,350,000
Receipts from Sundry Loans		45,100,000
Miscellaneous		92,800,000
Total Ordinary Revenue		\$13,145,920,000
ESTIMATED EXPENDITURE 1945-46		
Interest and Management of National Debt		\$ 1,872,000,000
Miscellaneous Consolidated Fund Services		76,600,000
Total		1,948,600,000
Supply Services		
Civil		
Central Government and Finance		18,760,000
Foreign and Imperial		117,300,000
Home Department, Law and Justice		87,400,000
Education and Broadcasting		418,000,000
Health, Labour, Insurance (inc. Old Age and Widows' Pensions)		938,000,000
Trade, Industry and Transport		114,200,000
Works, Stationery, etc.		104,100,000
War Pensions 1914-18, and Civil Pensions		167,700,000
Exchequer Contributions to Local Revenues		212,400,000
War Services (token votes)		2,177,860,000
Votes of Credit		18,120,000,000*
Tax Collection—Customs and Excise and Inland Revenue votes (inc. Pensions)		85,300,000
Total Ordinary Expenditure		\$20,383,200,000
		\$22,350,000,000

\*Excluding value of supplies in kind under lend-lease and similar arrangements.



**Industry and Labour.**—Index of industrial production (1929=100) av. (1938) 115.5; av. (Jan.–June 1939) 123.1; index of employment (1929=100) av. (1939) 113.0. Occupied population (including armed forces) (July 1944) 21,956,000; unemployed, wholly (July 1944) 102,000. (See also BUSINESS REVIEW; WORLD WAR II.)

**Great Lakes Traffic:** see CANALS AND INLAND WATERWAYS.

**Greece.** A kingdom in the southern part of the Balkan peninsula. Area, 50,147 sq.mi., of which 41,328 are mainland. Pop. (census May 16, 1928), 6,204,684, (est. 1940) 7,150,000. Capital, Athens (392,781). Chief cities: Thessaloniki or Salonika (236,524), Patras (61,278), Cavalla (49,980), Candia (33,404), Corfu (32,221). Religion: mostly Greek Orthodox; inconsiderable Mohammedan and Jewish minorities. King: George II. Regent: Archbishop Damaskinos. Prime Minister (1945): Themistocles Sophoulis.

**History.**—In 1945 the violent civil war which had torn Greece at the end of 1944 subsided. It had been the outcome of deep-rooted dissensions which had led Greece repeatedly during its modern history to the brink of, or through the turmoil of, civil war. The situation had been aggravated by the sufferings of World War II which probably hit Greece more than most other occupied or belligerent nations. As the result of German and Italian occupation Greece was starved and its economic life entirely disorganized. Having lived from 1936 under a fascist regime, Greece was accustomed to the lawlessness of such a regime and of the underground struggle against totalitarianism. With political violence a feature of Greek history from the "war of liberation" in the 1820s, the liberation of Greece from enemy occupation in 1944 ended in a violent civil war.

The resistance movement organized in the National Liberation Front (E.A.M. or Ethnikon Apeletherotikon Metopon) and its armed forces, the Greek Popular Liberation army (E.L.A.S. or Ellenikos Laikos Apeletherotikos Stratos) tried to seize power. It was largely under communist inspiration and leadership. The attempt was frustrated by the Greek government troops and the British army which had come to Greece on behalf of the United Nations in the prosecution of the war against Germany. There was a widespread fear that Britain favoured the continuation of the monarchy in Greece. Official British spokesmen denied that intention. King George II, who had left Greece together with remnants of the Greek army, after the Greek resistance to the advancing German troops had broken down, declared that he would make his return dependent upon the outcome of a free plebiscite. Archbishop Damaskinos of Athens, a well-known patriot, was appointed regent of Greece, and General Nicholas Plastiras, the leader of the Republican revolution of 1922, became prime minister Jan. 2, 1945. The plebiscite was to be held as soon as possible.

Peace between the government and the revolutionaries was concluded on Feb. 12. The peace negotiations were conducted on behalf of the government by John Sofianopoulos, the minister of foreign affairs, Pericles Rhallis, the minister of the interior, and John Macropoulos, minister of agriculture; on the part of the E.A.M. by George Siantos and Dimitrius Partsalides, the leaders of the Greek Communist party, and Elias Tsimirikos, a Socialist, with General Stephen Saraphis as military advisor. Winston Churchill and Anthony Eden arrived in Athens for a brief visit on Feb. 14. Martial law was ended, and civil liberties were fast restored. By the end of 1945 Greece was the only country in southeastern and eastern Europe where complete liberty of the press existed and full freedom was given to the expression of oppositional viewpoints. This

restoration of democracy was one of the favourable achievements of the troubled period in Europe after World War II.

The most serious problem facing Greece after the establishment of peace and the introduction of democratic liberties was the restoration of its economic life. Under the influence of the violence committed during the civil war the large majority of the Greek population demanded above all a peaceful consolidation. The swing to the right in the popular feeling increased the chances for the return of the king. Though the Greeks are by no means attached to the monarchy, they regarded the king as the best guarantee of stability against revolutionary attempts with their lamentable excesses. The government of Admiral Petros Voulgaris which took office in April was, however, unable to cope with the severity of the economic crisis. It resigned at the beginning of October, and after a brief interim during which Regent Damaskinos himself took over the cabinet, Professor Panayoti Kanellopoulos formed a ministry in which Finance Minister Gregory Kassimatis tried to grapple with the terrific inflation and the rapidly soaring prices and to restore confidence in the economic rehabilitation of the country. Greece hoped for reparations from Germany, Italy and Bulgaria, the armies of which had devastated and plundered the country. But to the end of the year 1945 Greece was unable to obtain any relief through reparations, though machinery and especially shipping were badly needed. The Greek merchant fleet, one of the largest in the world, had been almost completely destroyed. When the Germans and Bulgarians retreated from Greece in the fall of 1944, they took all available railway and rolling stock with them. Bulgaria could have mitigated starvation in Greece by supplying much needed livestock and foodstuffs. The only bright point in the situation was the help from the United Nations Relief and Rehabilitation administration.

In November the British undersecretary for foreign affairs, Hector McNeil, visited Greece. On Nov. 21 a new government was formed under the Liberal leader Themistocles Sophoulis. The new cabinet declared that it would defer until 1948 the plebiscite on the return of King George II to Greece. This measure aroused strong opposition from the Populist party who were adherents of the monarchy. Their leader, Constantine Tsaldaris, demanded that the original plan of a free plebiscite in the spring of 1946 be adhered to. He was confident that a democratic and free plebiscite would go overwhelmingly in favour of the king. Foreign observers confirmed this expectation. King George II protested also against the postponement of the plebiscite and declared that it "amounts to the stifling of the sentiment of the Greek people which, as is known to all,

GIFTS of clothing for this peasant woman of old Corinth, Greece, came, in 1945, from U.S. collections for Greek relief



is being expressed clearly in my favour at every opportunity." The Republicans and Liberals however, upheld Sophoulis. Emmanuel J. Tsouderos was made minister of economic co-ordination; George Cartalis, a member of the resistance movement, became minister of supply; and John Sofianopoulos was made foreign minister. He was the leader of the Union of the Left, was chairman of the conference which succeeded in the Varkiza agreement of Feb. 12 to end the civil war, was foreign minister in the Plastiras and Voulgaris cabinets, Greek representative at the United Nations conference in San Francisco, and was known as a friend of the soviet union. The soviet union established diplomatic relations and sent an ambassador to Athens.

Free elections in Greece were scheduled for March 31, 1946. U.S., British and French observers on the spot were to guarantee the freedom of the vote. Even the few communists still in jail would have the right to vote. By Christmas about 50,000 persons were released from jail as the result of a government amnesty to all persons accused of crimes, except murder, committed during the German occupation or the civil war. Thus by the end of 1945 Greece had reached a degree of democratic freedom which gave that country a unique position in the Balkans.

In the field of foreign policy Greece advanced territorial claims against Albania and demanded the cession of northern Epirus; against Bulgaria where frontier rectifications were demanded to give Greece greater strategic security; and against Italy which held the Dodecanese which Greece claimed. Greece, which had suffered more than any other Balkan nation, could not receive satisfaction of its territorial and financial claims in 1945 or any definite promises of their future settlement.

**Education.**—Education was compulsory for all children between the ages of 7 and 12. In 1938 Greece had 743 kindergartens with 38,338 pupils, 8,339 primary schools with 985,018 pupils and 407 high schools with 92,687 pupils. There were 3 universities with 7,230 students, an institute of technology with 521 students, and a school of fine arts.

**Industry and Trade.**—Of minerals, bauxite, nickel and chromium are found in Greece. Their production could be greatly increased. Coal and oil are not found although some lignite is produced. The country is mainly agricultural, but only one-fifth of its area is cultivable. Industry has made considerable progress, especially in textiles, agrarian industries, chemicals and metallurgy. Of special importance is the merchant marine. In 1938 there were more than 600 steamers and motor ships with almost 2,000,000 tons. Losses during World War II reduced the merchant fleet to about one-tenth.

**Finance.**—The monetary unit was the drachma, stabilized in 1928 at 77.02 to the dollar; the stabilization was suspended in April 1932. In 1940 the drachma was valued at about 0.67 cents (U.S.). For the year 1939-40 revenue was estimated at 14,014,000,000 drachmai and expenditure at 14,653,000,000 drachmai. On Dec. 3, 1938, the public debt amounted to 52,140,000,000 drachmai.

**BIBLIOGRAPHY.**—Kenneth Williams, "Sisyphean Greece," *The Fortnightly* (March, 1945); Hal Lehrman, "Athens Calling," *The Nation* (Oct., 1945); Philip Jordan, "Greece in Purgatory," *The Nation* (Dec. 8, 1945). (H. Ko.)

**Green, William** (1873- ), U.S. labour leader, was born March 3, in Coshocton, O. He spent much of his youth as a miner, and at the age of 27 was a subdistrict president of the United Mine Workers of America. He was international secretary-treasurer of the U.M.W.A., 1912-24, and was elected president of the American Federation of Labor, 1924. Under Green's administration, the A.F. of L. remained predominantly a crafts union. When the Committee for Industrial Organization (later known as the Congress of Industrial Organizations), a group of ten unions affiliated with the

A.F. of L., opened its campaign to establish industrial unions, Green refused to sanction the operation. This led the C.I.O., then under the guidance of John L. Lewis, to break away from the parent body in 1937. Green's A.F. of L. and the C.I.O. engaged in frequent jurisdictional squabbles and Green repeatedly denounced the Roosevelt administration for being prejudiced in favour of the C.I.O. In Jan. 1942, Green and Philip Murray (who succeeded Lewis as head of the C.I.O.) accepted Pres. Roosevelt's proposal that both unions agree to a labour peace for the duration of World War II. When the World Federation of Trade Unions conference was set up in 1945, superseding the old International Trade Union conference, Green declined (May 8) to join the organization primarily because of its inclusion of soviet trade union representatives. He denounced (Dec. 12) Pres. Truman's fact-finding bill as "involuntary servitude." He played a subdued, but watchful role during the widespread labour troubles of late 1945.

**Greenland.** The world's largest island (839,782 sq.mi., some 705,000 covered by glacier), in the North Atlantic ocean, N.W. of Iceland. A Danish possession, it came under United States protection in 1941 (*see below*). Capital, Godthaab. A population of about 18,000 (est. 1941) is scattered in small settlements on the west coast, and 1,000 on the east coast, about 600 in all being Danes, the rest native Greenlanders. Seats of the governors are Godhavn in the north and Godthaab in the south.

**History.**—Throughout World War II the local administration in Greenland remained in Danish hands. However, to prevent a German grab and to assure to the western Allies full utilization of Greenland's resources, the Danish minister in Washington, Henrik de Kauffmann, concluded with the U.S. a special agreement on April 9, 1941. According to this agreement the U.S. might build bases for planes, radio and weather stations, and maintain them by "any and all means necessary"; the agreement was to stand "until the present dangers to the American continent have passed." In line with these terms the U.S. used Greenland to great advantage. It built meteorological stations and maintained those staffs which studied weather conditions and made vital forecasts on the weather for the North Atlantic area of merchant and military importance. Repeatedly Danish patrols and the U.S. navy and coast guard sought out and destroyed German stations secretly established on the island and captured the German personnel. The agreement with Secretary of State Cordell Hull had of course been entered into on the personal responsibility of Minister de Kauffmann and was declared void by the Germans controlling Denmark in 1941. Immediately upon liberation, therefore, the Danish cabinet and a few days later the Rigsdag (parliament) ratified the four-year old document by unanimous vote in both houses (May 16, 1945). Foreign Minister Christmas Moeller spoke of the treaty as "President Roosevelt's handshake with Denmark." In Oct. 1945 it was reported that the army air forces weather service had offered to give four of its Greenland stations to Denmark.

Greenland was important also as the world's great producer of cryolite, important in the manufacture of aluminum. Early in July 1945, the "Disko," first ship direct from Denmark after 1940, reached the colony amid great rejoicing.

**Trade and Finance.**—Exports (largely fish and fish products) in 1939 totalled 1,847,000 kroner (1 krone=19.308 cents U.S. in 1940), exclusive of export of 62,231 short tons of cryolite. Imports in 1939 totalled 4,149,000 kr. and consisted chiefly of foodstuffs (607,000 kr.), wood (468,000 kr.), manufactures (451,000 kr.), fruits and other colonial wares (389,000 kr.), meat (253,000 kr.). The government budget for 1939-40 was balanced at 6,035,000 kr.

**BIBLIOGRAPHY.**—Col. Bernt Balchen, etc., *War Below Zero* (1944), the story of earlier operations in Greenland. (F. D. S.)

**Grenada:** see WEST INDIES, BRITISH.

**Griffin, Bernard William** (1899— ), Cardinal archbishop of Westminster, was born at Birmingham, England, on Feb. 21. Educated at Cotton and Ascott colleges, he ceased his studies at the age of 19 to enlist in World War I as a member of the royal air force.

After he was ordained at 25, he continued his studies at the English and Beda college in Rome. Returning to England, he became secretary to Archbishop McIntyre of Birmingham, and later to Archbishop Williams, whose auxiliary he became in 1938. He was chancellor of the archdiocese from 1929 to 1938. At the age of 44 he was named Archbishop of Westminster, to succeed Cardinal Hinsley.

His jurisdiction as ordinary of the see extends over much the same area as that of the bishop of London. As chief metropolitan he occupies a position similar to that of the archbishop of Canterbury before the Reformation—primate of all England.

During World War II he worked unceasingly for a just and lasting peace. He was the first member of the foreign hierarchy to visit Germany upon the cessation of hostilities, to extend congratulations to the German bishops on their splendid resistance to the nazis.

He was included in the list of appointments to the Sacred College of Cardinals released on Dec. 23, 1945. He was created and proclaimed cardinal at consistory on Feb. 18, 1946.

**Grindstones:** see ABRASIVES.

**Gromyko, Andrei A.** (1909— ), Russian diplomat, was born July 5 in the village of Stayre Gromyki in the Gomel region of the U.S.S.R. After his graduation from the Minsk Institute of Agricultural Economics in 1934, he became a member of the scientific staff of the Institute of Economics of the Academy of Science of the U.S.S.R. He remained in the post until May 1939, when he was made chief of the division of American countries in the people's commissariat of foreign affairs. A few months later he resigned to become counsellor of the U.S.S.R. embassy in Washington. He served in this capacity under Ambassador Constantine Oumansky until 1941, then under Ambassador Maxim Litvinov. When Litvinov was recalled from Washington on Aug. 21, 1943, Gromyko succeeded him as Russian ambassador to the United States and also to Cuba. In Aug. 1944 Ambassador Gromyko headed the U.S.S.R. delegation during the Dumbarton Oaks conference. Gromyko attended the San Francisco conference (April–June 1945) that drew up the United Nations charter and became chief of the Russian delegation after Vyacheslav M. Molotov, the soviet foreign commissar, returned to Moscow. Gromyko, however, had little power to make decisions independently. Named chief soviet delegate to the United Nations organization, he attended the opening session of the general assembly in London, Jan. 10, 1946. He was also named Russian representative on the Far Eastern commission, the Moscow radio disclosed, Jan. 2, 1946.

**Guadalcanal:** see SOLOMON ISLANDS.

**Guadeloupe:** see FRENCH COLONIAL EMPIRE.

**Guam.** Guam is the largest and most populous of the Mariana group of islands in the North Pacific, is in 13° 26' N. lat. and 144° 39' E. long., and is located about 1,823 mi. S.E. of Hong Kong, about 1,506 mi. E. of Manila and 5,053 mi.



A CLASSROOM in Guam, 1945. Schools were reopened shortly after the island was liberated and instructors taught from memory until the arrival of textbooks. Children received formal education as well as training in the crafts, agriculture or domestic arts

S.W. of San Francisco. Pop. (1940) 22,290; area 206 sq.mi. Capital Agana (10,004).

**History.**—The Japanese captured the island, which had not been fortified, and which was in an exposed position in the midst of Japanese mandated islands, a few days after the attack on Pearl Harbor. It was retaken by U.S. forces in July 1944, and served as headquarters for Admiral Chester Nimitz in the concluding stages of World War II. During the period of Japanese occupation, one or two Americans hid out on the island, living in caves and receiving food from friendly natives.

**Government.**—Before the war the governor of Guam was a U.S. navy captain who was also commandant of the naval station. There was a native congress with advisory powers, but final authority rested with the governor. The natives of Guam are Chamorros, with an intermixture of Spaniards and Filipinos. The language is a Malay dialect, influenced by Tagal (a Filipino dialect) and Spanish. The natives were converted to Christianity under Spanish rule.

**Industry and Trade.**—Guam is an agricultural country. Production is mostly for local consumption and the island raises corn, rice, sweet potatoes, coffee, bananas, pineapples, citrus fruits, limes, breadfruit, mangoes, yams, tobacco, alligator pears, sugar cane and timber. Copra is the only export product of any consequence, the normal output being about 2,000 tons.

**Finance and Education.**—The revenues for the fiscal year 1940 were \$283,619 and the expenditures were \$259,626. The Bank of Guam was the only institution of its kind. Education between the ages of 7 and 12 was compulsory under U.S. administration. In 1940 there were 23 primary schools, five industrial schools, one high school, one private school and one school for Americans. Average enrolment was 4,694. The speaking of English was forbidden and high school education ceased under the Japanese occupation; but normal activity was being resumed in the schools in 1945. (W. H. CH.)

**Guatemala.** A Central American republic bounded by Mexico, British Honduras, Honduras and El Salvador. Area: 42,364 sq.mi.; pop. (1943 off. est.) 3,450,372, of whom two-thirds are Indian. Capital, Guatemala City (pop. 1940 census, 163,826); other urban centres are Antigua Guate-



mala (12,601), Chiquimula (10,868), Comalapa (10,461), Mazatenango (14,227), Puerto Barrios (15,784), Quezaltenango (33,538), Zacapa (14,443). Religion: predominantly Roman Catholic. President in 1945: Juan José Arévalo.

**History.**—A constitutional convention assembled Jan. 10, 1945, and remained in session until its labours were completed and a new constitution creating a semiparliamentary government, granting women's suffrage, and guaranteeing freedom of speech, assembly and press was signed March 11. President Juan José Arévalo assumed office March 15; in his cabinet were included Major Francisco Xavier Arana, Captain Jacobo Arbenz and Jorge Toriello, the members of the triumvirate which had governed Guatemala after the successful revolution on Oct. 20, 1944.

The government reported several plots against it during the year. While the constitutional convention was in session in February several persons, including former ambassador to the United States Adrian Recinos, were reportedly arrested. Early in April constitutional guarantees were suspended for 30 days, with arrests again being made among parties opposed to the administration. On June 19 further activities by three opposition political parties were banned. Constitutional guarantees were again suspended in October, with the state of siege lasting two months and with some 60 persons taken into custody. A number of individuals charged with complicity in the several plots were exiled during the year. The government also ordered returned to the state certain property granted in former years to ex-President Jorge Ubico and members of his administration.

Guatemala broke diplomatic relations with the Franco regime of Spain on Jan. 23, the first American nation to take this action (one country, Mexico, had never granted recognition); the Spanish Republican government-in-exile later organized in Mexico was granted recognition in September. Diplomatic relations were established with the soviet union by exchange of notes in Washington, D.C., on April 19. A boundary controversy with Great Britain over Belice or British Honduras, suspended during the war, was reopened. The United Nations charter was approved Oct. 12, and the Bretton Woods monetary pact on Dec. 28. A blockade on rail transportation to El Salvador which had been imposed in 1944 was lifted early in the year, and during the summer the presidents of the two nations met on the border to discuss steps designed to lead to a Central American union. A subsequent protocol eliminated many commercial barriers between the two countries. An agreement was signed with the United States on May 22 whereby the latter nation sent a military mission to Guatemala and in August several technical advisers arrived from Washington to aid in solution of problems of price control, finance and reform of statistical methods. The United States in October disclosed that Guatemala had received during the World War II period lend-lease military goods valued at \$21,089,000, an amount exceeded among the American republics only by Brazil.

The government on April 21 passed a law of economic emergency which penalized speculation in essential goods and authorized control of rents, prices, imports and wages. An earlier decree, on Feb. 25, provided that 75% of all pay rolls should go to nationals. Some labour unrest occurred pending passage of a new labour code, and in September President Arévalo forbade union activities and labour agitation among farm workers. A labour congress was held in August, and in accordance with a resolution adopted then the national labour organization joined the Confederation of American Workers (C.T.A.L.).

**Education.**—In 1943 schools numbered 2,784, with an enrollment of 152,274 students.

**Finance.**—The monetary unit is the quetzal, maintained at par with the U.S. dollar. The budget for the 1945-46 fiscal year

estimated expenditures at 25,412,216 quetzales (expenditures for 1944-45 were estimated at 15,257,452 quetzales). The government had on hand on Aug. 30 a balance of 6,354,862 quetzales, 25% of estimated expenditures; in addition 1,757,321 quetzales remaining unclaimed on the so-called "English debt" were credited to the treasury following expiration, on Aug. 20, 1945, of the period for presentation of claims.

**Trade and Communication.**—Exports for 1944 were valued at 23,856,753 quetzales, inclusive of duties, while imports were valued at 20,702,604 quetzales. Exports to the U.S. for the first nine months of 1945 were estimated to value about 21,500,000 quetzales (for the corresponding period in 1944: 16,618,937 quetzales); coffee, bananas and chicle were the main items exported. Coffee exports in the quota year Oct. 1, 1944, through Sept. 20, 1945, totalled 855,170 bags of 60 kgs. each (1943-44: 830,606 bags). The 1943-44 cotton crop was estimated at about 1,643,000 lb. of ginned cotton (1942-43: 1,969,000 lb.). Balsa production in 1944 amounted to 1,143,918 bd.ft. (1943: 871,970 bd.ft.). Refined sugar output for 1943-44 amounted to 26,000 short tons.

Railways total 600 mi. of public road, 280 mi. private. In 1944 highway mileage was estimated at 4,045 mi., of which 1,851 mi. was National Highway, 2,194 mi. departmental. Motor registration in 1943 listed 2,570 passenger cars, 624 buses, 1,144 trucks. The country has several air lines; the domestic line Aerovias was nationalized by the government early in the year. (See also BRITISH HONDURAS.)

**BIBLIOGRAPHY.**—Dana G. Munro, *The Five Republics of Central America* (1918); Chester Lloyd Jones, *The Caribbean since 1900* (1936); *Guatemala Past and Present* (1940); *The Inter-American* (Washington).

**FILMS.**—*Central America* (Encyclopædia Britannica Films Inc.). (D. Rd.)

**Guerrilla Warfare.\*** There was probably no major war in history in which guerrilla activities played as important a part as they did in World War II. The story of the guerrillas in Norway, Russia, Yugoslavia, China, France, Poland and North Africa was well publicized. The action of these bands had a very material bearing on the outcome of the war. They tied down vast numbers of axis troops, helped to maintain the morale of the overrun countries and rendered valuable aid to the regular fighting forces of the United Nations, both by furnishing intelligence and by physical encounter with the enemy. While the war with Japan was in progress, little was heard concerning the guerrilla organizations in the Philippines. Occasionally some hint of their existence and activities appeared in print, but for the most part, security considerations during the war prevented the release of much information on this interesting phase of the world conflict.

Long before the Japanese attacked the Philippines in late 1941, there was considerable discussion in U.S. military circles concerning defense of the islands in case of attack. It was assumed that successful defense in the first stages of an invasion would be very difficult because of the long supply lines from the United States. Hence, it was foreseen that guerrilla action would play an important part in delaying conquest of the islands and assisting reinforcing or liberating troops in the event they had to be retaken from a conqueror.

Long a student of the Philippines, General Douglas MacArthur concurred in this theory. Before leaving Bataan, he organized and sent out several small groups of officers who were instructed to disperse themselves, evade the Japanese and organize guerrilla bands. Each unit contained as a nucleus a few specialists with training in communications, engineering and the

\*The information presented in this account was obtained by personal interviews with several U.S. officers who took part in the activities discussed. The material concerning operations on Luzon was supplied by Lt. Col. Robert B. Lapham, U.S.A.

like. The largest group numbered about 15.

Little time was available for detailed instructions. But all knew their primary mission was to obtain intelligence, their secondary missions to harass the Japanese and to prepare for co-operative action against the enemy when reinvasion by U.S. forces began.

The officers assigned to guerrilla activities left Bataan a short time before its capture by the Japanese and made their way across Manila bay and to the east and northeast of the island of Luzon. For a while they remained together but, as the Japanese consolidated their conquest and established small garrisons in towns and villages, they became scattered. Since practically the entire native population was potential guerrilla material, the comparatively small number of U.S. officers available had to be spread as thinly as possible, both to extend the organization of guerrilla bands and to reduce the chances of capture by the Japanese. At first, until contacts could be made and local organizations perfected, the greatest problem was that of evading the enemy.

After the fall of Bataan and the surrender of Corregidor, the Japanese concentrated their attention upon the remaining outlying garrisons. Most of these also contributed increments to the guerrilla organization. As the troop units broke up, the Filipino soldiers simply donned civilian clothes, hid their arms and ammunition and went home. This was done, for the most part, automatically. Later, when the guerrilla bands became organized, many of these caches of arms and ammunition were recovered, so that there was little shortage of effective weapons.

The Filipinos, for the most part, were determined to combat the Japanese in whatever manner possible. Guerrilla units sprang up spontaneously all over the islands. Many, however, had only the leadership of local politicians or others not particularly well qualified, hence their efforts were largely uncoordinated and ineffectual.

The first big job confronting the U.S. officers was that of organizing and co-ordinating these bands nationally. Intercommunication was a problem from the start. About the only radio equipment available consisted of small receiving sets in native homes. Supplies of vacuum tubes and dry batteries for these sets were almost nonexistent. Storage batteries were obtained by salvage or stealing from vehicles. Arrangements were made to charge these periodically with small generators driven by various means. These small battery-powered receiving sets could do little more than keep the guerrillas informed as to the course of the war and pick up bits of useful information from various broadcasts. Maintenance and repair of the radio sets was accomplished by the most extensive improvisations.

For communication between guerrilla units, reliance had to be placed on messengers. Manila became the message centre. Representatives of the many bands came to that city from time to time, and information was passed around by word of mouth. Eventually, it seeped back to the other groups, often months later. Everyone expected the liberation campaign to start in a short time. There were many false alarms. When these occurred, the guerrillas would show a sudden spurt of anti-Japanese activities. Then, as nothing materialized, they would again put away their weapons and go back to civilian pursuits.

A factor which contributed to the difficulty of communication was the universal suspicion of strangers. Indeed, life in any community was exceedingly perilous for an outsider. Many were killed on suspicion alone. Naturally, this circumstance made it most difficult to circulate information and to communicate or meet with other bands. However, it had this advantage that there were very few instances in which the Japanese were forewarned concerning guerrilla plans and dispositions.

In all, there were between 50 and 100 U.S. officers engaged



ITALIAN GUERRILLAS who fought for the liberation of Milan in 1945 and who functioned in the group which liquidated Benito Mussolini and other high-ranking fascists

in guerrilla activities on the island of Luzon. During 1944, a typical guerrilla group, which consisted of about 5,000 Filipinos, included just three U.S. personnel.

Throughout 1942, the principal effort was directed toward perfecting organizations, obtaining information about Japanese troops and plans, and projecting various plans for co-operation in the anticipated return of U.S. troops. A few trial forays were made against enemy communications and other activities, some for practice and to test guerrilla tactics, others based on false rumours of reinvasion.

Late in 1942, radio contact was first established between General MacArthur's headquarters and guerrilla units on the islands of Panay and Mindanao. The prime importance of information concerning the enemy was re-emphasized and local bands were instructed to use every means to disseminate this. These first orders from outside eventually reached Manila and thence were dispersed to the northern part of Luzon, until they penetrated to all active guerrilla units. Then, limited supply by submarine began, first to Negros Island, next regularly to Mindanao and other southern islands.

The most important of the cargoes delivered consisted of radio equipment. Standard army transmitters became available for the first time, together with the generating equipment necessary for their operation. From that time on, communications improved enormously, and co-ordinated action became possible on short notice without elaborate, long-range planning. Of secondary importance, but still highly valued, were shipments of submachine guns, ammunition, explosives and medical supplies, all previously scarce.

When the bands in the north were informed that units farther south were in radio contact with MacArthur, a flow of information southward began. Along with reports on Japanese activities went requests for radio apparatus and other vital supplies, with instructions as to where they should be sent. Word was passed along that propaganda leaflets, "MacArthur" matches, and other similar material was appearing to the south. These psychological "weapons" were in great demand, and requests for them came from all parts of the islands.

Toward the end of 1943, a contact party which had come to Mindanao by submarine, proceeded by sailboat to Samar, thence to Luzon, where they arrived in April 1944. From that date forward, all the major guerrilla elements were linked by radio and submarine.

The initial landing in the Philippines, that at Leyte, came

without warning to the guerrillas on other islands. Those on Leyte received a few days' notice. The secrecy was for security purposes as the Japanese had been expecting an attack far to the south, probably aimed at Davao and other points on southern Mindanao. After the first surprise of the Leyte landings, General MacArthur kept up a flow of warning orders to the various guerrilla units, assigning missions to be accomplished following certain planned operations.

During the preliminary phases of the reinvasion, the guerrilla bands confined most of their activities to the collection of intelligence and identification of "spot" targets for attack by U.S. aeroplanes. The guerrilla combat troops were "lying low," held back for final employment against the enemy whenever General MacArthur should give the word.

The week before the first landings on Luzon took place, a message was received to start combat action. From that time on, the bands made life miserable for the Japanese. Guerrillas attacked Japanese convoys, disrupted their communications and, in general, interfered to the maximum possible extent with all their movements. These activities played a prominent part in preventing co-ordinated action by the Japanese against the invading U.S. troops. When U.S. troops reached an area, the guerrillas there joined and accompanied the United States forces, acting as guides, scouts and security patrols. Their detailed knowledge of the local conditions proved to be of great value.

Throughout the period in which the Philippine guerrilla units were active, their most important contribution to the cause of liberation took the form of military intelligence. They reported the principal dispositions of Japanese troops, as well as the general scheme of administration of the islands. Japanese units en route either to or from active theatres of operations were identified, and this information was passed on to General MacArthur's headquarters.

As an example, a certain Japanese division would be reported on Luzon. Headquarters in Australia would at once request confirmation, as the reported unit had only recently been in action, let us say, near Buna. Headquarters got the answers without delay. Knowledge of such troop movements, and the resulting ability to forecast Japanese plans and reactions was of vital importance in making the plan for the reconquest of the Philippines.

By their unified resistance to the enemy and their fine co-operation with United States forces in the liberation of their homeland, the citizens of the Philippine Islands justified every confidence that had been placed in them. They showed that organized guerrilla action in a country whose people gave such action their complete moral support, cannot be neutralized by an invader and can subject him to continual weakening and contribute greatly to his final defeat. (B. R. L.)

**Guevara, Juan Gualberto** (1882— ), cardinal archbishop of Lima and primate of Peru was born in Arequipa, Peru, on July 12. He was educated at the Colegio San Vicente de Paul, the Seminary of San Jeronimo and the University of San Agustin at Arequipa, and the Latin-American Plan college and the Gregorian university at Rome. After ordination in 1906 he was stationed at Africa while that territory was under Chilean control. Expelled from there in 1910 with five other Peruvian priests, he returned to Arequipa where he was vice rector of the seminary and attended the university before going to Rome in 1920 to continue his studies.

Before being consecrated bishop of Trujillo in 1940, Archbishop Guevara served as apostolic administrator of Huarás. In 1943 the see of Trujillo was raised to metropolitan rank and its

ordinary became an archbishop. Following the death of Archbishop Frafan in Sept. 1945, he was transferred to the primatial see of Lima.

One of 32 appointees to the Sacred College of Cardinals in Dec. 1945, he was created and proclaimed cardinal at consistory on Feb. 18, 1946.

**Guggenheim Memorial Foundation:** see SOCIETIES AND ASSOCIATIONS.

**Guiana, British:** see BRITISH GUIANA.

**Guiana, Dutch:** see SURINAM.

**Guiana, French:** see FRENCH COLONIAL EMPIRE.

**Guinea:** see FRENCH COLONIAL EMPIRE; PORTUGUESE COLONIAL EMPIRE; SPANISH COLONIAL EMPIRE.

**Guinea, New:** see NEW GUINEA.

**Gustavus V** (1858— ), king of Sweden, of whom a biographical account will be found in the *Encyclopaedia Britannica*, ascended the throne in 1907, and long before 1945 had attained the rank of Europe's oldest living monarch.

King Gustav's firm insistence on neutrality once more pulled Sweden through a world war as one of the few states not directly involved. Despite his advanced age (he was 87 in June 1945) and a minor accident when he slipped in the bathtub, he continued to exert considerable influence in affairs of state because of his judgment and popular respect for the extraordinary breadth of his experience. Even his tennis playing continued. (F. D. S.)

**Gymnastics.** Frank Cumiskey of the Swiss Gymnastic society of Union City, N.J., finally broke the three-year dominance of teammate Arthur Pitt to capture the all-around championship of the National A.A.U. gymnastic meet. Cumiskey placed first in the long horse, side horse, horizontal and parallel bars to accumulate 305.6 points to Pitt's 259.5. Their twin efforts, however, were not enough to forestall Penn State winning the team title with 60½ points to 60 for the Swiss society.

Philadelphia again dominated women's gymnastic competition by gaining the first two places in the all-around championship. Clara Schroth of the Philadelphia Turners won the all-around title with 254.8 points, followed by Marian Twining of the Loyal Order of Moose, Lodge 54, Philadelphia, with 253.4 and Meta Neumann, Lincoln Turners, Chicago, 250.6.

(M. P. W.)

**Gynaecology and Obstetrics.** The use of penicillin in obstetric work remained the most notable advance of 1945. When used during pregnancy penicillin may cause bleeding resulting occasionally in abortion. Consequently, its use in syphilis, gonorrhoea, pyelitis and other infections occurring during pregnancy must be carefully controlled. Its effects on these disorders had been confidently expected to revolutionize their treatment during pregnancy, but further investigation of Herbert M. Leavitt's findings might result in a sharp curtailment of the use of penicillin during pregnancy. Possibly this unfavourable effect might be due not to penicillin, itself, but to certain types of the mould so that this difficulty might be overcome.

During 1945 it became more clear that the effective use of penicillin must depend on the type of infecting organism because it has little or no effect on infections of gram-negative bacillary origin such as typhoid and tuberculosis. The colon bacillus, so common in puerperal infections, is resistant to penicillin.





MEDICAL OFFICERS delivered a Filipino woman of a daughter aboard an LST craft near Mindoro, Philippine Islands

Continuous caudal analgesia, as developed by Hingson and Edwards for relief of pain during labour and delivery, was displacing paravertebral block in the treatment of thrombophlebitis as a vasodilator and antispasmodic. Its advantage appeared to be in the more sustained effect, thus producing a more prolonged reaction in reducing the swelling and pain in the affected extremities.

Favourable reports continued to appear on the Hingson-Edwards caudal analgesia in labour and delivery, even including its use for caesarean section. The caution was reiterated that it must be used by experts in the technique and restricted to carefully selected cases among whom there may be no contraindications to the method. A clear understanding of all possible contraindications is an essential to expertness in the technique.

Gordon King with his associate L. T. Ride of Hong Kong made an interesting contribution on the subject of toxæmia of pregnancy, presenting evidence to show that a deficiency of vitamin B has a bearing on its causation. They had the fortitude to make extensive observations under the conditions existing in Hong Kong during 1939, 1940 and 1941. They observed the heavy increase in beri-beri during Japanese occupation and an almost parallel increase in the incidence of pregnancy toxæmia, especially pre-eclampsia and eclampsia, during that same period. Among 371 cases of beri-beri complicating pregnancy, no less than 252 cases were further complicated by pregnancy-toxæmia.

Immunochemical studies suggested strongly that the hormone-antihormone reaction is a true immunological phenomenon and that the antihormones produced are identical with ordinary immune bodies.

Investigations suggested also that a combination of hormone and vitamin therapy is indicated for the treatment of various genital disturbances, and is more effective than hormones alone. It appears that vitamin deficiency may play a part in disturbances of pituitary-genital secretion and activity.

Inhibition of lactation could be accomplished successfully without breast engorgement and pain so common to untreated cases. Stilboestrol was used for this in the United States, whereas in England the use of hexoestrol dipropionate was favoured, better results being claimed.

**BIBLIOGRAPHY.**—Herbert M. Leavitt, "Clinical Action of Penicillin on the Uterus," *J. Venereal Dis. Information*, 26:150-153 (1945); M. C. Hinebaugh, Jr., "Puerperal Infection, Its Prevention and Treatment (Throm-

bophlebitis)," *Med. Clinics No. Amer.*, 29:1483-1494 (1945); G. J. Ellis and J. B. Sheffery, "Thrombophlebitis Treated with Continuous Caudal Anesthesia," *Am. J. Obst. & Gynec.*, 48:241-245 (1945); Gordon King and L. T. Ride, "The Relation of Vitamin B Deficiency to the Pregnancy Toxæmia," *J. Obst. & Gynaec. Brit. Emp.*, 52:130-147 (1945); Jeanne H. Chase, "Serological and Immunochemical Studies on the Gonadotrophic Hormones," *Yale J. Biol. & Med.*, 17:517-538 (1945); M. R. Castex and Mario Schteingart, "Influence of Vitamins on the Activity of Gonadotropins," *Prensa Med. Argen.*, 32:365-369 (1945); Frederick Prescott and Margaret Basden, "Inhibition of Lactation by Hexoestrol Dipropionate," *Brit. Med. J.*, 2:428-430 (1944). (P. T.)

**Gypsum.** The decline in the demand for building materials after the peak of war construction is reflected in the basic data of the gypsum industry in the United States shown in the table.

Data of Gypsum Industry in the U.S., 1940-44  
(Short tons)

	1940	1941	1942	1943	1944
Mine output . . . . .	3,699	4,789	4,698	3,878	3,761
Imports . . . . .	1,405	1,348	394	231	342
Supply . . . . .	5,104	6,136	5,092	4,109	4,104
Sales . . . . .	4,632	5,760	4,953	4,186	3,838
Crude . . . . .	929	1,321	1,458	1,234	1,056
Industrial . . . . .	123	152	145	164	200
Building . . . . .	3,580	4,287	3,360	2,788	2,582

The postwar upturn in building activity had not been manifest in the gypsum industry up to mid-1945. Production during the first half of 1945 was 1,842,371 tons, or 3% less than the 1,900,093 tons in the same period of 1944.

In Canada, the world's third largest producer, the postwar recovery began to show in 1944 with an output of 596,164 short tons, against 446,848 tons in 1943, and continued into 1945, with 528,382 tons in the first three quarters. Normally the United States takes the bulk of the Canadian output, and as is shown above, imports increased in 1944, even though output declined. Great Britain is the second largest producer, with 1,532,117 short tons in 1943. (G. A. Ro.)

**Haakon VII** (1872— ), king of Norway, of whom a biographical account will be found in *Encyclopædia Britannica*, was born Prince Charles of Denmark, second son of Frederick VIII (and brother of Christian X). Upon the separation of Norway from Sweden he was elected king by the Norwegian Storting (Nov. 18, 1905), and took the old Norse name of Haakon, and that of Olav for his son, the crown prince. Haakon married Maud (1869-1938), youngest daughter of King Edward VII of England.

Haakon, rallying point for the patriotic resistance of Norwegians all over the world, had the deep satisfaction to return with honour unquestioned to his homeland after the long exile in London. Despite five years of absence and the inevitable bitterness and disruptions due to German occupation, his personal prestige appeared strengthened among a people grateful for his steadfast, sane leadership. His 40th anniversary was a significant indication of political stability. (See also NORWAY.) (F. D. S.)

**Hácha, Emil** (1872-1945), Czechoslovak statesman, was born at Trhove Sviny, Bohemia. A law student at Budejovice (Budweis) and Charles university, Prague, he took his doctorate in 1896. From 1898 to 1916 he served as state officer in the Austrian empire and during the next two years as judge in the Austrian high court of administration. Although he did not participate in the struggle which brought into being the new Czechoslovak republic, he was granted the post of senate president of the Czechoslovak high court of administration, Nov. 1918, and became president in 1925. He was also a member of the International Court at The Hague. Dr. Hácha, on Nov. 30, 1938, was elected president of the Czech republic with German backing, after the resignation of Dr. Eduard Beneš and the interim government of Gen. Jan Syrový.

In the space of a few months, Dr. Hácha witnessed the swift dismemberment of the republic and with it the reduction of his office to that of a puppet president. In mid-March 1939, he went to Berlin where he signed an already prepared document establishing the "Protectorate of Bohemia and Moravia." Any trace of real power that had originally been vested in him quickly vanished into the hands of the reich protector. During his tenure, Dr. Hácha frequently appealed to his people to co-operate with the Germans and declared in 1940 that "Germany has indeed proved to be a mighty shield—Bohemia and Moravia will have an honourable place within the framework of a victorious greater Germany." On May 5, 1945, he was arrested by Czech patriots during an uprising in Prague and was slated to stand trial as a war criminal on charges of collaboration with Germany. He died in a Prague prison hospital, June 27.

**Haiti.** A West Indian republic occupying the western third of the island of Hispaniola or Haiti. Area: 10,695 sq.mi. Estimates of the population, which is considered the heaviest per sq.mi. in Latin America, vary widely; an official est. for 1943 was 3,500,000. The pop. is almost entirely Negro. The capital is Port-au-Prince (pop. 125,000); other cities are Les Cayes (15,000), Cap Haitien (about 15,000), Gonaïves (20,000), Jacmel (10,000). Official language: French; official religion: Roman Catholic, with many persons practising the folk religion of vodun or voodoo. President in 1945: Elie Lescot.

**History.**—The year 1945 proved to be generally uneventful politically, with the only disturbing incident the announcement by the government on Aug. 13 that two men, sentenced to death in March for a conspiracy to assassinate President Lescot, had been executed. Five other men were arrested for distributing leaflets against the government. Military censorship to preserve public order was reportedly decreed June 17.

Haiti participated in the Inter-American conference at Mexico City and the United Nations conference at San Francisco and the national assembly unanimously approved ratification of the United Nations charter on Aug. 8. On Aug. 27 a decree was published ending censorship on correspondence both at home and abroad. The Haitian quota to the United Nations Relief and Rehabilitation administration was set at \$40,000 with the contribution to be increased later if possible. In December a cultural agreement with Venezuela was ratified.

The economic situation of the republic was classed as fairly good, although some shortages, such as newsprint, were felt, and imports continued limited in quantity.

**Education.**—Statistics on education are questionable since enrolment does not mean attendance; only some 10% of the population is estimated to be literate. In 1941 schools were listed as 835 primary, with an enrolment of about 85,000; 35 intermediate, with 5,768 pupils (exclusive of the normal school); 6 schools of higher education, with 236 pupils.

**Finance.**—The monetary unit is the gourde, fixed by law at a value of 20 cents U.S. Revenue for the fiscal year ended Sept. 30, 1945, amounted to 41,890,043 gourdes (1943-44: 42,370,365 gourdes). Expenditures for 1944-45 amounted to 42,516,000 gourdes. The surplus at the end of the fiscal year totalled 3,283,000 gourdes (Sept. 30, 1944: 4,778,000 gourdes); the gross public debt amounted to 52,936,000 gourdes (Sept. 30, 1944: 60,460,000 gourdes).

**Foreign Trade.**—Exports for the 12 months ended Sept. 30, 1945, were valued at 85,561,000 gourdes (1943-44: 80,542,000); imports, 65,770,000 gourdes (1943-44: 80,155,000 gourdes). The U.S. took 78.38% of exports and supplied 83.77% of imports, compared with 65.26% and 69.44%, respectively, in 1943-44. The United Kingdom took 14.37% of imports and supplied 4.12% of exports in 1944-45, compared with 24.22% and 5.68%

in 1943-44. Exports are mainly agricultural.

#### Haitian Exports, 1944-45 and 1943-44

Product	1944-45	1943-44
Coffee . . . . .	29,968,230 kg.	23,116,197 kg.
Cacao . . . . .	1,264,194 "	1,461,148 "
Logwood . . . . .	4,257,500 "	2,120,000 "
Cotton . . . . .	1,037,300 "	4,679,996 "
Sisal . . . . .	9,167,222 "	8,796,589 "
Raw Sugar . . . . .	29,276,010 "	77,384,528 "
Molasses . . . . .	12,553,684 "	28,130,194 "
Rice . . . . .	267,781 "	306,712 "
Bananas . . . . .	4,014,825 stems	2,889,677 stems

**Communication.**—External communication is by sea and air. Highway mileage amounts to 1,792 mi. of improved road, 26,832 mi. unimproved. Reconstruction of 75 mi. of the central highway was reported.

Motor registration listed 1,731 passenger cars, 752 trucks and buses. In 1943, 88 mi. of railroad was in operation.

**BIBLIOGRAPHY.**—Harold Palmer Davis, *Black Democracy* (1929); James Graham Leyburn, *The Haitian People* (1941); Chester Lloyd Jones, *The Caribbean since 1900* (1936); *Foreign Commerce Weekly* (Washington).

**FILMS.**—*West Indies* (Encyclopædia Britannica Films Inc.).

(D. Ro.)

**Halsey, William Frederick, Jr.** (1882— ), U.S. naval officer, was born Oct. 30 in Elizabeth, N.J. An Annapolis graduate, he commanded a destroyer patrol force in World War I. Subsequently he was commander of the aircraft carrier "Saratoga," commandant of the Pensacola naval air station, and, in 1938, commander of a carrier division. Vice-Admiral Halsey led the attack against Japanese bases on the Marshall and Gilbert Islands, Jan. 31 and Feb. 1, 1942. On Oct. 24 he replaced Vice-Admiral Robert Lee Ghormley as commander of U.S. naval forces in the South Pacific. Halsey won naval victories off the Solomon Islands in 1942 and off Bougainville in 1943. On June 15, 1944, he became commander of the U.S. 3rd fleet in the Pacific. He supported General MacArthur's land forces in the Leyte island invasion, Oct. 1944, and together with Vice-Admiral Thomas Cassin Kinkaid's fleet, routed the Japanese imperial navy in the battle for Leyte gulf (Oct. 22-27, 1944). In 1945, Halsey's 3rd fleet assisted in the Luzon invasion (Jan. 9) and directed carrier attacks and naval shellings on the Japanese islands of Kyushu and Honshu in June and July. He led the battleship "Missouri" into Tokyo bay and attended the surrender ceremonies aboard the warship (Sept. 2). After his return to the U.S., he relinquished his command, Nov. 22, declaring that he was ending his "sea-going career of slightly over 45 years." He was named for promotion to the rank of admiral of the fleet, Nov. 28, and said he intended to retire.

**Hammer Throw:** see TRACK AND FIELD SPORTS.

**Hand-ball.** The annual classic of this sport was held in 1945 on the new glass-enclosed courts of the Town club of Chicago, Ill., with a good representation of players who were in the various military services. For the first time, an ex-champion came back to regain his singles title. Joseph P. Platak (U.S. navy) representing the Lake Shore club of Chicago, who was dethroned in 1944 in the finals of the singles by Frank Coyle of the New York Athletic club, reversed the performance by winning the title from Coyle, making it his ninth victory in this event. National tournaments in other branches of the sport were not held.

#### National Four-Wall Rankings for 1945

Singles	Doubles
1. Joseph P. Platak, Chicago, Ill.	1. Sam Atcheson and Ed. Dettwiller, Memphis, Tenn.
2. Frank Coyle, New York, N. Y.	2. R. Kendler and F. Laser, Chicago, Ill.
3. (No play-off held)	3. W. McGreevy and L. Peressin, St. Louis, Mo.

(Fr. Ro.)

**Hannegan, Robert Emmet** (1903— ), U.S. politician and cabinet member, was born June 30 in St. Louis, Mo. He took his law degree at St. Louis University, 1925. He started his political career in 1933 as a democratic committeeman of a St. Louis ward. By the end of that year, he had become chairman of the city central committee and was becoming an important figure in the Democratic political machine. During the era of vote fraud investigations in St. Louis and the state of Missouri, Hannegan and some of his followers were accused of being involved in ballot-box stuffing. Hannegan promptly countered with accusations that the Republicans were involved in fraudulent voting operations themselves. Although the charges were never cleared up, the political machine controlled by Hannegan and Mayor Bernard F. Dickmann of St. Louis was defeated in April 1941.

In May 1942, Hannegan was appointed by President Roosevelt to the post of collector of internal revenue of the eastern district of Missouri. In Oct. 1943, he was appointed commissioner of internal revenue in Washington, D.C. President Roosevelt then suggested that Hannegan be named chairman of the national Democratic committee, a post which he accepted on Jan. 22, 1944. During the Democratic national convention in Chicago, Ill., July 1944, Hannegan was said to have favoured Truman above Wallace for the vice-presidency on grounds that Wallace was a "political liability." On May 2, 1945, President Truman announced the appointment of Hannegan as postmaster general of the U.S. and Hannegan took office June 30.

**Harbours:** see RIVERS AND HARBOURS.

**Harmon, Clifford B.** (1866?–1945), U.S. aviation pioneer, was born in Urbana, O. He went to New York as a young man, made a fortune in real estate and became a motoring and then a ballooning enthusiast. He established an altitude record for balloons of 15,997 ft. in 1909, which was not surpassed for 14 years. He became interested in heavier-than-air craft, imported his own plane and obtained a pilot's licence. During World War I, he was attached to the signal corps, aviation section, and was promoted through the grades to a colonel. He trained fliers, and fostered research in the development of the aeroplane. He recognized the potentialities of aircraft as a war weapon. In 1910, he staged a bombing exhibition on Long Island before naval officers but they were left skeptical by the performance. He went to Paris, where he continued to live for most of his life and there founded the Ligue Internationale des Aviateurs, becoming its first president. Its prizes for outstanding achievements in world aeronautics became known as the Harmon trophies. When the League of Nations began its discussions on disarmament and international policing, Col. Harmon suggested to the council that an international air force, heavily armed, would be the most effective police power. Although it was rejected amid a storm of protest, Col. Harmon had some satisfaction in knowing that at last his plan had received some serious consideration. After the German occupation of Paris, he went to Cannes. There he died on June 25.

**Harmon, Millard Fillmore** (1888–1945?), U.S. army air officer, was born Jan. 19, in Fort Mason, San Francisco, Calif., the son of an army officer. He was graduated from the U.S. military academy at West Point, 1912, and from the Signal Corps Aviation school, 1916. Harmon served in the Pershing expedition to Mexico, 1916–17, and flew with the famous French Groupe de Combat No. 13 during World War I. He was made a major general of the U.S. air corps in July 1941 and was promoted to the rank of lieu-

tenant general in Feb. 1943. He was commanding general of the 2nd air force from July 1941 to Jan. 1942 and was appointed commander of all army air forces on Guadalcanal and the South Pacific islands in Feb. 1943. In Aug. 1944, he was appointed commander of the army air forces of the Pacific area and deputy commander of the 20th air force. Gen. Harmon was known as an air force tactician of sound judgment. During the Solomons campaign, he refused to be stampeded into retaliatory raids by the early Japanese aerial successes over the islands in April 1943 and adhered to his basic plan of striking hard at the enemy's most vulnerable targets. He wasted little time minimizing Japanese fighting ability, but was convinced that U.S. pilots and planes were superior to the enemy's. Gen. Harmon and nine other airmen aboard a converted bomber were reported missing March 3, after they took off for Hawaii from an undisclosed point in the Pacific area and were long overdue. When the plane failed to appear, it was presumed that Harmon and the others aboard the craft were dead.

**Harris, Sir Arthur T.** (1892— ), British air officer, was born April 13 in Cheltenham, England. Educated in English public schools, he enlisted during World War I and joined the royal flying corps in 1915. He commanded several squadrons on the western front. Made an air commodore in 1937, he was named air vice-marshal in 1939 and rose to commander in chief of the R.A.F. bomber command in Feb. 1942. A firm believer in mass raids, Air Marshal Harris developed the "saturation" technique of mass bombing—that of concentrating clouds of bombers in a giant raid on a single city with the object of completely demolishing it. Sir Arthur applied this method with great destructive effect on axis-occupied Europe from 1942 to the end of World War II. The air ministry announced on Aug. 26, 1945, that Sir Arthur planned to relinquish his post as commander in chief of the R.A.F. bomber command in September and retire shortly thereafter.

**Harvard University.** Founded in 1636, Harvard is the oldest institution for higher education in the United States. Gifts during the academic year 1944–45 were \$3,124,965.77. At the beginning of the academic year, July 6, 1945, there were but 433 students enrolled; this was because the summer term, a nine-week course, was mostly for freshmen, returned veterans and special upperclassmen who needed extra credits. As of the fall term, Sept. 24, 1945, the civilian student enrolment was 3,500, of which 1,072 were veterans, as compared with a peacetime average of 8,000. However, many of the university's facilities were occupied by 1,759 army and navy men sent to Harvard for specialized training. A great deal of wartime research was conducted in the university laboratories.

All departments of the university operated on a 12-month 3-semester schedule in 1945, two regular 16-week terms and an optional 12-week intensified summer term.

(For statistics of student enrolment, faculty members, endowment, library volumes, etc., see UNIVERSITIES AND COLLEGES.)

**Hawaii.** The territory of Hawaii consists of a group of eight larger islands and numerous islets in the Pacific ocean between latitudes 18° 55' and 22° 15' N. and between 154° 50' and 160° 30' W. longitude. The total land area is 6,441 sq.mi. The islands are of volcanic origin. From southeast to northwest, they are Hawaii, Kahoolawe, Maui, Lanai, Molokai, Oahu, Kauai, Niihau. In addition, stretching northwestward beyond Niihau more than 1,100 mi. is an archipelago of rocks,



reefs and shoals including Midway (longitude 177° 22' W.) which, although part of the archipelago, is not politically a part of the territory. However, Palmyra, a coral atoll consisting of 55 islets, 5 mi. long and 2½ mi. wide, located 960 mi. south of Honolulu, is a part of the city and county of Honolulu. The largest of the islands and the youngest, geologically, is Hawaii, with a land area of 4,021 sq.mi. The capital of the territory is Honolulu, on the island of Oahu. It is a completely modern city. Its 1940 census population of 179,326, exclusive of military and naval personnel, was estimated to have increased to 261,033 on June 30, 1945. The civilian population of the territory in 1940 was 423,330. The 1945 estimate was 502,122. The racial origin of this population, in addition to the native Hawaiians and the Caucasians from the mainland, is Japanese, Chinese, Korean, Filipino, Portuguese.

**History.**—Ingram M. Stainback, appointed by the president, took office as governor on Aug. 24, 1942. Joseph R. Farrington was elected territorial delegate to congress in 1944. Tax collections by the territorial government in the fiscal year ending June 30, 1945, totalled \$39,842,855 compared with \$39,480,826 for the previous year. Cash on hand and in banks on June 30, 1945, totalled \$34,851,739 as compared with \$35,545,507 for the previous year. Hawaii was the principal base for operations in the war in the Pacific, and all civilian activities were subordinated to military requirements. Military control over civilian activities was terminated by presidential order on Oct. 24, 1945.

**Agriculture.**—Hawaii's chief crops and the bases of its industry are sugar and pineapples. Although labour shortages, nonavailability of heavy equipment and the loss of lands devoted to military use combined to hamper production during the war years, 1944 sugar production totalled 851,868 tons compared with 951,411 in 1940, and canned pineapple and pineapple juice production increased during the war years, large quantities of these products being delivered direct to the armed forces.

**FILMS.**—*People of Hawaii* (Encyclopædia Britannica Films Inc.). (E. G. A.)

**Hay.** The 1945 total U.S. production of all kinds of hay was estimated by the United States department of agriculture at 104,900,000 short tons which is unusually large but not quite equal to the 105,000,000 ton crop of 1942. There was considerable loss due to wet weather but the supply was large in relation to the number of animals to be fed. The acreage harvested was about the same as in 1944 and the yield only slightly larger.

The total crop included 91,573,000 short tons of tame hay, 33,671,000 tons alfalfa, 32,592,000 tons mixed clover and timothy and 13,378,000 tons wild hay. These totals represented an increase in alfalfa of 5% over 1944 and 17% above the average while wild hay yielded only about the same as in 1944. The principal tame hay states continued to be Wisconsin 7,180,000 tons, New York 6,013,000 tons, California 5,686,000 tons, Iowa 5,568,000 tons and Minnesota 4,786,000 tons. California led in alfalfa hay production with 4,213,000 tons followed by Wisconsin 2,080,000 tons, Minnesota 2,038,000 tons, Iowa 1,960,000 tons and Idaho 1,855,000 tons.

Lespedeza hay increased in 1945 after two years of decline and established a new record of production of 7,622,000 tons compared with an average of 4,294,000 tons, 1934-43. The big gains were in Tennessee where the crop of 1945 was about double that of 1944, and in Missouri where the increase was large. This hay was growing in favour in the southern states. Sweet clover hay was only 61% of the ten-year average. The tonnage of soybean hay declined sharply, 23% in acreage grown for hay and the crop harvested was only 2,695,000 tons compared with a ten-year average of 4,890,000 tons. The harvest

of peanuts for hay was about the same as in 1944 and 50% above the average.

**Hayseed.**—The production of the six principal hayseeds, alfalfa, red clover, alsike, sweet clover, lespedeza and timothy, totalled 526,000,000 lb. in 1945, which was 8% less than the 575,000,000 lb. crop of 1944 but 28% larger than the ten-year average 1934-43. Lespedeza seed production was 16% below the record crop of 1944 but much above the average. The other five hayseed crops were only 2% below 1944 and 2% above the average. The rainy season at harvesttime handicapped the gathering of seed and the high price of seed together with incentive payments failed to get an increased production. The efforts to increase the production of seed was primarily to secure a large supply for export although the carry-over of these six seeds was 47% larger than a year earlier. The quality of the 1945 crop was lower than that of 1944 when ideal weather favoured the harvest. Alfalfa seed production was about the same as in 1944 though the acreage harvested was 14% less than in 1944. The 1945 red clover seed crop was the second largest on record, only 11% below that of 1944 but 41% above the ten-year average. The yield was very low, .78 bu. per acre compared with the average of 1.11 bu. Alsike yielded a crop 32% above 1944 and 11% above the average. Sweet clover seed production was 9% less than a year earlier and 28% below the average, though the yield was about the average. Timothy yielded 9% more seed than in 1944 but 13% below the average. Red top produced a record crop of 24,300,000 lb. compared with 16,300,000 average 1939-43. Sudan-grass harvest declined 55% in acreage and 10% in yield, which returned only 27,400,000 lb. compared with an average of 52,500,000 lb. (See also ALFALFA; SOYBEANS.) (J. C. Ms.)

**Health, Industrial:** see INDUSTRIAL HEALTH.

**Hearing Aids:** see DEAFNESS.

**Heart and Heart Diseases.** During 1945 the greatest advance in the knowledge and treatment of cardiovascular diseases came in the difficult and much neglected field of congenital defects. The cause of such defects has always been obscure and often vaguely ascribed in major part to defects of the original germ plasm. The first ray of light came from Australia where first N. M. Gregg and later C. Swan demonstrated the manifold effects on the foetus of German measles (rubella) in the mother during the first two months of pregnancy. Such effects include cataracts, congenital heart disease and often mental retardation. Such sinister results of what had been commonly regarded as a rather trivial disease aroused great interest and were a spur to maternal protection against this disease and to a consideration of early termination of pregnancy if German measles occurs within two months of the onset of pregnancy. Much more exploration along these lines was obviously needed.

The exact diagnosis of the individual congenital cardiovascular defects also became an important necessity of the day because of the possibility in many cases, especially in those with patency of the *ductus arteriosus*, of surgical cure. Children are sometimes needlessly sent long distances to expert cardiovascular surgeons because of errors in diagnosis. Although an experienced and capable physician can make correct diagnoses in the great majority of cases above the age of infancy, there were still some patients and some defects clinically insoluble; and it is often helpful in cases that seem clear to have more proof. Such information and proof were obtainable by the technique of catheterization of the heart chambers via the brachial and subclavian veins and superior *vena cava* with a specially adapted ureteral catheter inserted under X-ray control. The study of

the blood gases and pressure so obtained affords much help; thus in the case of an auricular septal defect there is much more oxygen in the right auricle than in the superior *vena cava*, in the case of a ventricular defect more oxygen in the right ventricle than in the right auricle and in the case of patency of the *ductus arteriosus* more oxygen in the pulmonary artery than in the right ventricle. The procedure is not hazardous.

Spectacular advance was made in the surgical treatment of some defects. Ligation and transection of the patent *ductus arteriosus* introduced in 1938 steadily progressed so that many cases were being successfully operated upon, relieving the strain on many hearts and doubtless preventing subacute bacterial endocarditis. Early in the year 1945, A. Blalock and H. B. Taussig in Baltimore, Md., devised and carried out an ingenious operation to bring poorly oxygenated blood to the lungs of cyanotic cases of congenital heart disease, particularly those with the tetralogy of Fallot. The innominate or subclavian artery was anastomosed with one of the main pulmonary trunks. The procedure is a difficult and hazardous one and several cases succumbed but other patients (mostly young children) were relieved of their cyanosis and were doing well by the close of the year. The limitations and possibilities of the operation still needed exploration and definition but the success of this bold therapy was most promising in a number of cases of this most difficult and dangerous of congenital heart diseases. Finally, during 1945, both in Sweden and in Boston, Mass. (by R. E. Gross), coarctation (narrowing) of the aorta was boldly attacked to relieve the obstruction to the blood flow to the lower half of the body; Gross resected the narrow aortic segment, anastomosing the two cut ends of the aorta above and below the coarctation, with good results in a few cases.

Another addition of cardiovascular disease came in an entirely different field, namely that of the effect of virus infections on the myocardium (heart muscle). At the time of the severe influenza epidemic of 1918 there was a good deal of loose talk about the "influenza heart" which was found to be, in the majority of cases at least, a misnomer for postinfectious neurocirculatory asthenia. The pendulum then swung to the extreme of considering such virus heart disease as nonexistent. Proof came of myocardial as well as pulmonary disease of virus origin, even fatal in its consequences in rare cases: Just how much slight to moderate myocardial involvement may result from influenza or other virus infections is not yet known; this is a problem for the future, but it is unwise to be unduly worried about the heart after any infection except rheumatic fever or severe diphtheria.

A third experience in the study of cardiovascular disease during 1945 that held promise for the future was the elaboration and spread of knowledge concerning the dietetic treatment of congestive heart failure. In 1905 in France it was realized that a limitation of sodium chloride ingestion was helpful in the control of oedema or dropsy. This fact was not, however, applied generally in cardiac treatment in the decades that followed. Following laboratory studies in the biochemistry of fluids and salts in 1925 it was found by L. H. Newburgh and his associates that strict limitation of salt intake with free and full intake of water was helpful in clearing oedema due to kidney disease. In 1941 and 1942 H. A. Schroeder and also S. Proger and L. B. Ellis pointed out that in cardiac oedema the limitation of salt, and not the limitation of fluid, was the crucial factor in giving relief. F. R. Schemm in 1942 and 1944 advised the liberal use of fluids along with the low salt intake in the treatment of congestive heart failure. Meanwhile through all these years most doctors the world over were treating congestive heart failure from dropsy by limitation of fluids and sometimes of salt in addition to the use of digitalis, diuretics and rest. The fluid limitation was a natural idea doubtless dating back to the earliest treatment of disease and it has for the most part continued without contradiction through the centuries. Rather abruptly, the lessons learned in a few laboratories and clinics were being spread abroad and as a result an important "new" addition was added to the armamentarium against congestive heart failure. During 1945 at the Massachusetts general hospital, for example, the treatment of obstinate congestive heart failure radically improved due to the application of the principle that the less sodium taken in and retained in the body the less water accumulates in lungs, liver and legs. Water is given freely up to two or three or more litres in 24 hours where previously it had been restricted to one litre or a little more and the patient's distressing thirst is completely alleviated. The sodium chloride intake which in ordinary diets ranges from four to ten grams a day is cut down to two grams or less, and this makes all the difference in the world; in fact, every fraction of a gram of sodium is important in the water balance. To help in lowering the salt intake sufficiently it was found that salt free bread was an important item, along with care to avoid any sodium medication (for example, soda bicarbonate for hyperacidity and "gas"). It must be noted, however, that this salt restriction is not a replacement for other useful therapeutic measures like rest, digitalis and diuretics, but rather a valuable adjunct.

**BIBLIOGRAPHY.**—N. M. Gregg, "Congenital Cataract Following German Measles in the Mother," *Tr. Ophth. Soc. Australia*, 1941, 3:35-46 (1942); C. Swan, A. L. Tostevin, B. Moore, H. Mayo and G. H. Barham Black, "Congenital Defects in Infants Following Infectious Diseases During Pregnancy, with Special Reference to the Relationship Between German Measles and Cataract, Deaf-Mutism, Heart Disease and Microcephaly, and to the Period of Pregnancy in Which the Occurrence of Rubella is Followed by Congenital Abnormalities," *M. J. Australia*, 2:201-210 (Sept. 11, 1943); C. Sidney Burwell and Lewis Dexter, "Venous Catheterization in Patients with Congenital Heart Disease," presented before the New England Heart Assn. (Nov. 26, 1945); R. E. Gross and J. P. Hubbard, "Surgical Ligation of a Patent Ductus Arteriosus: Report of First Successful Case," *J.A.M.A.*, 112:729-731 (Feb. 25, 1939); A.

Blalock and H. B. Taussig, "Surgical Treatment of Malformations of Heart in Which There Is Pulmonary Stenosis or Pulmonary Atresia," *J.A.M.A.*, 128:189-202 (May 19, 1945); M. Finland, F. Parker Jr., M. W. Barnes and L. S. Jolliffe, "Acute Myocarditis in Influenza A Infections: Two Cases of Nonbacterial Myocarditis, with Isolation of Virus from Lungs," *Am. J. M. Sc.*, 209:455-468 (April 1945); F. H. Lashmet, "Dietary Treatment of Renal Disease," in L. H. Newburgh and F. Mackinnon, *The Practice of Dietetics*, 12:225-258 (1934); H. A. Schroeder, "Studies on Congestive Heart Failure: I. The Importance of the Restriction of Salt as Compared to Water," *Am. Heart J.*, 22:141-153 (Aug. 1941); S. Proger, E. Ginsburg and H. Magendantz, "The Effects of the Ingestion of Excessive Amounts of Sodium Chloride and Water on Patients with Heart Disease," *Am. Heart J.*, 23:555-566 (April, 1942); L. B. Ellis, "The Relative Importance of Salt and Fluid in the Management of Congestive Heart Failure," *Tr. New England Heart Assn.*, p. 33 (1942); F. R. Schemm, "A High Fluid Intake in the Management of Edema, Especially Cardiac Edema: I. The Details and Basis of the Regime," *Ann. Int. Med.*, 17:952-969 (Dec. 1942); "II. Clinical Observations and Data," *ibid.*, 21:937-976 (Dec. 1944); W. C. Bridges, Edwin O. Wheeler and Paul D. White, "Experiences During the Past Year at the Massachusetts General Hospital in the Dietetic Treatment of Congestive Heart Failure," presented before the New England Heart Assn. (Nov. 26, 1945).

**FILMS.**—*Heart and Circulation* (Encyclopædia Britannica Films Inc.). (P. D. W.)

**Helicopter:** see AVIATION, CIVIL.

**Helium.** No official report was made by the close of 1945 revealing the progress in helium output in the United States during World War II, but it was generally known to have increased several fold, through the addition of new plants and the enlargement of the single prewar plant. The chief war use was for the inflation of blimps for submarine patrol work, and increased amounts were used in weather observation balloons. One of the latest applications was the substitution of helium for air in the inflation of transport plane tires, 13 lb. of helium replacing 92 lb. of air. (G. A. Ro.)

**Hemp.** The production of hemp in the U.S. was greatly reduced in 1945 with the end of the war emergency needs. Only 8,500 ac. were planted for both fibre and seed in two states, Wisconsin and Kentucky, compared with 72,600 ac. planted in five states in 1944. Production of fibre in 1945 was estimated at 6,762,000 lb. compared with 51,632,000 lb. in 1944 and seed at 420,000 lb. compared with 528,000 lb. in 1944 all of which was grown in Kentucky. A small amount of hemp was grown in the United States for many years but production was greatly expanded to meet war needs when imports ceased. In 1943 the acreage reached the high total of 226,000 ac. for both fibre and seed, nearly all being grown under government contracts. War Hemp Industries, Inc., controlled the crop and contracted for the acreage. During the emergency 42 plants were built for government operation. During 1945 these plants were active in processing the 1944 crop but were to be closed in most of 1946. Hemp fibre cannot be produced profitably in competition with other imported fibres when normal trade is resumed. The Italian hemp crop, normally of considerable importance, was sharply reduced by the war and also by the drought of 1945. The 1944 crop was estimated to be about 123,000,000 lb. (J. C. Ms.)

**Herriot, Edouard** (1872- ), French politician, was born July 5 at Troyes in Champagne. See *Encyclopædia Britannica* for his early career. The elections of May 1932, marked by a swing to the left, brought Herriot back into power as premier and foreign minister for the third time. While he opposed Germany's claim to armament equality, he did agree at the Lausanne conference, June 1932, to reduce German reparations. Herriot valued U.S. friendship and insisted that France should pay its war debt instalment to the U.S. at the appointed time. But the chamber of deputies balked and his government was overthrown on Dec. 14, 1932. Herriot was vice-premier in the Doumergue cabinet (1934) and the Flandin government (1936), and in June 1936 he was named

president of the chamber of deputies. He remained in France after the German occupation in June 1940, and at first showed little opposition to Vichy rule. But in Aug. 1942, when Marshal Henri Pétain dissolved the permanent bureaus of the senate and the chamber of deputies, Herriot and Jules Jeanneney wrote a vigorous joint protest to the senate. For this he was arrested in 1942. In 1944, it was erroneously reported that Herriot had died while in custody. On April 25, 1945, a Moscow dispatch disclosed that he had been liberated from a German prison camp by Russian soldiers. He returned to his native Lyons (May 19) where the day before he had been re-elected mayor. Testifying at the trial of Marshal Pétain (July 30), he accused the old marshal of having staged a *coup d'état* in 1940 when he abolished the third republic. Herriot was elected to the new constituent assembly during the national elections, Oct. 21.

**Hershey, Milton Snavely** (1857-1945), U.S. confectioner and philanthropist, was born Sept. 13 in Derry Township, Pa., of Mennonite parents. See *Encyclopædia Britannica* for his early career. In 1944, Hershey resigned as president of three of his enterprises—the Hershey Industrial school, the Hershey corporation and the Hershey Trust company. He retained, however, the post of chairman of the board of the Hershey Chocolate company. He died in Hershey, Pa., Oct. 13.

**Hewitt, Henry Kent** (1887- ), U.S. naval officer was born Feb. 11 in Hackensack, N.J. A graduate of the U.S. Naval academy, 1906, he was commissioned an ensign in 1908. He won the naval cross for distinguished service in World War I, and later served as commander of a destroyer division. He was inspector of ordnance in charge of the naval ammunition depot at Puget sound and commanded the cruiser "Indianapolis." He was promoted to rear admiral in Dec. 1940.

Adm. Hewitt was named to command the U.S. naval units in the huge Allied fleet that protected the U.S. landings in North Africa Nov. 8, 1942. He commanded the naval engagement that helped force the surrender of Casablanca. In recognition of his services in North Africa he was made a vice-admiral in Nov. 1942. Adm. Hewitt's fleet also played its part in the Sicilian campaign in 1943 and in the attack on the Italian mainland, particularly the landings at Salerno.

Adm. Hewitt had command of all Allied naval forces in the invasion of southern France in Aug. 1944. He was nominated for the rank of admiral by President Roosevelt, March 29, 1945, and on May 8 he was assigned by Secretary of the Navy James Forrestal to conduct further investigations into the Pearl Harbor attack. On July 14, he was designated commander of U.S. naval forces in Europe, succeeding Adm. Harold R. Stark.

**Higashi-Kuni, Naruhiko**, PRINCE (1887- ), Japanese statesman, was born Dec. 3, the ninth son of Prince Asahiko-Kuni, and a second cousin of the emperor. His wife was the ninth daughter of Emperor Meiji, and the prince established in 1906, by order of Meiji, the separate imperial house of Higashi-Kuni. After his return from France, where he was a student, 1920-27, he was given command of an infantry regiment. In 1935, he was named high military councillor and was renamed to this post in 1937, when he was promoted to the rank of general. On April 16, 1945, Higashi-Kuni was named supreme war councillor. After Emperor Hirohito made his surrender broadcast, Aug. 15, the Suzuki cabinet resigned in "disgrace," and Higashi-Kuni formed a new cabinet, Aug. 16. He assumed concurrently the posts of premier and war minister. The following day, the new premier

ordered the army to "refrain from any outbursts of emotion . . . and carry out the emperor's instructions to the letter." Adjusting his policies to the exigencies of defeat and of foreign occupation, he said (Sept. 1) that a policy of "friendship" would help Japan regain its place in world leadership and economy. Subsequently Higashi-Kuni asserted (Sept. 5) that Japan had been rapidly losing the war before the atomic bomb was used or Russia entered the conflict. He denied (Sept. 18) that either he or the emperor had been war criminals, alleging that the emperor had been deceived by the militarists who had planned the Pearl Harbor attack. Higashi-Kuni resigned (Oct. 5), and on Nov. 10 he said that he had requested the emperor's permission to become a commoner again because of the "corrupt customs" of the imperial household system.

**Highways:** see ROADS AND HIGHWAYS.

**Hillman, Sidney** (1887- ), U.S. labour leader, was born at Zagare, Russia, March 23, the son of a merchant. He left school to work in a chemical laboratory in Kaunas. In 1907 he came to the U.S., and worked first as a clerk, then as a garment cutter. He was president of the Amalgamated Clothing Workers of America, 1915. In Jan. 1941, President Roosevelt appointed him associate director general of the Office of Production Management, and Hillman played an important part in preventing and settling defense strikes. In July 1942, Hillman resigned as special assistant to the president on labour matters to return to his old job as president of the C.I.O. Amalgamated Clothing Workers. In 1944, as chairman of the Political Action committee of the C.I.O., he was responsible for an overwhelming turnout of labour voters to insure the re-election of President Roosevelt.

In 1945, Hillman threw the weight of the C.I.O. Political Action committee into the battle for confirmation of Henry A. Wallace as secretary of commerce. He attended the World Trade Union conference in London and urged (Feb. 13) immediate creation of a new permanent world labour organization which would speak for Labour in the peace settlement. On May 11, Hillman gave up his chairmanship of the National Citizens Political Action committee, but retained chairmanship of the C.I.O. Political Action committee. On Oct. 6, he was elected as one of the vice-presidents of the new World Federation of Trade Unions.

**Himmler, Heinrich** (1900-1945), head of the German police, was born Nov. 7 at Munich. He studied agriculture at the University of Munich and later became a member of the Academy of German Law. In 1927 he became deputy leader of the *Schutzstaffel* (known as the S.S., Black Shirt or Elite Guard troops) and he was appointed leader in 1929. Himmler was reich director of propaganda, 1926-30, a member of the reichstag and Prussian state council, 1933, commander of the united German police forces, 1936, and deputy head of the reich administration, 1939. He was empowered by Adolf Hitler to suppress anti-nazi resistance at home and in the occupied countries, and his methods were brutal and ruthless. The fuhrer made Himmler interior minister on Aug. 24, 1943, and by Nov. 1944 it appeared that the gestapo chieftain had assumed executive control over Germany, replacing Goering as the No. 2 nazi. In early 1945 it was believed that Himmler had supplanted even Hitler as real ruler of the reich, presumably because the latter had been incapacitated by the assassination attempt of July 20, 1944, although he was still Germany's titular head. This belief gained credence in late April 1945, when it was learned that Himmler had submitted a peace offer to the United States and Great Britain, but not to the soviet union—



an offer which was rejected. After the Doenitz government was formed, Himmler went into hiding. He adopted a disguise which might have proved effective, but his identity papers, made out in the name of Hitzinger, aroused suspicion of British soldiers at Bremervoerde and Himmler was arrested on May 21. He revealed his identity and was placed under strict custody. According to newspaper dispatches, an examining physician, looking for concealed poison, attempted to open Himmler's mouth. The gestapo chief thereupon broke a vial of poison carried under his tongue, and died a few minutes later on May 23.

**Hirohito** (1901— ), emperor of Japan, was born April 29, the son of Emperor Yoshihito. At the age of eight he entered the peers school, and at the age of 10, he was commissioned as a sub-lieutenant in both the army and navy. He broke away from his sheltered life in 1921 and toured Europe, becoming the first Japanese crown prince to visit the western world. In 1924 he married Princess Nagako Kuni. Hirohito became prince regent in 1921, ascended the throne in 1926, and the era of his reign was called "Showa" or Light and Peace. The part played by Hirohito in the Japanese aggressions has been a moot point. Although his apologists asserted that he was "outside" politics, he approved the various Japanese acts of aggression from the seizure of Manchuria in 1931 to the attack on Pearl Harbor a decade later. On Pearl Harbor day, Dec. 7, 1941, he proclaimed the nation at war with the United States and the British empire. During the early part of World War II, when Japan was amassing victories, the emperor remained in semi-seclusion. Toward the end of the war, however, he admitted in an imperial rescript that the situation was "truly grave." After the Potsdam declarations, the atomic bombings and Russia's entry into the war, the Japanese indicated they were willing to end the conflict provided the emperor retained his prerogatives. President Truman answered (Aug. 11, 1945) that Hirohito would be permitted to retain his throne for the time being, subject to the authority of the supreme Allied commander. Thus Hirohito on Aug. 15 (Tokyo time), 1945, broadcast to his subjects that he had ordered acceptance of the "provisions of the joint declaration" of the Allied powers. On Sept. 27, the emperor broke with precedent and paid a call on Gen. MacArthur, supreme Allied commander. Two days earlier he declared in interviews with foreign correspondents that he opposed war as an instrument of national policy. He blamed Hideki Tojo, former premier, for "misusing" his war rescript, and pledged that any social reforms in Japan would be made by constitutional means. In mid-December, Gen. MacArthur ordered the abolition of Shinto as the national religion. Two weeks later, in a rescript issued Jan. 1, 1946, the emperor declared to be false the "conception that the emperor is divine and that the Japanese people are superior to other races and fated to rule the world."

**Hispanic America:** see ARGENTINA; BOLIVIA; BRAZIL; BRITISH GUIANA; BRITISH HONDURAS; CHILE; COLOMBIA; COSTA RICA; ECUADOR; FRENCH COLONIAL EMPIRE; GUATEMALA; HONDURAS; NICARAGUA; PANAMÁ; PARAGUAY; PERU; SALVADOR, EL; SURINAM; URUGUAY; VENEZUELA.

**Hispaniola:** see DOMINICAN REPUBLIC; HAITI; WEST INDIES.

**Hitler, Adolf** (1889-1945?), German nazi leader, was born at Braunau on the Inn, Austria, April 20. For a general account of his career see *Encyclopædia Britannica*.

*Götterdämmerung:* 1945.—Uncertainty clouded the details of the grand finale, but no doubt existed that devastating vengeance had encompassed the fuehrer and his followers. The officers' plot of July 20, 1944, had wounded the dictator, but

failed to destroy him. Many of the conspirators paid a bloody price for the attempt to salvage themselves and Germany. Relentlessly the Allied armies converged on Germany in the fall of 1944 from west, east and south. German strength was unequal to the task. Fanatic leadership could no longer produce enough planes or rockets or soldiers. As the invading armies drove into the heart of Germany the nazi leaders intrigued among themselves. Himmler complained of Hitler's health and his abnormal way of life, turning night into day and sleeping only two or three hours. By early April 1945, Heinrich Himmler, Walther Schellenberg, chief of the German intelligence service, Franz Seldte, minister of labour, and Count von Krosigk, minister of finance, were in contact with each other trying to find a means to put Hitler aside and end the war. Doctors disagreed as to whether or not the fuehrer was incapacitated by Parkinson's disease, and even Himmler hesitated to take forceful action.

On swept the Russians. Hitler's entourage urged him to fly to Berchtesgaden and continue the struggle from there. This he had intended to do, but changed his mind, possibly under the influence of his mistress, Eva Braun, who wished to die with him a martyr's death. On April 22 Hitler declared to a staff conference that the war was lost and that if Berlin fell he would die there. On this day he suffered an attack of nervous prostration and violently blamed everyone else for the German tragedy. According to the circumstantial account worked out by British intelligence officers in the next five months, Hitler never thereafter left his bunker in the reichschancellory. He regained a certain calm punctuated during the next tense days by occasional spasms of despair and recrimination. With him remained Dr. Josef Goebbels, Martin Bormann, Eva Braun and members of



"YOU DID ALL THAT!" Cartoon by Burck which appeared in the *Chicago Times* on May 3, 1945

his personal staff. As the Russians surged closer to the heart of Berlin and shells fell about the bunker, Hitler finally knew that the great gamble had failed. On April 29 in the evening he married Eva Braun, and then retired to a bizarre wedding feast where the talk was apparently all of suicide. He destroyed his pet Alsatian dog, and at about 2:30 A.M., April 30, said goodbye to some 20 people gathered in the bunker. Then, supposedly, the bridal pair retired to death—he by a shot through the mouth, she by poison. Mid-afternoon of the 30th some 40 gal. of gasoline were brought into the garden outside the bunker. The body of Eva Braun was brought out, and another body wrapped in a blanket; both bodies were soaked with the gasoline and burned, and the charred remains broken up and buried. Presumably the second body was that of Adolf Hitler, and telegrams from Goebbels and Bormann sent out on May 1 both asserted that Hitler had died the day before. Escape alive was well nigh impossible, and various reports of Hitler's appearance in Argentina or elsewhere proved to be unfounded.

In all probability Hitler's death by suicide preceded by a week the final surrender of the Nazi Reich—but absolute proof may never appear.

A document, discovered in Germany and reported to be Hitler's "political testament" was released by Allied authorities on Dec. 30, together with a personal will and marriage document, all dated April 29, 1945. The testament charged international Jewish interests with responsibility for World War II, declaring Hitler's strong aversion to the conflict. Germany was urged to strengthen its resistance, and a rebirth of the Nazi movement was predicted. Himmler and Goering were expelled from the party and all their state offices for secret negotiations with the Allies and for "illegally attempting to seize control of the state." Their successors were named. Also named, to carry on the war, was a cabinet headed by Karl Doenitz. The document recorded Hitler's choice of death rather than surrender or capture by the enemy. (See also GERMANY.)

**BIBLIOGRAPHY.**—British Report on Hitler's Probable Suicide (dated at Berlin Nov. 1, 1945); Count Folke Bernadotte, *The Curtain Falls* (1945). (F. D. S.; X.)

**Hockey:** see ICE HOCKEY.

**Hodges, Courtney H.** (1887— ), U.S. army officer, was born Jan. 5 at Perry, Ga., the son of a country editor. In 1906 he joined the army as a private, and three years later was commissioned a 2nd lieutenant. He served with distinction in World War I, and was with the army of occupation in Germany, 1919. In World War II he became a major general in 1941 and a lieutenant general in Feb. 1943, when he assumed command of the 3rd army (later taken over by Gen. George Patton). Hodges commanded an army corps during the invasion of France, 1944, and later took over the 1st army. Sandwiched between the British-Canadian forces and Patton's 3rd army, the 1st army swept through north-western France and captured the town of Aachen on Oct. 20, 1944. Gen. Hodges resumed his advance beyond Aachen in the general offensive launched Nov. 16. His army was thrown back in the German surprise counteroffensive launched in mid-December.

The 1st army recovered from this blow and in Feb.-March 1945, Hodges led his forces up to and across the Rhine river. He was appointed a full general, April 17. After the European phase of the war ended, Hodges and the 1st army returned to the United States for redeployment to the Pacific theatre of war. The Japanese phase was over, however, before Hodges could see action in that theatre, and on Oct. 21 it was announced that the 1st army would change over to a peacetime and administration unit.

**Hogs.** The number of hogs on United States farms on Jan. 1, 1945, 60,600,000 head, reflected the great decline in 1944—the greatest on record—of more than 23,000,000 head from the 83,852,000 head reported on Jan. 1, 1944. This great decline of 28% resulted from several conditions—short feed in early 1944, marketing difficulties because of gluts at slaughter centres, labour shortage and shipment difficulties. The spring pig crop of 1945 was 51,687,000 head compared with 55,428,000 in 1944 and the fall crop 35,300,000 head or about 4,000,000 more than that of the fall of 1944. The total pig crop was only slightly more than in 1944 or about 87,000,000 head compared with the record crop of 121,706,000 in 1943.

Hog slaughter dropped early in 1945 and continued to run much below 1944 but at about the average for 1934-43. In general the supplies were less than demand despite the reduced needs of military and export programs. An increase in the pork supply for 1946 was indicated by the increase in the fall pig crop, however, which suggested that hog production might be stabilized at about the level of prewar years or slightly higher.

The total production of pork was estimated at 10,190,000,000 lb. in 1945 compared with 12,893,000,000 lb. in 1944 and the high record of 13,349,000,000 lb. in 1943. During the first half of 1945 the government required that about 50% of pork production be set aside for government purchase. This requirement was reduced as soon as the end of the war became evident.

Hog prices were stabilized at a level above 1944. The support price of \$13 per 100 lb. was authorized to Sept. 1, 1946. Hogs sold at ceiling prices through 1945. This price was \$14.75 per 100 lb. at Chicago until Oct. 9 when it was increased 10 cents per 100 lb. The large corn crop suggested that the volume of pork to be produced in the winter 1945-46 would increase and prices might decline to the minimum. The stocks of old corn were about 50% larger than a year earlier. Increased hog production in Canada, Argentina and Australia was expected to cause a decline in export demand after the supplies for relief had been provided, although hog numbers in Europe were estimated to be one-third less than in prewar. (See also MEAT.)

(J. C. Ms.)

**HOLC:** see HOUSING.

**Holland:** see NETHERLANDS.

**Home Building, Federal:** see HOUSING.

**Home Economics.** The American Home Economics association in the United States reported a 20% increase in its membership for 1945. High school home economics club members totalled in 1945 100,000; while the college and university clubs reported a membership of 18,000. High school home economics clubs in 1945 used this activity in an organized way in their social program particularly through their nationally organized club known as Future Homemakers of America, a group sponsored jointly by the American Home Economics association and the U.S. office of education.

The American Home Economics association placed special emphasis in its 1945 program of work on four major themes: (1) planned saving and spending; (2) housing; (3) family relationships; (4) wise use of consumer goods.

The material was widely used for work with adult classes; in organized school programs, elementary through college; with larger groups of rural extension workers in connection with farm security and food and nutrition projects; and by social agencies and business organizations. Much of this material released through the American Home Economics association was used in 1945 by home economists in fields of journalism, radio, television and films.

Many countries in which efforts had been extended only to

low income or dependent families were looking toward a program similar to the one in the U.S. where home economics deals with families on all levels. During 1945, an increasing number of women students from Latin America showed interest in home economics, most of them in specific activity fields—nutritionists, laboratory technicians, extension workers, teachers.

The co-operative extension service in agriculture and home economics (U.S. department of agriculture, War Food administration) during the fiscal year 1945 helped women in 3,415,820 homes with problems of food, clothing, work-habits and family relationships. This was accomplished through the efforts of 2,579 county home demonstration agents and 819 war food assistants aided by specialists from land-grant colleges and voluntary local leaders. Assistance was given with the production and preservation of food to 25,000,000 families—home gardens, canning, storing, freezing and drying were emphasized. In spite of wartime rationing, 1,740,405 families were assisted with improving diets; 1,363,888 families with food preparation; 179,507 families with child feeding problems; 406,343 families in building up stronger resistance to colds and common diseases through proper diet and invalid feeding. Women were assisted with the buying and care of clothing and textiles, especially important because of shortages in at least 2,294,314 homes. Increased efficiency in household tasks was accomplished in 628,397 homes. An improvement in family relationships was initiated in 233,168 families. Removing fire and accident hazards from 568,577 homes were recorded by adult groups in addition to the 700,000 recorded by juniors.

The bureau of human nutrition and home economics (Agricultural Research administration, U.S. department of agriculture) directed its efforts along five lines: it furnished families with information designed to help with day-to-day problems; supplied basic facts to agencies responsible for programs affecting civilian welfare; laid plans for meeting postwar problems; focused its research on some of the specialized needs of the military services; and made fundamental contributions to science. As fast as the results of its research became available, the bureau gave the facts to the layman through organized programs of the Office of War Information, printed bulletins, press, radio talks, charts and pictures.

Completed in 1945 were tables giving the composition of 275 common foods in terms of 11 nutrients. These figures covered protein, fat, carbohydrates, iron, phosphorus, calcium and five important vitamins.

**Textiles and Clothing.**—Because of the need for consumer information on the relative utility and quality of fabrics on the market, nearly 600 samples of staple clothing fabrics from 15 cities of various sizes located in five sections of the U.S. were examined during 1945. Laboratory study of the quality of these fabrics including shrinkage, colour fastness and breaking strength would be of value in determining the fabric properties necessary in different qualities of staple textile materials as well as disclosing existing trends in fabric quality.

Serviceability studies were also made on such household fabrics as plain curtain marquisettes, commonly used upholstery materials such as cotton tapestry and cotton damask. A study comparing various physical properties of cotton fabrics knitted from natural mercerized carded and combed yarn was completed. Investigations were continued on chemical treatments for single yarns; these included gums, starchy waxes, resin and glues of various types.

Research on chemical finishes for rendering household textiles resistant to mildew was continued in order to determine the permanence of such treatments under various weathering and storage conditions.

Techniques of measuring and recording dimensions and contours of the foot believed to be pertinent to the shaping, sizing and fitting of shoes were explored and analyzed statistically with a view to establishing standards for reliability of measurements needed in the pioneer field of research. Standards of workmanship and construction features for inexpensive ready-to-wear clothes were studied.

More than 17,000,000 pieces of literature were sent out on request by the bureau of human nutrition and home economics. Further dissemination of information was made by the staff through 20 printed bulletins, 18 previewed publications, 26 technical articles, 140 popular articles for magazines, 48 radio broadcasts on nation-wide networks, 8 scripts for syndicates, 4 film strips and 1 motion picture film.

During 1945, 15 projects were undertaken in co-operation with agricultural experiment stations and other research agencies in various states.

The Office of Experiment Stations (Agricultural Research administration, U.S. department of agriculture) again reported that the effect of World War II on research program in home economics at the agricultural experiment stations had been to increase the emphasis on food and nutrition. Looking toward increased interest in problems of housing, household equipment and home management, new researches were begun within the year 1945, bringing the projects in this field to a total of 20.

During 1945, 34 progress notes on the projects were issued by 20 states. These are included in mimeographed list of "Progress Notes of National Cooperative Projects." (See also DIETETICS; FOOD RESEARCH.)

**BIBLIOGRAPHY.**—Report of the Chief of the Bureau of Human Nutrition and Home Economics, Agricultural Research Administration (1945) (advance typed copy); Report of Co-operative Extension Work in Agriculture and Home Economics (1945) (advance typed copy); Extension Activities and Accomplishments, 1944, Extension Service Circular 431 (mimeographed); Research in Foods, Human Nutrition, and Home Economics at the Land-Grant Institutions, 1945-46, Office of Experiment Stations, U.S. Dept. of Agri. (mimeographed); Journal of Home Economics (Sept. 1945); *ibid.* (advance copy, Feb. 1946); Report from Research Administrator, Agricultural Research Administration, U.S. Dept. of Agri. (Dec. 1945) (typed personal communication); Foreign Fellows of the American Home Economics Association, American Home Economics Association (mimeographed); Food for Two, AIS-21 (June 1945), Eat a Good Breakfast to Start a Good Day, AWI-107 (Aug. 1944), Tables of Food Composition in Terms of 11 Nutrients, Misc. Pub. 572 (1945), Family Food Consumption in the United States, Spring 1942, Misc.

Pub. 550 (Sept. 1944), and J. L. Pennock and G. M. Angle, *What Farm Families Spend for Medical Care*, Misc. Pub. 561 (April 1945) U.S. Dept. of Agri.; *The Deterioration of Cotton Fabrics by Certain Micro-organisms*, Circular 737, Bureau of Human Nutrition and Home Economics; "List of Progress Notes of the National Cooperative Project, Conservation of Nutritive Values of Foods" (Office of Experiment Stations, U.S. Dept. of Agri.) (through Dec. 31, 1945); *Posture in Housework*, Misc. Ext. Pub. No. 34 (revised), Extension service, U.S. department of agriculture; *An Informal Review of Legislation Affecting Family Welfare* (Jan. 1946), American Home Economics Association (mimeographed). (E. Dn.)

**Home Loan Bank, Federal:** see HOUSING.

**Home Owners' Loan Corporation:** see HOUSING.

**Honduras.** A republic of Central America, bounded by Guatemala, El Salvador and Nicaragua. Area: 59,145 sq.mi., with some territory in dispute. Pop. (1945 census) 1,201,310; by the 1940 census it was 1,107,859. The capital is Tegucigalpa, with a pop. (1945) of 55,715; other leading cities are San Pedro Sula (22,116) and La Ceiba (12,185). Smaller urban centres are Choluteca (1940 pop. 5,057), Santa Rosa (6,018) and Tela (8,969). Religion: Roman Catholic; language: Spanish. President in 1945: General Tiburcio Carías Andino.

**History.**—In general 1945 was a peaceful year in Honduras with the exception of an attempt at revolt in April. Small bands composed of exiles made an invasion from Guatemala and there were skirmishes in the Copán area in the northwest. By the end of the month the government reported that the revolt had been crushed.

In December a news account stated that remaining political and military prisoners in the country had been freed by President Carías shortly before Christmas. During a session of congress in the first months of the year a series of war emergency measures for World War II was approved including one expropriating axis assets. War censorship was ended Sept. 12, and a state of siege declared earlier in the war was lifted by congress Dec. 18, 1945.

The soviet union was granted recognition by Honduras late in March. In July the United Nations charter was approved by the president, and congress took similar action in the December session. The Bretton Woods monetary pact was signed Dec. 28.

Economic conditions improved somewhat as increased shipping brought the banana industry back toward normal, but severe food shortages were reported in August, notably of sugar. On June 30 the Institute of Inter-American Affairs terminated its food program in the republic, turning over to the government its food production and demonstration units. A severe October hurricane on the north coast did damage estimated at from \$10,000,000 to \$15,000,000.

The United States in October disclosed that lend-lease military goods sent to Honduras during World War II amounted in value to \$313,000.

**Education.**—Primary schools (1942) numbered 1,083, with an enrolment of 55,567; 18 intermediate schools had 2,544 pupils and the National university an enrolment of 378.

**Finance.**—The monetary unit is the lempira, valued at approximately 49 cents U.S. in 1945. During the fiscal year 1943-44, Honduras for the first time in several years operated with a surplus (\$181,461 U.S.); the external debt was reduced to \$1,761,937 and the internal debt to \$5,017,192. Money in circulation on Dec. 31, 1944, amounted to \$6,465,457, with U.S. coins amounting to 48% of the money in circulation. The budget for 1944-45 was balanced at 11,384,521 lempiras.

**Trade and Resources.**—In the 1943-44 fiscal year exports were valued at \$9,462,532 and imports at \$12,227,944. The U.S. supplied about 64% of imports and took approximately 85% of exports. Bananas and precious metals made up 71%



of 1944 exports: the former amounted to 10,359,159 stems, while gold exports were valued at \$751,429, silver at \$1,343,172 and antimony at \$15,710. Coffee exports for the Oct. 1, 1944–Sept. 30, 1945, quota year amounted to 6,052,105 lb. Coconuts exported in 1944 totalled 13,641; citronella oil, 32,556 lb.; mahogany, 990,795 bd.ft.; crude rubber, 245,324 lb.; abaca, 944,625 lb. of fibre and 43,200 lb. of tow. Rice production (1943–44) amounted to 145,977 quintals (1942–43: 185,628 quintals).

**Communication.**—Railway mileage was estimated at about 900 mi. (1942), and highway mileage to 780 mi. of which 450 were surfaced. Completion in the latter part of 1944 of the Potrilleros-Pito Solo highway link, constructed jointly by the government and the Institute of Inter-American Affairs, was said to have reduced truck rates into the interior by more than one-third. A domestic air line was inaugurated Sept. 15, 1945.

**FILMS.**—*Central America* (Encyclopædia Britannica Films Inc.). (D. Rd.)

**Honduras, British:** see BRITISH HONDURAS.

**Honey:** see BEEKEEPING.

**Hong Kong:** see BRITISH EMPIRE.

**Hops.** The 1945 hop crop in the United States was 55,810,000 lb., 17% above the 47,695,000-lb. crop of 1944 and 42% above the ten-year average of 39,240,000 lb. for 1934–43. A favourable season brought the Washington crop to 21,000,000

U.S. Production of Hops by States, 1945, 1944 and 10-Yr. Average

State	1945 lb.	1944 lb.	1934–43 average lb.
Oregon . . . . .	20,398,000	17,204,000	18,069,000
Washington . . . . .	21,352,000	17,028,000	10,996,000
California . . . . .	14,378,000	13,608,000	10,175,000

lb. or twice the average for that state. Total hop acreage was about 41,000 in 1945 compared with 37,000 in 1944, and an average of 34,000. (J. C. Ms.)

**Hormones:** see ENDOCRINOLOGY.

**Horse Racing.** Horse racing in the United States in 1945 reflected the disturbed and abnormal conditions prevalent throughout the country and the world to an extreme degree. Everything connected with it was involved, and a summing-up of extreme condensation can, of necessity, take little or no notice of much that was unprecedented. The year began with a peremptory order, drastic in its provisions, not only closing all race tracks but prohibiting the transportation of race horses, by either train or public truck, either from one track to another, or even their shipment to their home stables. The purpose was to facilitate the movement of troops and munitions for war purposes. The discrimination worked hardship upon horsemen and was much complained of particularly since baseball and other sports were allowed to continue. This order was in operation for nearly five months. Many great meetings had to be declared off and it was not until mid-May that the ban was lifted. The season then so belatedly begun was soon, however, proceeding at a tempo so extraordinary that when it closed at the end of 1945 all U.S. turf records for attendance, amount of money paid out in stakes and purses and wagered upon the results were broken, within a period of but seven and a half months as against the usual 12.

By Dec. 31 a grand total of \$32,217,010 had been paid out in stakes and purses as against \$29,159,099 during the entire 12 months of 1944. This was the first time the \$30,000,000 mark had been reached or passed. The total number of races run was 19,496 as against the previous record of 19,228. The total number of persons attending was 17,227,548; total amount of money wagered through the totalizators, \$1,421,951,753, as against \$1,

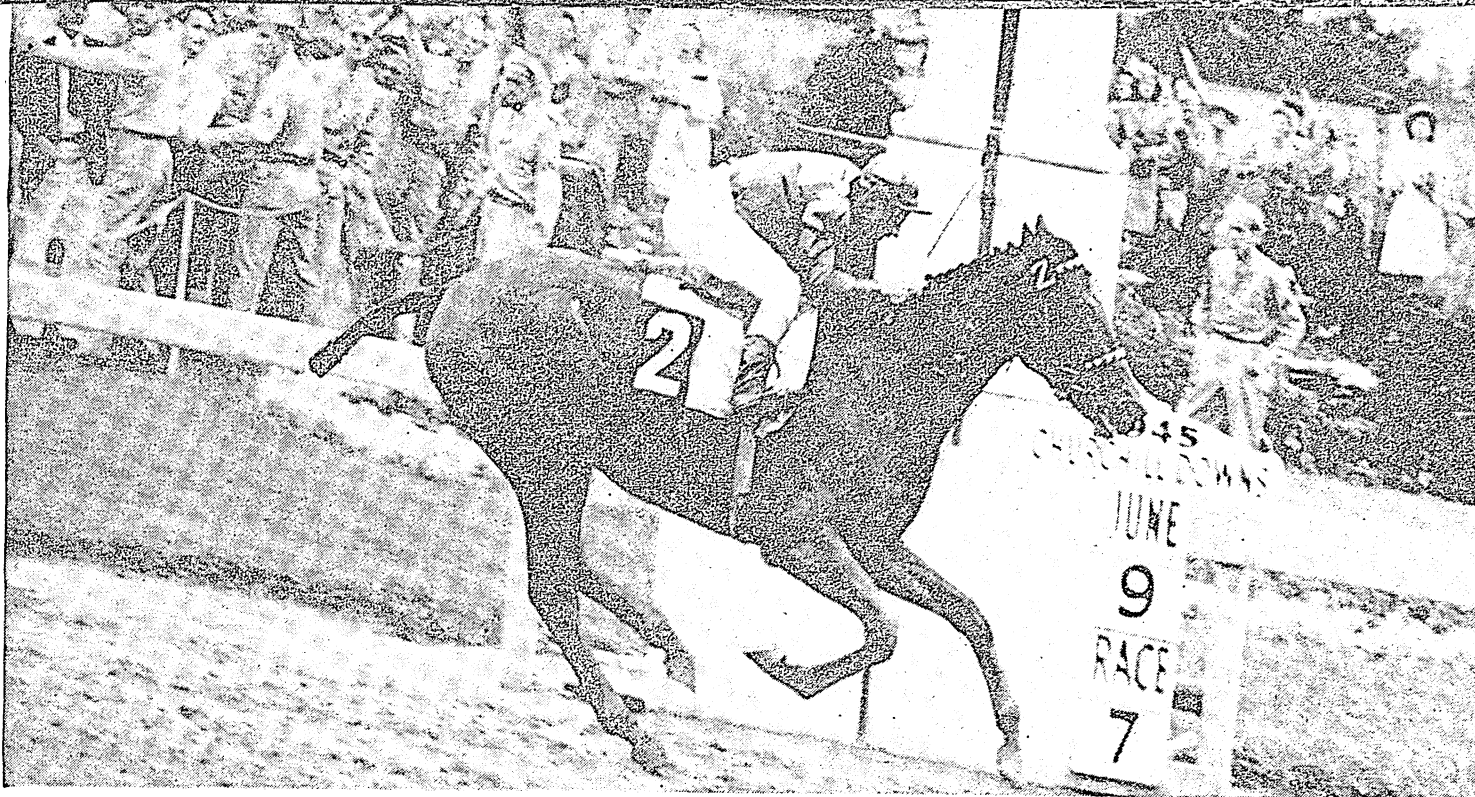
209,973,122 in 1944, an increase of nearly \$212,000,000. On Sept. 22 for the first time the \$5,000,000 mark for a single day was reached at Belmont park, with an audit of \$5,016,745, while a new record for wagers on a single race of \$791,837 was established at Santa Anita park on June 30. The taxation revenue to the various state treasuries derived by law from this source was \$68,734,898, while aside from this the various track managements contributed the sum of \$8,813,125 for war relief and other charitable purposes.

The richest race of 1945 was the Santa Anita Handicap, for all ages, won by Louis B. Mayer's Thumbs Up and worth \$82,925, net. The richest three-year-old stake was the Kentucky Derby, which netted \$64,850 to Hoop, Jr., owned by Fred W. Hooper. The richest for two-year-olds was the Washington Park Futurity, worth \$58,650 to Spy Song, owned by Charles T. Fisher. The leading money-winning horse was Mayer's three-year-old filly Busher, by War Admiral—Baby League, by Bubbling Over, winning ten of her 13 races and \$273,735, which, with her previous earnings of \$60,300 as a two-year-old, gave her a grand total of \$334,035, the largest amount ever won by a female thoroughbred in any country. She was unanimously voted the "Horse of the Year" at the close of the season by two polls of experts. The largest winning two-year-old was Mrs. Elizabeth Graham's colt Star Pilot, by Sickle—Floradora, by Bull Dog, credited with \$185,365. The largest winning older horse was Mrs. Ethel D. Jacobs' four-year-old colt Stymie, by Equestrian—Stop Watch by On Watch, with \$225,375; this being also the largest sum ever won by a thoroughbred of that age. As illustrating possibilities upon the U.S. turf it may be noted that Mrs. Jacobs' husband, who also trains the colt, bought him out of a claiming race a little over a year before for but \$1,500, the horse having been weeded out of his breeder's stable as worthless.

The leading winning owner of the season was Mrs. Elizabeth Graham whose Maine Chance Farm stable captured \$589,170 and narrowly missed beating the record of \$601,660 established by the Calumet Farm stable in 1944. Had the season not been so short Mrs. Graham's horses must almost inevitably have posted new figures in this department. Her trainer, Tom Smith, naturally led in his division with \$510,655. The leading race winning trainer was S. Liepiec with a score of 127. The leading race-winning jockey was Job Jessop, with 290 out of 1,085 mounts. Among the money-winning jockeys the leader was Johnny Longden, whose 180 winners and 212 placed horses earned \$981,977, a new record of its kind.

On the breeding side there were also many new records made, among which the most important was that erected by the leading sire of the season, Samuel D. Riddle's War Admiral, son of the most renowned U.S. thoroughbred of modern times, Man o' War, also owned by Riddle. His offspring, by winning 58 races, earned \$588,997; this not only surpassed the previous mark of \$437,141 turned in by Equipoise in 1942 by a wide margin, but also was the first instance in breeding history in which the get of any one stallion won \$500,000 or more in a single year. As for blood-stock values, they experienced a similar rise. A total of 982 yearlings were sold at the various auctions for the sum of \$5,061,220, an average price of \$5,153.99 per head, eclipsing all previous sets of figures.

**Harness Racing.**—The popularity of the sport greatly increased and the success of the hundreds of meetings held throughout the United States, largely in connection with state, county and other fairs, was both uniform and pronounced, but no figures were available giving official returns. The "Horse of the Year" was again, as in 1944, the bay colt Titan Hanover, by Calumet Chuck—Tisma Hanover, by Peter the Brewer, owned jointly by E. Roland Harriman and Elbridge Gerry. To



HOOP JR., winner by five lengths of the 71st Kentucky Derby on June 9, 1945

a world's record of 2:00 for two-year-olds gained the previous season he added a new one of 1:58 for three-year-olds and swept through the principal stakes for his age undefeated. The most valuable race for him was the Hambletonian, which grossed \$51,046.96. Market values for standard-breds also showed a sharp upward trend. (J. L. HE.)

Great Britain.—Horse racing in Great Britain during 1945, although still on a much restricted scale, gave every sign of an early revival to peacetime levels. The courses on which meetings were held were crowded to their utmost capacity, and record prices were paid for thoroughbred yearlings at the Newmarket sales in September.

Lord Derby won the One Thousand Guineas and the Oaks with Sun Stream, a filly by Hyperion—Drift, trained by W. Earl and ridden by H. Wragg. The Two Thousand Guineas provided a narrow victory for Lord Astor's colt, Court Martial, by Fair Trial—Instantaneous, who beat Sir Eric Ohlson's Dante by a neck. Dante, by Nearco—Rosy Legend, may have been unlucky as he had not fully recovered from an eye injury. In any case Dante was an easy winner of the Derby, in which he beat Lord Rosebery's Midas and Court Martial.

These four substitute classic events were all run on the July course at Newmarket as in previous war years, but the St. Leger was decided at York. Dante was a short-priced favourite before the race, but had to be scratched because of a leg injury, and success went to Chamossaire. Squadron-Leader Joel's colt, by Precipitation—Snowberry, had been fourth in both the Two Thousand Guineas and the Derby. He was ridden by T. Lowrey and trained by R. Perryman.

The best of the older horses was Ocean Swell, by Blue Peter—Jiffy, who won the Ascot Gold Cup for Lord Rosebery. Lord Derby's colt, Gulf Stream, by Hyperion—Tideway, won the Gimcrack stakes at York and proved the best of the two-year-olds. The winning owners' and breeders' lists were headed by Lord Derby, and G. Richards was once again champion jockey.

A yearling full-brother to Dante was bought at the Newmarket sales by the Gakwar of Baroda for 28,000 guineas, nearly double the previous highest price paid for a yearling in Great Britain. The aggregate for the sales was 537,030 guineas for 318 lots, an average price of 1,688 guineas for each yearling, which easily beat the previous record set up in 1928 at the Doncaster sales.

Outsiders were successful in both the Cesarewitch and Cambridgeshire handicaps, which were run on the Newmarket Rowley mile course for the first time after the war. The northern-trained Kerry Piper, owned by Sir Hervey Bruce, won the Cesarewitch by a short head from Lady Crusader at odds of 25 to 1, and Esquire, a 40 to 1 chance, beat Joan's Star in the Cambridgeshire. Esquire, who had never won a race previously, was ridden by an apprentice, G. Packer, whose first success it was. (A. K. B.)

**Horses.** The number of horses and colts declined through 1944 and on Jan. 1, 1945, was 4% less than a year earlier. The U.S. department of agriculture estimated the total to be 8,897,000 head on Jan. 1, 1945, compared with 9,302,000 head a year earlier and a ten-year average of 10,872,000 head. The number of colts raised was 12% smaller in 1944 than in 1943 and only 37% as large as in 1937 and the smallest in 70 years.

The value of horses also declined in the face of gasoline rationing and power shortages on farms. The average farm

value per head was estimated to be \$64.80 on Jan. 1, 1945, compared with \$78.80 a year earlier. This decline was contrary to the general wartime rise of farm animal prices and after a sharp advance in 1943. The shortage of manpower on farms was believed to have caused a shift to mechanical power with the use of fewer horses. In 1918 horses and mules made up 26% of the animal units on U.S. farms but in 1944 the ratio was only 13%.

There were six slaughterhouses operating to produce horse meat for market through 1943-45 with a production exceeded only in the period 1928-32. Total slaughter of horses in 1945 was up to nearly 70,000 head compared with 52,063 head in 1944 and 56,400 head in 1943. A considerable volume of horse meat was prepared for export to be distributed by U.N.R.R.A. for consumption in Europe. The bulk of the usual production before the war, averaging about 20,000 head, was used in the making of prepared dog foods. Only very small amounts were used for human consumption in the U.S. In 1945 the numbers of wild horses increased in such numbers in Montana, the Dakotas and neighbouring states that special efforts were made to dispose of them. The prices of horses generally dropped so low that the capture and marketing of these animals was unprofitable to the rangers. Considerable numbers of horses were sold at very low prices from all range areas since the horse could not compete with tractor power.

**Mules.**—The number of mules and mule colts in the U.S. on Jan. 1, 1945, was estimated to be 3,408,000 head compared with 3,531,000 head a year earlier. The ten-year average 1934-43 was 4,275,000 head. The decline in number of mules was not quite so great as in horses but continued the steady decline begun in 1925 when there were about 6,000,000 head on U.S. farms. The use of mules by the army continued to decline rapidly and only small numbers were needed in reconstruction work abroad. Some shipments were made to Europe for relief purposes but in limited numbers.

The southern states showed declines in numbers greater than the average for the country. Texas, the leading mule state, lost 7% of its mules. Only Tennessee and Alabama maintained their mule population. Nearly two-thirds of the mules of the country were owned in the southcentral states, as follows: Texas 372,000; Mississippi 346,000; Alabama 294,000; Tennessee 288,000 and Arkansas 223,000. In the south Atlantic

cotton belt Georgia had 298,000 head and North Carolina 289,000 head. (See also SHOWS.)

FILMS.—*Cattleman; Horse* (Encyclopædia Britannica Films Inc.). (J. C. Ms.)

**Horse Shows:** see SHOWS.

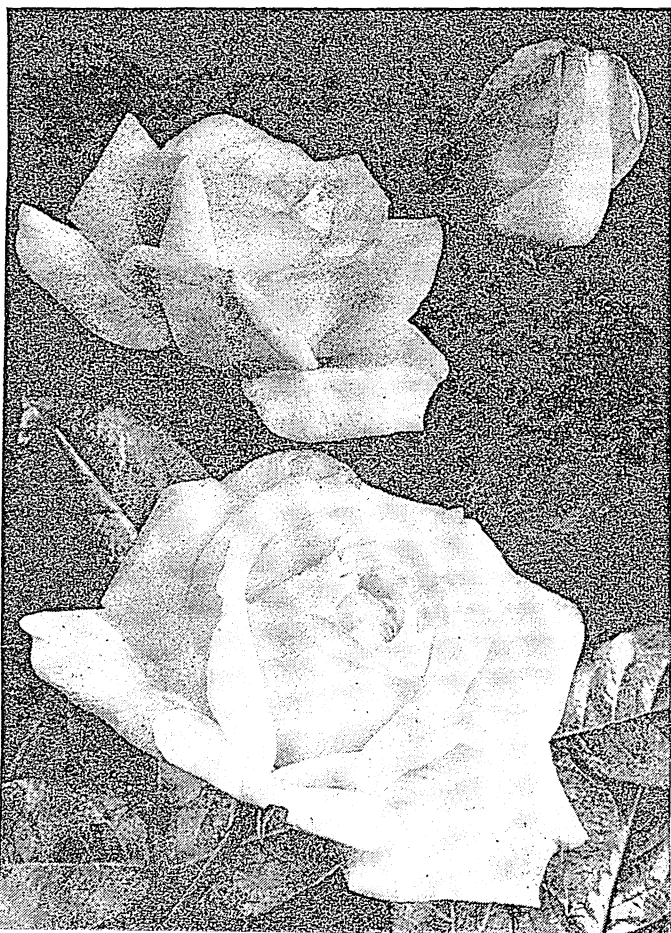
**Horticulture.** The sudden end of World War II in 1945 found European horticulture in a deplorable condition, especially in the invaded countries. The Netherlands' famous orchards in the Betuwe district were found completely ruined, many of the trees having been cut down by the Germans to construct fortifications. Rebuilding was started. The noted woods between The Hague and Scheveningen, destroyed by the Germans, were replanted in part by the school children. Some 450,000 ac. in the Netherlands, flooded by the Germans, and 50,000 ac. otherwise damaged, presented a long-time problem. Nevertheless, a considerable area devoted to high-grade daffodil and tulip bulbs was saved and limited shipments to the United States were resumed in the fall, after six years.

French horticulture suffered less, but reports from other invaded sections were discouraging. Farmers everywhere risked their lives when they started to cultivate their fields, because of unexploded mines.

Shipments of 20,000 tons of seeds went from the United States to Russia early enough for spring planting. Seeds were sent to many other European countries in the spring and harvests were reaped in the fall of 1945. Seeds in the fall were shipped to China for planting in the spring of 1946. In prewar times, Europe exported great quantities of seed to the United States and other countries, but 1945 saw a great increase of seed growing in the United States for shipment to Europe, creating a situation which undoubtedly would require much readjustment.

Great Britain did much to rehabilitate horticulture in 1945,

A NEW VARIETY of rose, appropriately named "Peace," caused a sensation among rose fanciers in 1945, and was chosen the All-America Rose Selection for 1946



with a horticultural advisory council to assist in a change-over from peacetime to wartime production. Greenhouse owners concentrated on the production of tomatoes, and old orchards were brought back into production. The growing of flowers and ornamental plants showed some increase, with growers being permitted to keep a nucleus for expansion later.

In the U.S., victory gardens in great numbers increased the production of vegetables but interest in vegetable growing slackened perceptibly with the end of the war and dealers reported greatly increased orders for ornamentals.

Most important developments were new insecticides and fungicides. DDT, perfected in Switzerland during World War II, proved the most effective insecticide ever developed for saving woodlands and street trees from gypsy moths and elm leaf beetles. Gratifying reports were received about its use in vegetable gardens and fruit orchards, but with qualifications, as there were indications that it might destroy bees and other valuable insects and might have unexpected effects on growing plants. It was applied successfully to forests by means of aeroplanes and helicopters.

The use of hormones to kill unwanted plants was advanced, a preparation called 2-4-D being put out for destroying dandelions, plantain, ragweed and other broad-leaved weeds in lawns. Pyrethrum, long scarce, became more available. Rotenone remained in short supply, with 90% being received from Peru, which produced double the amount sent out before World War II.

"Peace" was the all-America rose selection for the year and caused a sensation because of its unusual size and lasting qualities. It was introduced from France.

The 1945 award of the George Robert White medal of honour for service to horticulture went to Theodore Wirth, Minneapolis, Minn.

**Flower Shows.**—The only major flower show in the United States in 1945 was that held by the Massachusetts Horticultural society in Boston, Mass. The Boston show was continued throughout the war because it could be held in the society's own building, Horticultural hall, while in all other cities halls had to be rented.

The attendance was about 60,000 as against nearly 100,000 in normal times. Restrictions on travelling hampered this show.

However, many exhibitions of limited size were held in cities and towns throughout the country, indicating the continued and growing interest in such exhibitions. A new trend was indicated in several cities where fairly large shows were held in department stores which gave the space and for which no charge was made. A new organization called Roses, Incorporated held a well attended show in Milwaukee, Wis.

Plans were announced late in the year for resuming major shows in New York, N.Y.; Detroit, Mich., and Oakland, Calif. The Society of American Florists announced that it would resume its annual exhibitions in 1947 but that they would be held in Chicago, Ill., each year thereafter instead of being held in different cities. It was announced also that camellia shows would be resumed in Georgia and other southern states. Philadelphia's annual show was expected to be resumed in 1947. The New York show, in normal times the largest in the country with an attendance running up to 150,000, was to be held in Grand Central palace, which was taken over by the armed services for the duration of the war.

Garden clubs, which have very great influence, were to participate in most of the important shows. (See also BOTANY; VEGETABLES.) (E. I. F.)

**Hospitalization Insurance:** see INSURANCE.



**Hospitals.** The end of World War II in 1945 released the flood of hospital expansion and new building projects held in abeyance in the U.S. Many of these projects included needs accumulated during the "blue thirties" when materials were plentiful but money was lacking. Few of these projects took physical form, but governing boards, administrators and architects were deep in planning. Pay roll cost rose from a prewar 50% to 60% to 65% of the total cost of operation. This emphasized the need for functional planning on the assembly line principle in the realization that operating costs can be held down to the patients' ability to pay only if the layout of the physical plant permits the utmost economy of personnel, professional, technical and lay.

During 1945 the American Hospital association made three significant contributions toward better planning of individual hospitals and their integration into a sound nation-wide system.

The first was the provision for associate membership for architects who proved their familiarity with hospital planning requirements and their skill in incorporating this knowledge into hospital plans. The number of such accredited architects promised to be small but so distributed geographically that their services as consultants would be conveniently available to governing boards and local architects in all parts of the United States.

In lieu of its annual convention prevented by the shortage of transportation and hotel facilities, the association issued two booklets of major value in the proper development of hospital facilities for the U.S. people. The first pertains to the individual hospital including standards for appraisal of the hospital needs of the community, the organization of the governing board and of its medical staff, and principles of planning the hospital plant. The second presents the picture in its national aspects including the problems facing hospitals as a whole, federal grants-in-aid for surveys and construction, hospital care for veterans, hospital care for the medically indigent, the relation of Blue Cross plans to hospital management and the future of hospitals in Canada.

A third activity of importance was the work of the Commission on Hospital Care, a subsidiary of the association. This commission sponsored a nation-wide survey of hospital facilities, each state making the survey of its own facilities but the commission lending its aid by suggestion of techniques as developed by its pilot survey of Michigan, and by the provision of such coding and analytical service as may be needed. All but two states had completed, started or planned such surveys. Their completion would leave each state in possession of all the factual data needed for any planning of a state-wide system of hospitalization that may be desired.

The Hill-Burton bill authorizing grants-in-aid to states for state-wide hospital surveys and for assistance in construction funds where the need can be demonstrated passed the senate. Because of the work of the Commission on Hospital Care it was probable that by the time funds became available under this act approximately one-half of the states would already have the organization and all the factual data ready for putting its provisions into effect without delay.

The reorganization of the Veterans' administration promised to have a broad effect on civilian hospitals. The new administration announced a policy of assigning veterans needing hospitalization under the G.I. Bill of Rights to their local hospitals for treatment of acute or short-term illness and limiting its own building program to provision for long-term hospitalization. This was expected to provide occupancy for 150,000 hospital beds in local community hospitals and to reduce the need for new federal construction from the originally estimated 300,000 to 150,000 beds.

Surveys indicated that medical officers returning from the military services and eligible for the educational features of the G.I. Bill of Rights would approximately double the previous demands for residencies in hospitals. Provision of these educational advantages threatened to far exceed the clinical facilities available in hospitals having staffs sufficiently well organized to conduct an effective residency educational program.

(W. P. ML.)

**Housing.** Housing became a problem of the greatest urgency in the United States in 1945. There had been an under supply of adequate housing when World War II began. Home building during the war was restricted to areas where war workers required homes. The amount of war housing construction was far below the amount built in even the least productive peacetime period. Not even the normal growth of population was cared for; inadequate homes had further deteriorated and were unacceptable; the marriage rate had increased and increased the demand for homes.

As of Sept. 1945, 1,500,000 families were living doubled up, sharing homes or apartments with friends, relatives or strangers. It was estimated that there would be 3,500,000 new marriages in 1946 and a corresponding additional demand for homes; that the 5,000,000 families could be partially cared for by using 100,000 available temporary houses which could be moved to other localities, by using vacant military barracks and other military living accommodations, by using an anticipated 945,000 vacancies, by rehabilitating structurally sound obsolete structures, by converting empty commercial and industrial buildings into living quarters and by building 500,000 new homes. It was estimated that 3,000,000 new homes would still be required to relieve the growing shortage.

Federal, state and municipal authorities sought means to supply the demand. On Dec. 12 the president appointed Wilson W. Wyatt, former mayor of Louisville, Ky., housing "expediter" in the Office of War Mobilization and Reconversion (OWMR).

Between Jan. and Aug. 1945 there were three types of housing for which priorities for building materials were issued. (1) H-1 for migrant war workers, (2) H-2 to relieve general congestion and (3) H-3 to relieve individual hardship. H-2 and H-3 priorities continued in force until Oct. 15 when all priorities were lifted. However, the demands of industrial, commercial and residential building were too great for the limited output of building materials. Therefore, in December a priority system was reinstated giving preference for materials to builders constructing dwelling units costing less than \$10,000.

Between July 1940 and Aug. 31, 1945, private financing had supplied 836,382 new permanent H-1 units and 199,106 H-1 units converted in existing structures. Public financing had supplied 195,847 new permanent dwellings, 81,197 demountable dwellings, 277,829 temporary family dwellings, 49,376 converted dwellings, 175,860 dormitory units, 81,136 trailers and other stopgap units. Under the H-2 program 1,571 privately financed dwellings were built, 23,526 were under construction and priorities had been issued for 78,159; 44 publicly financed dwellings were under construction and priorities had been issued for 4,395. (They were terminated.) Under the H-3 program (all privately financed) 12,900 new dwellings were built, 41,800 were under construction and 16,746 priorities had been issued; 28,077 conversions were made and 8,452 were under construction.

On March 31, 1945, congress increased the authorized limit for insurance under section 603 of the National Housing act (title VI) from \$1,700,000,000 to \$1,800,000,000. No appropriation was necessary to make this increased insurance effective.

New residential building was 57.7% greater in the first ten months of 1945 than in the same period in 1944, from \$300,000,000 to \$473,000,000. A portion of this increase was attributed to increased cost and to the construction of more expensive homes after ceiling restrictions were lifted. Work was begun on 19,480 new family dwelling units in Oct. 1945 whereas in Oct. 1944 only 7,469 were begun.

Although home production increased when restrictions were removed, the immediate and the anticipated demand for new housing was far in excess of production. On Dec. 8, John Snyder, director of OWMR, reported to the president that "as a result, the threat of inflation is greater in this field than in any others. It is very serious." Because of the shortage sales prices mounted. Because prices were controlled on rental housing and were not controlled on houses for sale, houses which had rented were taken from the rental market and sold at fantastic prices, and comparatively little new rental housing was being constructed. The president asked for legislation authorizing the control of the sales price of new and of old housing, a request which had been refused repeatedly when made by the Office of Price Control. Congress, however, was tuning its ears to the clamour of homeless veterans and giving serious attention to the price control features of the Patman bill, H.R. 4761, introduced in the house of representatives on Nov. 20, 1945.

Important considerations of comprehensive housing legislation to care for future health and living standards were begun on Jan. 9, 1945, by the senate subcommittee on housing and urban redevelopment (subcommittee of the special committee on postwar economic policy and planning) under the chairmanship of Senator Robert Taft. The committee, consisting of Senators Taft, Robert F. Wagner, Allen J. Ellender, Clayton D. Buck, George L. Radcliffe, Dennis Chavez, Robert M. La Follette, issued its report Aug. 1, 1945, following which Senators Wagner and Ellender introduced legislation (S.1342). S.1342 was revised and on Nov. 14, 1945, a new bill, S.1592, was introduced by Senator Wagner for himself and Senators Ellender and Taft. Hearings on it were held from Nov. 27 to Dec. 18. The bill provided for the establishment of a permanent National Housing agency (NHA); gave NHA the power to do research, make market analyses and assist local planning; amended existing aids to privately financed housing; provided for new FHA provisions designed to bring home ownership and mutual home ownership to lower income groups through smaller down payments, longer amortization periods and lower interest rates; provided for yield insurance on money directly invested in rental housing; provided loans to purchase land for urban development and redevelopment and grants to write off excessive land costs so that private enterprise could rebuild; provided loans and grants for slum clearance and publicly financed low-rent housing; provided aid for rural housing; provided for the disposition of federally owned housing including permanent war housing. (See also BUILDING AND CONSTRUCTION INDUSTRY; BUSINESS REVIEW; CENSUS DATA, 1945; FEDERAL WORKS AGENCY; MUNICIPAL GOVERNMENT; PUBLIC HEALTH ENGINEERING; WASHINGTON, D.C.)

**BIBLIOGRAPHY.**—Publications and releases of the National Housing agency, Federal Housing agency, Federal Public Housing authority.

**National Housing Agency.**—The National Housing agency was established by executive order on Feb. 24, 1942. It consolidated in a single agency the nonfarm housing functions of the federal government. Policies were centred in the office of the administrator and operations were carried out through three major constituent units: the Federal Home Loan Bank administration, the Federal Housing administration and the Federal Public Housing authority.

With the end of World War II, the National Housing agency immediately directed its efforts to stimulating the largest possible volume of home construction and combating inflationary price trends resulting from the acute shortage of housing throughout the United States.

War-time controls on building were removed almost entirely through the rescinding of the War Production board's conservation order L-41 on Oct. 15, 1945. A substantial core of the home building industry had

been kept active during the war and as early as 1944 had been enabled to start constructing houses approximating peacetime standards through a transitional program to relieve congestion, authorized as the job of housing war workers drew near completion.

From the long-range point of view, the NHA estimated that the United States needed 12,500,000 new dwellings in the following ten years to meet the needs of returning veterans, new families and families who were living doubled up, and to replace one-half of the clearly substandard housing, assuming the full replacement job had to be spread over a 20-year period. The NHA reported that construction of 1,250,000 houses a year would mean an investment of \$6,000,000,000 to \$7,000,000,000 annually and would provide about 4,500,000 jobs, off and on the building site.

At the conclusion of its war job, the NHA had carried out a program to provide the necessary shelter at the right time and in the right places to meet the needs of about 4,000,000 migrating war workers and their families, an estimated 9,000,000 persons altogether.

Mobilization of existing housing under the leadership of the NHA and with the co-operation of local communities provided quarters for approximately 2,000,000 of these workers, 600,000 with families. Housing for the others had to be created by converting existing structures and by new buildings. This additional housing was programmed by the NHA and built in 1,300 localities scattered throughout the United States and its outlying territories. Private financing was called upon to build when it could meet the wartime needs and where there was reasonable assurance that there would be continued need for the housing after the war. Public financing was used to build the remainder. In all categories, private financing had supplied 1,051,549 dwelling units at an approximate cost of \$4,300,000,000, most of it covered by FHA war housing mortgage insurance, by Aug. 31, 1945. Public financing had supplied 832,241 units at a cost of \$2,600,000,000.

The war housing program ended Aug. 31, 1945, and on Oct. 15, 1945, the WPB order L-41, a war measure which restricted residential building to quotas established by the NHA, was lifted. The transition of housing from status as a war utility to a peacetime commodity was complete.

In preparation for this transition, as early as July 1944 the NHA, in co-operation with the WPB, expanded the single classification of war housing into three categories. The three were: H-1, housing for in-migrant war workers; H-2, housing to relieve congestion which impeded the war program; and H-3, housing to relieve individual hardships and for veterans. H-1 and H-2 housing were programmed by the NHA, H-3 was authorized on an individual basis as needed. H-2 could be expanded as rapidly as materials and manpower permitted and was the instrument which permitted the housing industry to continue to function as the H-1 program neared completion. As of Aug. 31, 1945, the war housing program was as shown in Table I.

Table I.—Final War Housing Figures, July 1940-Aug. 31, 1945

	Completed	Under construction	To be started*
<b>H-1: Housing for in-migrant war workers</b>			
Privately financed . . . . .	1,009,001	26,487	20,702
New permanent units . . . . .	810,711	25,671	18,580
Converted units . . . . .	198,290	816	2,122
Publicly financed . . . . .	832,241	22,004	4,978
New permanent dwellings . . . . .	192,093	2,754	1,102
Demountable family dwellings . . . . .	81,116	81	0
Temporary family dwellings . . . . .	261,902	15,927	947
Converted family dwellings . . . . .	49,370	6	427
Dormitory units . . . . .	168,367	1,493	890
Stoppag . . . . .	79,393	1,743	1,612
Total H-1 private and public . . . . .	1,841,242	48,491	25,680
<b>H-2: Housing to relieve general congestion</b>			
Privately financed dwellings . . . . .	1,571	23,526	78,159
Publicly financed dwellings . . . . .	0	44	4,395
Total H-2 private and public . . . . .	1,571	23,570	82,554
<b>H-3:† Housing to relieve individual hardship (all private)</b>			
New construction . . . . .	12,900	41,800	16,746
Conversion units . . . . .	28,077	8,452	0
Total H-3 . . . . .	40,977	50,252	16,746
<b>Grand total—All</b>			
War housing: H-1, H-2, H-3 . . . . .	1,883,790	122,323	124,980

\*"to be started" is housing which was approved as of V-J day; publicly financed housing in this category was terminated and privately financed quotas which had not been taken by builders were withdrawn. Publicly financed war housing under construction was terminated where it was in the public interest.

†Approximately 16,000 veterans who wished to build their own homes had H-3 priorities as of Aug. 31.

(J. B. BL.)

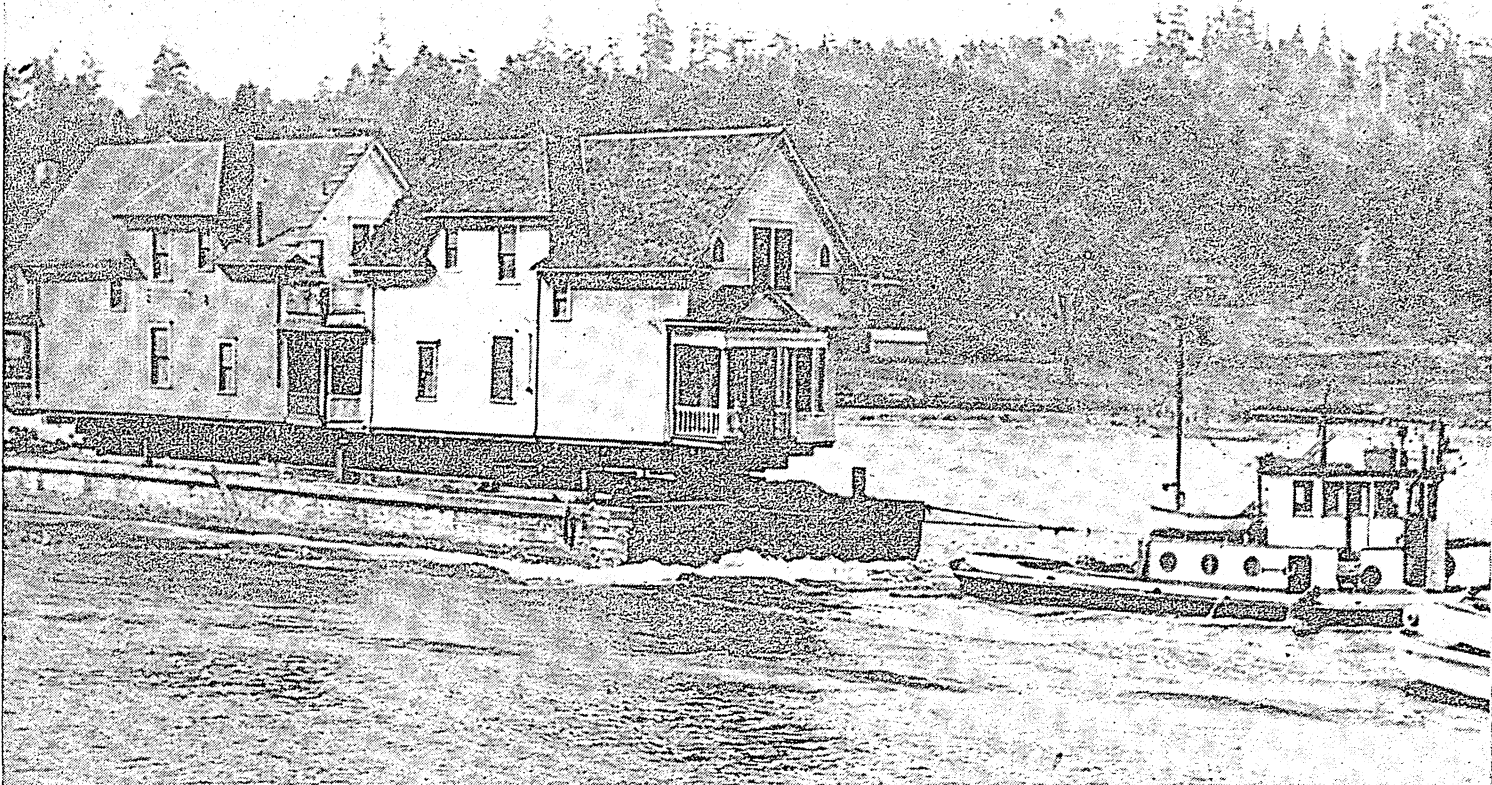
**Federal Housing Administration.**—The FHA does not itself make loans but insures private lending institutions against loss on residential loans meeting FHA standards.

The FHA revolutionized methods and procedures in home financing. In place of relatively short-term first, second and third mortgages with their high interest rates and renewal fees, it popularized the single, long-term amortizing mortgage bearing a low fixed interest rate. The maximum FHA interest rate in 1945 was 4½% plus the FHA insurance premium of ½ of 1%, both calculated on annual outstanding balances. The premium was deposited in the Mutual Mortgage Insurance fund.

FHA operations substantially improved the general quality of dwelling construction and of subdivision layouts. It set up nation-wide building, location and subdivision standards. To be eligible for FHA mortgage insurance, a home had to meet such requirements as accessibility to employment centres, to transportation, schools and shopping districts. As a result, residential neighbourhoods were established on a firmer basis.

Peacetime functions of the FHA are carried out under titles I and II of the National Housing act. Title VI was added as a war measure in March 1941 to help provide private housing, temporarily meeting emergency war housing needs but designed and built for permanence.

Title I provides for government insurance to lending institutions on loans for property improvement, alterations and repairs. Most of these



OLD HOUSES in Seattle, Wash., were moved by barge along Puget Sound in 1945 to relieve housing shortage in congested area

loans are limited to a maximum amount of \$2,500, a maximum term of three years and are repaid through monthly instalments. However, as part of the war program, congress authorized the FHA to increase from \$2,500 to \$5,000 the size of individual loans under this title, and with longer maturities, where operations would provide additional living accommodations for war workers through conversion of existing structures in areas specifically designated by the president. Under wartime conditions, many types of title I loans were subject to regulation W of the Federal Reserve board requiring shorter maturities than the maximum permitted by the National Housing act. This restriction was lifted in regard to property improvement loans in Oct. 1945, when wartime construction controls also were removed.

Title II provides for insurance of mortgage loans ranging up to \$16,000 made by approved private lending institutions, and for monthly amortization of the loan over periods as long as 20 years. Such loans may cover either new or existing housing, but generally may not exceed 80% of the property valuation. Where loans are for not more than \$5,400, however, and cover new single-family, owner-occupied homes built under FHA inspection, the mortgage may be made for 90% of the appraised value and may have an amortization period as long as 25 years. On new owner-occupied homes valued at not more than \$10,000, mortgages may cover 90% of the first \$6,000 of valuation and 80% of the remainder up to a maximum mortgage of \$8,600, with a maximum term of 20 years. Under title II, the FHA also provides mortgage insurance for large-scale rental projects.

Title VI was added to the National Housing act by congress in March 1941 specifically to assist in providing housing for war workers. Insurance activity under this title ended in Aug. 1945. Most of FHA's operations during the war period were conducted under this new title. Mortgages insured under it were limited to a maximum of \$5,400 on a single-family house; \$7,500 on a two-family house; \$9,500 on a three-family house; and \$12,000 on a four-family house, and could cover up to 90% of FHA valuation. Occupancy priority of these dwellings was reserved for eligible in-migrant war workers. Large-scale rental housing projects for war workers were also insured under title VI. Approximately 450,000 dwelling units for war workers were provided by mortgages insured under this title, for which the total insurance authorization provided by congress was \$1,800,000,000.

From the start of the national emergency in July 1940 up to the surrender of Japan, Aug. 1945, approximately 750,000 new privately financed dwelling units were started under all FHA titles.

The long-term program of the FHA enabled more than 1,600,000 families to build, purchase or refinance their homes, or to rent modern quarters. FHA insurance on residential mortgages, excluding title VI war housing, was at the end of 1945 more than \$5,133,000,000 and FHA repair loans under title I, exceeding more than 5,000,000 in number, aggregated \$1,903,733,000. As of Aug. 31, 1945, approximately \$2,090,689,150 of the mortgage loans and more than \$1,600,000,000 of the repair loans had been repaid through regular monthly payments or prepayments.

The FHA's credit experience under its mortgage insurance program was outstanding. Out of 1,112,005 small homes financed with mortgages insured under title II, only about 4,065, or one out of every 2,800, had been foreclosed and transferred to the FHA by Aug. 31, 1945. All but seven of these properties had been resold. From 1940, the FHA's income from its insurance premiums and investments was sufficient to meet all operating expenses and to add substantial amounts to insurance reserves.

In addition to being self-supporting, the FHA was able to declare two dividends under the participation provisions of the Mutual Mortgage Insurance fund on certain groups of mortgages. The first disbursement was made to approximately 13,000 mortgagors in 18 groups who prepaid their mortgages in 1944. As of Jan. 1, 1945, equity balances had accumulated in 14 additional groups; and this second dividend eventually was to be shared by nearly 142,000 mortgagors who remained in these groups on that date. Further dividends were to be declared for other groups as they were justified by the accumulated equity balances. (R. M. Fy.)

**Federal Home Loan Bank Administration.**—The Federal Home Loan Bank administration directs the operations of the Federal Home Loan Bank system and the Federal Savings and Loan Insurance corporation, two permanent agencies established to encourage home ownership and economical home financing and to protect savings. Also under the supervision of the administration is the Home Owners' Loan corporation, an emergency agency founded to aid distressed home owners and stabilize investments in residential real estate during the depression.

**Federal Home Loan Bank System.**—Following the national pattern set up for commercial banks in the earlier inauguration of the Federal Reserve system, 12 regional Federal Home Loan banks were organized, each to serve member home financing institutions in its area by making both short- and long-term advances to meet their needs. Through the regional banks funds might be shifted from areas of abundant credit to areas of scarcity. From the time the banks were established, they had advanced \$1,497,966,000 to their member institutions, of which \$112,450,000 was outstanding in 1945.

On Aug. 31, 1945, member institutions of the system totalled 3,699. Of these, 3,659 were savings and loan associations, co-operative banks and homestead associations, including 1,469 Federal Savings and Loan associations for whom membership was mandatory and 25 mutual savings banks and 15 insurance companies. Assets of member institutions amounted to \$8,087,000,000 on Aug. 31, 1945.

**Federal Savings and Loan Insurance Corporation.**—In 1934 congress provided an insurance program for investors in savings and loan associations and similar home financing institutions by creating the Federal Savings and Loan Insurance corporation. Federal Savings and Loan associations were required to be insured; insurance was optional for state chartered associations. The public confidence inspired by the fact that investments were so safeguarded provided a steady flow of funds into insured savings institutions. About 4,300,000 investors in 2,475 savings and loan associations, with combined assets of nearly \$5,700,000,000, were protected by insurance up to \$5,000 each in 1945.

**Home Owners' Loan Corporation.**—Over a period of three years following its creation in 1933, the Home Owners' Loan corporation refinanced the mortgages on more than 1,000,000 homes, providing low-interest, long-term loans which saved home owners many hundreds of millions of dollars and gave them a chance to rehabilitate themselves. In these rescue operations, approximately \$3,093,000,000 was loaned to home owners, an amount increased to \$3,490,000,000 by later advances to borrowers and other disbursements by the corporation.

More than 73% of this investment had been liquidated through collections on the corporation's loans and the sale of properties securing its loans which it was obliged to take over by foreclosure. From 1936 the primary functions of the HOLC had been its collections and the general liquidation of its assets, as well as aiding its borrowers to meet their payments and retain their homes. Although the agency was forced to acquire a total of 198,127 houses, all but 663 had been sold by Aug. 31, 1945.

On that date HOLC was collecting on 515,684 accounts, 391,732 those



of original borrowers and the rest purchasers of acquired properties. Borrowers, plus purchasers of HOLC houses, had paid off their accounts in full, to a total of 488,109. More than 84,000 borrowers were making monthly payments in amounts greater than called for by their contracts. (J. H. FA.)

**Federal Public Housing Authority.**—Toward the end of 1945, while legislation formulating a national housing policy was pending before the congress, the FPHA had four principal functions:

1. The management of public war housing during the period of reconversion and demobilization for distressed families of veterans and servicemen, for civilian employees of the war and navy departments and of private industries completing war contracts and for distressed families dislocated or displaced as a result of the war or demobilization.

2. The disposal of public housing determined to be surplus to the above needs.

3. The administration of the low-rent housing built before World War II, and the conversion of war housing under the U.S. Housing act to low-rent status.

4. The reactivation of deferred low-rent projects as building labour and materials became available.

Before the outbreak of war interrupted construction of low-rent housing under the U.S. Housing act, local housing authorities in 173 communities built 334 projects containing 105,600 units for low-income families formerly living in slum dwellings.

The total development cost of the prewar low-rent projects was \$483,000,000. Although the FPHA was authorized to lend up to 90% of the development costs, it actually supplied only two-thirds of the long-term financing, as a result of the ability of local housing authorities to sell bonds on the private market at an interest saving. All loans from the FPHA or private investors were to be repaid in full, with interest.

To help keep rents within the means of low-income families, the FPHA makes an annual contribution, or subsidy, which for 1944 totalled \$8,600,000, or \$7.19 per dwelling unit per month. To June 30, 1945, federal subsidy payments totalled \$43,409,000; this represented the entire cost to the federal government from the beginning of the low-rent program. In addition, the local community is required to make an annual contribution equivalent to at least one-fifth of the federal contribution. This is normally done by exempting the projects from state and local taxes, as authorized by the U.S. Housing act and state housing laws.

When World War II began, only half of the program authorized under the U.S. Housing act had been completed. Units under construction at that time were completed with the aid of priorities to house war workers, and were to be turned back to the use of low-income families as conditions would permit. Additional war housing projects were built under public law 671, which authorized the use of low-rent housing funds for war housing construction. Low-rent units scheduled in areas not requiring more war housing were deferred, pending availability of building labour and materials.

Table II.—Housing Built or Authorized Under U.S. Housing Act  
As of Aug. 31, 1945

	Projects	Dwelling units
Low-rent, prewar (public law 412) . . . . .	334	105,625
Low-rent for war use (public law 412) . . . . .	49	11,930
Low-rent funds used for war housing (public law 671) . . . . .	202	52,786
Deferred low-rent . . . . .	164	23,225
Total . . . . .	749	193,566

The major wartime function of FPHA was to provide publicly financed housing for in-migrant war workers and their families; the FPHA being responsible for the construction and management of about four-fifths of the total provided. The remainder was provided by other agencies, principally the war and navy departments and the U.S. maritime commission. For the total public war housing program, about \$2,600,000,000 was made available, all from congressional appropriations or loan authorizations except \$29,000,000 expended by the New York State Division of Housing.

From these funds some 864,000 accommodations were provided for families or single persons; in addition 32,000 had been scheduled but not completed by Aug. 31, 1945. The total included 610,000 family dwelling units, 171,000 dormitory units and 83,000 trailers, portable shelters and other forms of stop-gap housing. These figures included accommodations made available by re-use of trailers and temporary or demountable units which were moved from one location to another.

Not counting units that might be transferred to the FPHA by the National Housing agency or the Surplus Property administration, the FPHA had about 656,000 units, completed or under construction contract, to dispose of.

About 321,000 were temporary units, unsuitable for long-term use as housing. These had to be removed from their existing sites as promptly as the needs of demobilization would permit, and not later than two years after the end of the emergency. Such projects were to be sold to federal agencies, state and local governments and nonprofit institutions, or to private purchasers who would contract to remove the structures and restore the site.

About 181,000 units were permanent, including 107,000 of standard construction, and 74,000 demountables which might be dismantled and re-erected at new locations. These were to be sold to occupants or other private purchasers, unless sold or transferred to other federal agencies, or state and local governments. They might be sold to local housing authorities for low-rent use if officially requested by the community and approved by congress.

The 63,000 war housing family units, built by congressional authorization with U.S. Housing act low-rent funds, were to be turned to the use of low-income families.

The FPHA's stock of 35,000 trailers were to be disposed of by an appropriate agency designated by the Surplus Property administration.

About 56,000 units converted from existing structures, mostly under

seven-year lease from private owners, were to be returned, usually at the expiration of the lease term. (P. M. K.)

**Great Britain.**—The ending of World War II found Great Britain in 1945 with a housing problem no less formidable than any in its history. Practically no new houses had been built after the beginning of hostilities. On the other hand, millions of houses had been destroyed or damaged by enemy action. In addition there was all the accumulated wear and tear, and the fact that even before the war many slums remained to be cleared.

It was generally estimated that 4,000,000 new houses were urgently required for England and Wales, while no fewer than 500,000 were required for Scotland alone.

In the face of these formidable requirements, the attention of the government was first directed toward the provision of temporary houses, and at the request of the ministry of works many prototype temporary houses were devised by individual firms of contractors and architects. The first estimate of the cost of such houses was £600 per house. This proved to be completely fallacious. The cost worked out at £992 for the cheapest house and £1,365 for the dearest. The wartime coalition government had decided to build 165,000 temporary houses, and the Labour government decided to adhere to the same program, despite the fact that it meant an additional financial burden of £34,669,470, bringing the total cost up to £184,669,470. About 30,000 houses were expected from the United States on lend-lease terms, and it was anticipated that the cost falling on the British exchequer, including customs duty, would be £800 for each house. With the abrupt ending of lend-lease, however, it was apparent that the full cost of the house, amounting to £1,330, would fall upon the exchequer, and it was therefore decided not to take more than the 8,150 houses that had already been shipped.

In October Aneurin Bevan, minister of health, announced his new housing policy, which may be summarized as follows: (a) The first houses in the postwar program were to be built mainly by the local authorities and would be designed for the lower income groups. (b) In postwar housing, the creation of one-class communities, so conspicuous a feature of British suburban housing between the wars, was to be avoided. (c) There were to be more diversified designs. (d) Provision was to be made for all age groups, and there was to be no segregation of the very old. (e) Private building was to be licensed by the local authorities up to a limit of £1,200 in the provinces and £1,300 in London. (f) The resale of these houses would be prohibited for four years, when it was hoped that the main problem would have been solved. (g) Local authorities were to be enabled to borrow money at 3½% from the public works loan board. (h) Household with superfluous space were invited to share their homes with other families. Space would be requisitioned from those who did not volunteer if they had accommodation grossly in excess of their needs. (i) Local authorities might acquire land for housing at once. Negotiations with the landlords as to price would be carried out afterwards. Aneurin Bevan also promised to produce an improved act to provide houses for rural workers. He further undertook to use every method of house construction.

In Scotland, no fewer than 11,000 houses were under way by the end of 1945.

That it was the intention of the government to avoid many of the mistakes made in the interwar years was clear from a number of statements. The government accepted the decentralization proposals of the Barlow commission. It accepted also the compensation and betterment proposals of the Uthwatt committee, and legislation to give effect to these proposals would, it was announced, be introduced early in 1946.

The appointment of a new towns committee under the chairmanship of Lord Reith was announced by Lewis Silkin, minister of town and country planning. This committee would have the task of advising local authorities on the technical and administrative problems involved in the carrying out of a planned dispersal policy. This policy, which coupled the provision of housing with the provision of work plans, was brought into the forefront of practical politics by Sir Patrick Abercrombie's plan for the Greater London area. In this, Sir Patrick advocated the creation of ten new towns situated beyond the London green belt, in which to provide accommodation for about 600,000 people displaced in the effort to provide better housing accommodation for the inhabitants of the overcrowded London boroughs. The plan for Manchester, one of the best of the regional concepts, also provided for the decentralization of 150,000 persons from the built-up Manchester area.

It was already clear that the standard of permanent housing was to be higher than that provided between the wars. First, as regards space, the average new house was to be one of 900 sq.ft. floor area, plus an additional 90 sq.ft. in the form of an outbuilding for storage purposes and the practice of manual hobbies. Secondly, as regards equipment, up-to-date kitchen appliances and up-to-date bathrooms were to be provided. In many of the new houses the kitchen and bathroom would arrive at the site as a single prefabricated unit, the dividing wall being used as a compartment containing the plumbing and other pipes, which hitherto had formed a somewhat unsightly feature of lower-income group housing.

Of the many new types of houses, perhaps the most interesting from the point of view of design were those in steel and in aluminum. They showed the application of engineering technique and of materials hitherto not commonly employed in house construction in Britain. Both types of houses, while externally departing from tradition, would fit harmoniously into either an urban or a rural pattern. Internally, the houses showed possibilities of elegance, spaciousness and convenience previously associated only with the more expensive British homes.

**BIBLIOGRAPHY.**—*Design of Dwellings* (H.M. stationery office); *Housing Manual* (H.M. stationery office); *Temporary Housing Programme* (H.M. stationery office, Cmd. 6686); *Homes, Towns and Countryside*, edited by Gilbert and Elizabeth McAllister (1945); R. L. Reiss, *Municipal and Private Enterprise Housing* (1945); *Planning our New Homes* (H.M. stationery office); *Greater London Plan* (H.M. stationery office); *Manchester and District Regional Planning Proposals*.

**FILMS.**—*Problems of Housing*; *Shelter* (Encyclopædia Britannica Films Inc.). (G. McA.)

**Housing Administration, Federal:** see HOUSING.

**Housing Agency, National:** see HOUSING.

**Housing Authority, U.S.:** see HOUSING.

**Howland Island:** see PACIFIC ISLANDS, U.S.

**Hull, Cordell** (1871- ), U.S. statesman, was born Oct. 2 in Overton (now Pickett) county, Tenn. He was graduated from the Cumberland university law school in 1891 and served as a captain in the Spanish-American War. He served in congress from 1907 to 1933, except for one brief interval, 1921-23. He was elected to the senate in 1931 but resigned in 1933 to become President Roosevelt's secretary of state. Internationally, his name became closely associated with the "good neighbour" policy in South America and elsewhere; he was a consistent foe of aggression in settling disputes. In Aug. 1943, Hull accompanied President Roosevelt to Quebec, where he participated in the British-Canadian-American conferences. Two months later he travelled to Moscow to confer with Anthony Eden, British foreign secretary, and Vyacheslav Molotov, soviet foreign commissar. In June 1944, he attempted to allay the fears of small nations by declaring his belief in the principle of sovereign equality of all peace-loving states, regardless of size or strength, as partners in a future system of general security. In failing health, he resigned on Nov. 27 as secretary of state. Hull was awarded the Nobel peace prize for 1945, the Nobel prize committee announced in Oslo, Nov. 12. Testifying before the congressional committee investigating Pearl Harbor (Nov. 27), Hull angrily branded as an "infamous charge" the U.S. army's Pearl Harbor report that his ten-point proposal to Japan on Nov. 26, 1941, was an ultimatum that touched off the war. He had stated earlier that on Nov. 7, 1941, he warned President Roosevelt and the cabinet that the country should be alerted for an attack "anywhere by Japan at any time."

**Humbert** (1904- ), prince of Piedmont, was born Sept. 15, the son of Victor Emmanuel III. His education emphasized military arts and sciences and included a period at the Royal Military academy in Turin. He rose rapidly from the rank of lieutenant at 18 to colonel at 26. He was the object of an attempted assassination in Brussels in 1929 because of his alliance with Italian fascists. In 1930 Humbert married Princess Marie José, daughter of King Albert of Belgium. In 1940 he was placed in command of Italy's army of the Alps, with the rank of full general. On June 5, 1944, Humbert was designated lieutenant general of the realm when Victor Emmanuel signed over to him all his royal powers without exception, retaining for himself only the designation "king of Italy and head of the house of Savoy." The prince was backed by a political party drawn largely from aristocratic families and military and naval officers. During 1945, Humbert was not overly popular with the mass of the Italian people, and remained discreetly in the background of Italian politics.

**Hungary.** A kingdom in central Europe. As the result of territorial expansion from 1938 to 1941, the area of Hungary in 1942 was 66,409 sq.mi., with an estimated population of 14,733,000. As the result of the defeat in World War II, Hungary found itself in 1945 reduced to its size of 1938, an area of 35,911 sq.mi. Its population (Dec. 1936) was 8,989,000. The majority of the population are Roman Catholics, but there is a large Protestant, and there was a considerable Jewish, minority. Capital: Budapest. Chief cities (pop., 1939 census): Budapest (1,115,877); Szeged (141,254); Debrecen (128,442); Kecskemét (83,837). Though Hungary is officially a kingdom, the throne was vacant after 1918 and the royal functions were exercised by a regent, Nicholas Horthy

de Nagybánya. Prime minister (1945): Zoltan Tildy.

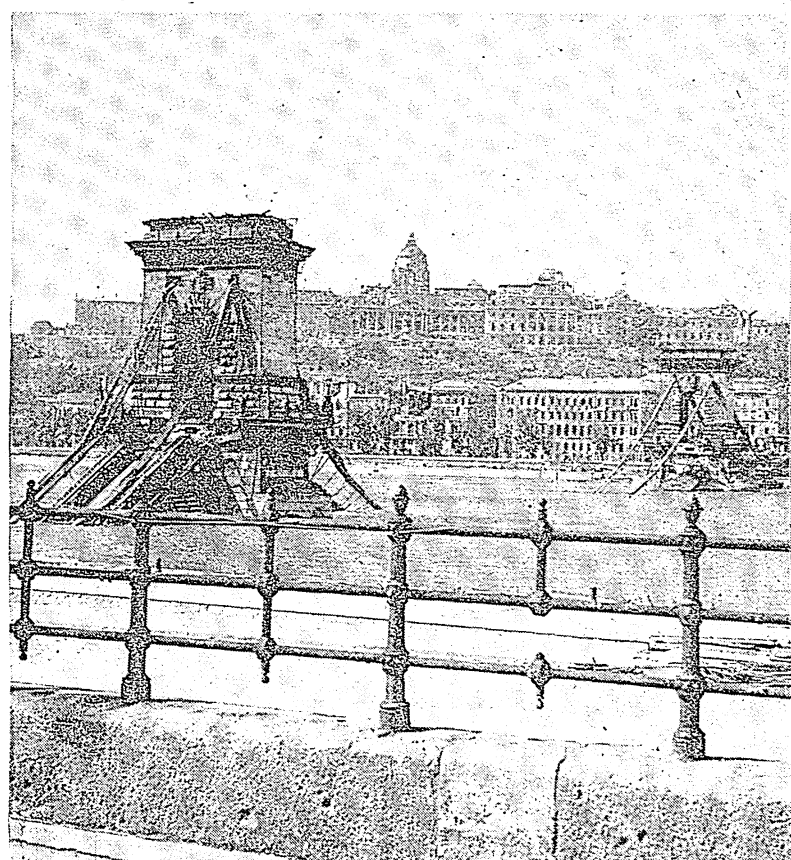
**History.**—With the advance of the Russian armies into Hungary a provisional national government was formed, with Russian agreement, in Debrecen on Dec. 22, 1944, under Colonel General Béla Miklós as prime minister. It consisted of military men and of representatives of the Communist, Social Democratic, National Peasant and Small Landowners parties. It promised the abolition of all anti-Jewish laws, the establishment of individual freedoms, respect for private property, and a thorough land reform which would transform the Hungarian peasantry into a landowning middle class.

On Jan. 20, 1945, the government concluded an armistice with Russia. It declared war on Germany and put its army under Russian command for the continuation of the war against the common enemy. Hungary had to pay reparations to the amount of \$300,000,000, of which two-thirds was to go to the soviet union and one-third to Czechoslovakia and Yugoslavia. The reparations were to be paid in commodities in the course of six years.

With the conquest of Budapest, which was badly damaged, the government moved to the capital city. Though the secretary general of the Communist party, Matthew Rakosi, who had lived many years in Russia, exercised a great influence, and though the country was occupied entirely by the Russian army, without any participation by the western Allies, Communist representation in the cabinet was weaker than in the other Russian controlled countries. Both the prime minister, and the minister of war, General Vörös, were men close to the old conservative regime but who had taken an anti-German stand in the last period of the war.

The soviet union tried to incorporate Hungary completely within the soviet economic system by a far-reaching economic treaty. As this treaty would have established for at least five years practically a Russian monopoly over Hungarian economic life by granting to Russia 50% of the share capital of all Hungarian enterprises, the United States government protested in a note to the Hungarian government against that arrange-

BUDAPEST'S FAMOUS chain bridge, submerged in the Danube where it collapsed under gunfire in 1945. The royal palace, in ruins, overlooks a river bank lined by skeletal buildings



ment which it regarded as contradicting the most-favoured-nation agreement of 1925 between Hungary and the U.S.

In October municipal elections were held in Budapest. Though the working class was best represented in this large city, the conservative Small Landowners party received an absolute majority as against the combined lists of the Communists and Social Democrats. In the new city council there are 122 members of the Small Landowners party, 104 Communists and Social Democrats and 15 members of smaller parties. Crowds shouting "Budapest will not be Red," surged through the city celebrating the victory. The chairman of the Small Landowners party, Zoltan Tildy, declared that "Hungary does not want to be in anybody's sphere of influence. We want to be independent, and we want to have all possible dealings with the western powers and at the same time remain on friendly terms with Russia."

The outcome of the Budapest election was confirmed in the national elections which were held in Hungary on Nov. 4, 1945. According to all reports the elections, in which for the first time women participated, were free elections. Thus they brought a sweeping victory for the Small Landowners party. Zoltan Tildy became prime minister. His cabinet included five members of the Small Landowners party, among them the ministers for foreign affairs, for the interior, and for war; 3 Social Democrats; 3 Communists; and 1 member of the Peasant party. The government faced a critical economic situation due to the damages of war, the lack of transportation and the heavy reparations payments which were absorbing almost the whole production of the country.

The peoples court began to deal with collaborators in November. Among the first tried and sentenced to death were the former prime ministers László de Bárdossy and Béla Imrédy.

**Education.**—Education is compulsory for children between 6 and 12, and for three more years they must attend continuation schools or courses, many of them specialized agricultural schools. Besides these continuation schools and a relatively large number of special schools, Hungary had, in 1939, 8,103 elementary schools with 23,215 teachers and 1,104,916 pupils. In the cities there existed 418 primary schools with 4,619 teachers and 105,466 pupils. High schools of different kinds numbered 263, with 4,709 teachers and 79,435 students. There were three universities, Budapest, Pécs (Fünfkirchen) and Debrecen.

**Finance.**—The monetary unit is the pengő, containing 0.263158 grams of fine gold, equal to 19.77 cents U.S. in March 1941. The revenue for 1943 was estimated at 4,047,000,000, the expenditure at 4,247,000,000 pengős. The public debt amounted on Sept. 30, 1942, to 4,869,000,000 pengős; bank notes in circulation on Sept. 30, 1942, to 2,470,000,000 pengős. As against this circulation, the national bank of Hungary had a metal reserve, including foreign exchange, of \$328,182,000.

**Trade and Communication.**—Hungary imported in 1941 goods valued at 730,000,000 pengős, and exported goods to a value of 791,000,000 pengős. Of the imports in 1939 almost half of the value came from Germany and half the exports went there; Italy held second, and Great Britain third place. In 1939 Hungary had 6,307 mi. of railroad, 2,898 post offices, 6,902 mi. of telegraph lines and 20,976 mi. of telephone lines.

**Agriculture, Manufacturing, Mineral Production.**—Hungary's main production is agriculture. In the fertile plains of the Danubian basin, potatoes, maize, wheat, sugar beets, rye, barley and grapes are grown. Hungary is rich in forests, pigs and cattle. It has a wealth of good coal and important bauxite deposits. Most of the industry is connected with agriculture. Hungary produced, in 1939, 11,712,436 short tons of coal, 551,363 short tons of bauxite, 451,163 short tons of pig iron and

807,562 short tons of steel. The most important of Hungary's minerals is the bauxite. Hungary's deposits are estimated at 250,000,000 tons, a quarter of the world's deposits. The annual output of a little more than 500,000 tons before World War II represented about 15% of the world's yearly output. (See also RUMANIA; WORLD WAR II.)

**BIBLIOGRAPHY.**—M. Victor Jones, "Hungary in Retrospect," *The Nineteenth Century and After* (Feb. 1945); Hal Lehrman, "Hungary Samples Freedom," *The Nation* (Dec. 1945). (H. Ko.)

**Hurdling:** see TRACK AND FIELD SPORTS.

**Hurley, Patrick Jay** (1883— ), U.S. diplomat, army officer and lawyer, was born Jan. 8 in the Choctaw nation, Indian territory (later the state of Oklahoma). He took his law degree from the National University Law school in Washington (1908). He served in World War I, reaching the grade of lieutenant colonel, and was secretary of war, Dec. 1929–March 1933. A month after the Pearl Harbor incident, he was promoted to brigadier general and was assigned to the far eastern theatre of operations. He was Pres. Roosevelt's special representative to the soviet union (Nov.–Dec. 1942) and later was named special representative to the near and middle east (March 1943). Hurley was made a major general in Dec. 1943, and was appointed ambassador to China on Nov. 27, 1944. He sided with the Chungking government in its factional struggle with the Chinese communists, declaring (April 2, 1945) that the U.S. was pledged to give economic, political and military aid to the Chungking government, but that extension of similar assistance to the Chinese communists was not in line with U.S. policy. Hurley's efforts to bring the two regimes together were not successful, and in announcing his resignation (Nov. 27), he accused "professional diplomats" in the state department of sabotaging U.S. foreign policy in China. A subsequent investigation of Hurley's charges by the senate foreign affairs committee was dropped Dec. 11. No conclusions or recommendations were made.

**Hutchins, Robert Maynard** (1899— ), U.S. educator, was born Jan. 17 in Brooklyn, N.Y. His father, William James Hutchins (1871— ), minister and theologian, was subsequently president of Berea college, in Kentucky. Hutchins left Oberlin college in 1917 to enlist in the U.S. ambulance corps, winning the Croce di Guerra in action with the Italian army. Entering Yale in 1919, he received his A.B. in 1921, received his LL.B. (*magna cum laude*) in 1925, and later received honorary degrees from many colleges and universities. In 1923, at the age of 23, he was appointed secretary of Yale university, and at 27 was dean of the Yale law school. In 1929, at the age of 30, he became the fifth president of the University of Chicago, where his reforms and proposals for reform made him one of the best known and most controversial figures in the world of education.

In 1945, at 46, he was one of the oldest U.S. university heads in point of service. He completed his 16th year at Chicago with the achievement of one of his sweeping reforms and the proposal of another. The achievement: a four-year college program beginning with what is ordinarily the third year of high school. The proposal: that the University of Chicago ultimately do away with faculty rank, place all members of the faculty on full-time service (a large proportion of the faculty at once asked for and received full-time contracts) and "lead a moral, spiritual and intellectual revolution throughout the world."

When, with the defeat of Japan in 1945, it was revealed that the University of Chicago, under Hutchins' administration, played a major role in constructing the atom bomb, Hutchins declared in a radio broadcast that "with the dropping of the



bomb, the United States lost its moral prestige." At the same time, though he opposed the entrance of the U.S. into the war prior to Pearl Harbor, he called for immediate world organization and the abandonment of national sovereignty as the only protection against the atomic destruction of civilization. In order to devote more time to teaching, writing and speaking, he resigned as president of Chicago, taking the newly created office of chancellor.

In speeches, in books and in teaching undergraduates (which he continued to do throughout his career), and in administrative acts and proposals, Hutchins fought for a program of general liberal education for every child, regardless of the individual's financial capability.

In addition to papers in learned journals, he wrote many articles in popular and educational periodicals, and is the author of three books—*No Friendly Voice* (1936), *The Higher Learning in America* (1936) and *Education for Freedom* (1943).

**Hygiene, Industrial:** see INDUSTRIAL HEALTH.

**ICC:** see INTERSTATE COMMERCE COMMISSION.

**Ice Cream.** Production of ice cream in the United States declined about 8% in the first half of 1945 compared with the same period in 1944. Estimates for the entire year would not be available until March 1946. Total production in 1944 was estimated at 446,889,000 gal. which was 8% above the 412,144,000 gal. produced in 1943 and 27% larger than the average of 262,060,000 gal. produced in the prewar period 1935-39. Ice cream manufacturers were permitted to increase the use of butterfat from 65% to 75% of the base period (Dec. 1941-Nov. 1942) in June, and other restrictions were relaxed on Sept. 1 so that production could be expanded as much as the shortage of sugar would permit. Civilian consumption was slightly lower during the first half of 1945 compared with the 15 lb. per capita used in 1944, 12.6 lb. in 1943 and 15.9 lb. in 1942. The prewar average was about 10 lb. per capita. Supplies for civilians were far short of demand in 1945 and distribution was rationed by distributors to allotments about the same as in 1944. The demand was attributed to the large number of persons employed in factories serving lunches and to the congested living conditions that increased the use of prepared foods. Consumption by the army and navy was at a higher rate per capita than that of civilians, but began to decline as the forces were demobilized. The scarcity of butter and cheese was likely to compete with ice cream for cream for some time until the stocks of the former were brought back to normal size. (J. C. Ms.)

**Ice Hockey.** Les Canadiens of Montreal continued to dominate the National Hockey league through the 1944-45 season to win their second straight league championship, but relinquished the Stanley cup to Toronto in the playoffs. After finishing third in the league standings, Toronto upset the Canadiens with four victories in the six-match playoff and went on to defeat Detroit, Mich., in the final series. The Stanley cup windup went the maximum seven games, with Toronto winning the deciding contest, 2-1.

Montreal's dominance of the regular season was highlighted by the offensive feats of its No. 1 line—Maurice Richard, Elmer Lach and Toe Blake. Richard broke a 27-year-old league record in scoring 50 goals, wiping out the mark of 44 made by Joe Malone of the Quebec Bulldogs in 1917-18. Lach contributed 54 assists to the Canadian attack, breaking the record established by Clint Smith, Chicago, Ill., in 1943-44. As a unit, the Richard-Blake-Lach line broke the season record for total points with 220, including 105 goals and 115 assists. The Chicago trio of Smith, Doug Bentley and Bill Mosienko previously

held the mark at 219.

During 1944-45 each of the six towns in the National Hockey league topped its attendance of the year before. Although it failed to reach the playoffs, Chicago again led the league in attendance with a total of 348,821 in 25 home games.

Minor League hockey held on strongly during 1944-45 and started an expansion program in 1945-46 with the addition of the United States league. The Cleveland Barons won the American league championship for 1944-45, first capturing the western division title and then defeating Buffalo and Hershey, Pa., in the playoffs. Buffalo, the defending champion, dropped four out of six games to Cleveland in the semifinals and Hershey bowed to the Barons by a similar margin in the finals. The U.S. league revived the sport in the midwest with teams in Minneapolis, Minn.; Dallas, Tex.; St. Paul, Minn.; Kansas City, Mo.; Fort Worth, Tex.; Omaha, Neb.; and Tulsa, Okla.

The Seattle Ironmen won the United States amateur championship in the finals with the Boston Olympics, four games to two. Seattle won the Pacific Coast league title, while Boston dominated the Eastern league.

Montreal captured half of the individual trophies and won five out of six positions on the National Hockey league managers' all-star team. Lach won the Dr. David A. Hart trophy as the league's most valuable player, and William Durnan won the George Vezina trophy as the outstanding goalie. The Lady Byng trophy, awarded to the league's "most gentlemanly" player, went to Chicago's Mosienko. Frank McCool, Toronto goalie, was named outstanding rookie of the year. Aside from its forward line of Lach, Richard and Blake, Montreal placed Durnan and defenseman "Butch" Bouchard on the all-star team. "Flash" Hollett of Detroit was awarded the other defense position. (M. P. W.)

**Iceland.** An island republic of the North Atlantic. Area, 39,709 sq.mi.; pop. (est. 1939) 120,264. Capital, Reykjavik, the only large town (pop. in 1939, 38,219). Religion, Lutheran Christian. President: Sveinn Björnsson. Prime minister of the coalition government (Oct. 21, 1944), Olafur Thors, with a six-man cabinet—two each from Conservative, Social-Democratic and Communist parties.

**History.**—On June 17, 1944, Iceland became an independent state, following an overwhelmingly favourable vote in a national plebiscite. The president, given a term of one year in 1944, was chosen for a full term of four years more (to June 17, 1949), by agreement of all parties, without a popular election. Like the older states of the world, Iceland had difficult problems with which to grapple in 1945. One was the requirement that it declare war on Germany if it wished to participate in the San Francisco conference for framing the United Nations organization. This Iceland decided not to do because of its desire to maintain its permanent neutrality declaration of 1918. Transportation problems were severe, especially after the sinking of the "Dettifoss" in February left the country with no passenger ships plying the route to the United States. The U.S. air transport command helped temporarily to relieve the difficulty, agreeing to carry 20 passengers a month from the United States to Iceland.

Relations between the United States and Iceland entered a new phase with the end of World War II. Relaxation of the policy of segregating the army from the civilian population resulted in much pleasanter relations, and the occupying army was soon reduced to a token force. During the years of occupation several dozen marriages took place and during the summer of 1945 many Icelandic brides went to the U.S. On the original entry into Iceland the U.S. government had promised to withdraw its forces as soon as the emergency was over. The events of the war and the development of air transport heightened the strategic importance of the North Atlantic island, and obviously made the great neighbour to the west reluctant to leave.

The year 1945 also saw completion of the project of heating the city of Reykjavik by piping in water from the nearby warm springs, a particularly valuable achievement because of the lack of combustible fuel in Iceland.

**Finance.**—Monetary unit: króna = 18 U.S. cents (1939), about 15.37 U.S. cents in 1942; in 1939 government revenues were 19,930,879 krónur (estimated for 1943 at 33,736,100 kr.); expenditures, 19,378,318 kr. (estimated for 1943 at 28,333,238 kr.); national debt (1939), 56,648,000 kr.; notes in circulation, 14,000,000 kr.; gold reserve, 5,762,000 kr.; bank capital and reserves, 17,577,000 kr.; bank deposits, 76,720,000 kr.; total bank funds, 48,997,000 kr. Bank deposits were 452,421,000 kr. in July 1943. Note circulation jumped from 24,580,000 kr. in Jan. 1941 to

Iceland—Imports (in thousand krónur) 1936-1942

	1936	1937	1938	1939	1940	1941	1942*
Denmark	6,699	7,424	6,725	14,003	3,948	54	.....
Great Britain	10,019	13,505	14,000	15,604	33,832	85,436	123,565
Germany	9,488	10,843	11,710	10,413	419	13	.....
Norway	2,877	4,851	4,213	5,601	2,489	90	.....
Sweden	4,469	4,878	4,371	4,642	1,212	15	.....
U.S.A.	536	846	644	2,316	19,706	23,896	97,715
Italy	2,291	4,391	4,320	5,307	3,381	61	.....
Spain	1,710	255	4,371	4,642	1,220	82	604
Portugal	305	169	318	73	683	1,001	343
Canada	68	78	81	330	2,529	10,957	20,520
Venezuela	.....	.....	.....	.....	.....	2,554	3,949

Iceland—Exports (in thousand krónur) 1936-1942

	1936	1937	1938	1939	1940	1941	1942*
Denmark	3,578	5,139	5,229	6,674	3,391	.....	.....
Germany	7,432	11,048	8,770	7,608	.....	.....	.....
Great Britain	6,971	10,239	11,823	12,269	91,499	157,338	177,562
Italy	2,786	2,691	4,831	4,800	4,549	.....	.....
Netherlands	1,575	2,453	2,037	4,548	67	.....	.....
Norway	4,807	7,328	4,879	7,670	1,488	.....	.....
Portugal	6,038	5,411	874	5,358	4,748	3,181	2,643
Spain	1,362	364	2,918	10	6,011	1,171	50
Sweden	4,092	3,949	5,426	8,735	990	1,242	90
Canada	2	1	14	4	194	48	↑
U.S.A.	5,311	4,482	5,842	7,747	18,020	22,765	18,089
Brazil	483	746	1,333	1,560	1,296	1,188	601

Economic Geography, Vol. 21, p. 142, April 1945.

\*Verzlunarskýrslur Árid 1942. †856.

123,810,000 kr. in Aug. 1943; loans in the same period, from 92,137,000 kr. to 170,594,000 kr. Gold reserves and bank capital remained practically at the 1939 figures.

Trade.—Exports in 1939 (the latest year of even seminormalcy) totalled 70,536,000 kr.; chief articles of export were fish and fish products. Imports in 1939 totalled 64,163,000 kr. The chief imports were gasoline, textiles, metal wares, wood and machines. Of Iceland's exports in 1939 Great Britain took 12,269,000 kr., followed by Sweden with 8,735,000 kr., the U.S. with 7,747,000 kr., Norway with 7,670,000 kr., Germany with 7,608,000 kr. and Denmark with 6,674,000 kr. Great Britain was first also in supplying Iceland imports, with goods valued at 15,604,000 kr. Denmark was second with 14,003,000 kr., Germany was third with 10,413,000 kr. and the U.S. was far down the list with 2,316,000 kr.

The years from 1941 showed significant contrasts with the peacetime balance depicted in the above paragraph. Exports rose steeply in value: 188,629,000 kr. in 1941, about 2½ times the value of 1939; and in 1944 the figure climbed to 254,000,000 kr., of which 228,000,000 kr. went to Great Britain. In 1941 a large credit balance was allowed to accumulate, but in 1942 Iceland imported more than it exported and continued to do so in 1943; in 1944 it again had a "favourable balance" of about 6,000,000 kr. Iceland sold its fish to Great Britain, with frozen fish beginning to displace salted fish, bought chiefly from the U.S. during World War II (164,800,000 kr. in 1944 out of total imports of 247,600,000 kr.). A postwar reorientation of trade came to be regarded as inevitable, with the Russian market as a significant hope. Capital was being husbanded and managed to aid in improving and balancing the economic structure.

Communication.—Highways (1936) totalled 2,728 mi., of which 1,736 mi. were improved and 992 mi. were unimproved. Miles of telegraph lines (1939): 9,700. Military occupation led to unrevealed new construction.

Agriculture.—In 1938 the chief products, with their yields in short tons, were as follows: hay 296,545; potatoes 14,506; turnips 3,148.

BIBLIOGRAPHY.—W. R. Mead, "Renaissance of Iceland," *Economic Geography*, pp. 135-144 (April 1945). (F. D. S.)

**Ice Skating.** Gretchen Van Zandt Merrill, 19-year-old miss from Boston, Mass., captured her third straight national figure skating championship by winning the women's senior test over Janette Ahrens of St. Paul, Minn. It was the fifth national title for Miss Merrill. However, she was defeated in the North American championships by Barbara Ann Scott of the Minto Skating club, Ottawa, Canada, who also won the Canadian championship during 1945. Jean Pierre Brunet and Donna Jean Pospisil of New York won the national pairs and Robert Swenning and Mrs. K. M. Williams, also of New York, won the national dance. The national fours, revived for the first time in several years, went to the Chicago quartet of Misses Jackie Dunn and Joan Yocum and Lawrence and Edward Vanderbosch. With most of the contestants in the armed service, competition in the men's figure skating events was again by-passed.

Herman Van Putten of Paterson, N.J., dominated men's

"JUNIOR PAIRS" champions, Lieut. Com. Lyman Wakefield and Betty Higgins, at the North American Figure Skating contest held at Madison Square Garden, New York city, on March 5, 1945

speed skating in the east with victories in the middle Atlantic and New York state meets. Marion Hanley, Staten Island, N.Y., war worker, topped senior women in the east's two major tournaments. Ray Blum of Nutley, N.J., who in 1944 won the Middle Atlantic and Silver Skates titles, dominated men's skating in the middle west.

Stationed at Chicago in the navy radio school, Seaman 2/c Blum won the majority of midwestern championships, with Mrs. Elaine Bogda Gordon continuing her dominance in the women's division. (M. P. W.)

**Ickes, Harold L.** (1874- ), U.S. secretary of the interior, was born March 15 at Frankstown Township, Pa. For his earlier career see *Encyclopædia Britannica*. President Franklin D. Roosevelt, after assuming office in 1933, selected Ickes as his secretary of the interior. In July of the same year, he appointed him head of the Public Works administration. Ickes also held a multitude of other posts. He became solid fuels administrator in Nov. 1941 and coal mines administrator in 1943, and was petroleum administrator for war (Dec. 1942-Nov. 1945). In Feb. 1944 he proposed that the U.S. government build an oil pipeline across Arabia at an estimated cost of between \$130,000,000 and \$165,000,000. This project aroused the ire of many U.S. oil companies and the plan eventually fell through. Ickes declared (Nov. 3, 1945), that the future of the U.S. as a great power might depend on the development of the great petroleum reserve in the federal government's newly claimed oil resources in the sea bed of the continental shelf.

In the fall of 1945, Ickes travelled to London where he signed the revised Anglo-American oil pact (Sept. 24). This agreement was expected to provide the basis of multilateral arrangements with other nations.



**Idaho.** One of the far northwestern states of the U.S. belonging to the group regionally designated as the Pacific northwest, Idaho was admitted as a territory in 1863 and as a state on July 3, 1890; is popularly known as the "Gem state." Area, 83,557 sq.mi., pop. (1940) 524,873, of which 66.3% was rural, 33.7% urban. On July 1, 1944, the bureau of the census estimated the civilian pop. of Idaho at 531,573. There were 3,537 Indians in the state in 1940. Principal cities



ARNOLD WILLIAMS, Democrat, succeeded to the governorship of Idaho on Nov. 11, 1945, when Charles C. Gossett resigned to accept an appointment to the U.S. senate

(1940) are Boise, the capital (26,130), Pocatello (18,133), Idaho Falls (15,024), Nampa (12,149) and Twin Falls (11,851).

**History.**—State officers for 1945 (all Dem.) were: governor, Charles C. Gossett; lieutenant governor, Arnold Williams; secretary of state, Ira H. Masters; attorney general, Frank Langley; auditor, Earnest G. Hansen; superintendent of public instruction, Grover C. Sullivan; mine inspector, Arthur Campbell; treasurer, Ruth Moon. The legislature elected in 1944 convened in Jan. 1945 with a slight Republi-

can majority. Most of its measures dealt with questions of post-war planning. The following were elected to U.S. congress: Senator John Thomas (R) who filled out Senator William E. Borah's unexpired term; Senator Glen Taylor (D); Representatives Compton I. White (D) and Henry M. Dworshak (R). On Nov. 10, 1945, Senator Thomas passed away whereupon Governor Gossett resigned, automatically placing Lieutenant Governor Williams in office. He immediately appointed Gossett to the U.S. senate to fill the vacancy caused by the death of Senator Thomas.

**Education.**—The school population in 1944-45 remained practically the same as the previous year—118,000. There were approximately 80,572 pupils and 3,802 teachers in 1,005 elementary schools. High school enrolment was 28,007 pupils with 1,326 teachers in 176 high schools. Enrolment in the higher branches showed a tremendous increase at midyear (Jan. 1946) because of great numbers of discharged servicemen and women re-entering, and many schools were faced with the serious problem of providing adequate school room and teachers.

The 1945 legislature appropriated \$50,000 for a state-wide survey of the educational situation with a view toward consolidation of various districts.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—There were two institutions for the insane, one at Blackfoot and one at Orofino, also a home for the feeble-minded at Nampa. There was a school for the deaf and blind at Gooding. The penitentiary at Boise had about 240 inmates at the close of 1945; it has a capacity of about 400. The reform school, known as the state industrial school, is located at St. Anthony and has a fairly constant population of 250.

**Communication.**—There were 4,910 mi. of state highway and approximately 33,000 mi. of county and forest roads in 1945; there was practically no construction during World War II other than military roads. The state had about 3,000 mi. of

railroad. Because of increased air transportation, many municipal airports were under construction in 1945. Telephone companies owned about 160,000 mi. of wire with an estimated 85,000 instruments in use. Telegraph mileage was approximately 9,000 mi.

**Banking and Finance.**—On Dec. 31, 1945, there were 33 state banks and 54 national banks with a combined capital of \$6,160,000 and surplus of \$4,708,000; deposits for 1945 were \$168,672,000. The assessed valuation of the state in 1945 was \$420,991,154; treasurer's receipts, \$41,363,892; and disbursements \$37,904,332, which included the payment of bonded indebtedness of \$1,390,600. Idaho for the first time in its history had no bonded debt.

**Agriculture.**—The total value of all farm crops in 1945 was approximately \$141,000,000 (besides \$109,000,000 in livestock and produce), distributed as follows: field and fruit crops \$128,000,000; and government payments \$13,000,000. (Sugar beets not included.)

#### Principal Agricultural Products of Idaho, 1945 and 1944

Crop	1945	1944
Wheat, bu. . . . .	30,696,000	30,309,000
Corn, bu. . . . .	1,334,000	1,581,000
Oats, bu. . . . .	6,806,000	7,308,000
Barley, bu. . . . .	11,840,000	12,728,000
Sugar beets, short tons . . . . .	800,000	629,000
Dry beans, cwt. . . . .	1,726,000	2,088,000
Dry peas, bu. . . . .	1,760,000	2,672,000
Hay (tame), tons . . . . .	2,103,000	2,148,000
Potatoes, bu. . . . .	44,220,000	36,675,000

**Manufacturing.**—Most of the state's manufacturing activities were in a state of reconversion during 1945, and no accurate figures were available.

**Mineral Production.**—The principal mineral products of the state were gold, silver, copper, lead and zinc. There were no statistics on 1945 output at the close of the year, but it was estimated that zinc and lead productions were the heaviest throughout the war.

A great deal of Idaho tungsten also contributed to the war effort. (L. Md.)

**Illinois.** A north central state of the United States, admitted to the union in 1818, nicknamed the "Sucker state," sometimes called the "Prairie state." Total area 56,400 sq.mi., of which 55,947 sq.mi. are land. Pop. (1940) 7,897,241, including 3,957,149 males and 3,940,092 females; 7,504,202 white, 393,039 nonwhite. Population classed as urban was 5,809,650, rural not on farms 1,119,488, rural farm 968,103. Springfield, the state capital, with a population of 75,503, is the fifth Illinois city in size. Chicago (3,396,808) is the largest Illinois city, followed by Peoria (105,087); Rockford (84,637); East St. Louis (75,609).

On July 1, 1944, the bureau of the census estimated the civilian pop. of Illinois at 7,729,720.

**History.**—The return of Illinois veterans to their homes and the reconversion of industries from war work were the features of Illinois history in 1945. At the close of the year approximately one-third of the state's 890,000 men and 70,000 women in the armed services had been discharged. Re-employment was more rapid than had been expected. In the first 11 months of the year, 400,000 persons were placed in jobs by the U.S. employment service, including 46,646 veterans of whom 4,141 were severely handicapped.

Dwight H. Green (Rep.) was governor of Illinois in 1945; Edward J. Barrett (Dem.) was secretary of state. Other incumbent state officers, all Republicans, were Hugh W. Cross, lieutenant governor; Arthur C. Lueder, state auditor; George F. Barrett, attorney-general; Conrad F. Becker, state treasurer; Vernon L. Nickell, state superintendent of education.

**Education.**—Latest available figures in 1945 showed 1,160,956 pupils



enrolled in 11,977 elementary school districts, with 33,853 teachers. But the number of small school districts was being rapidly reduced as the result of consolidations of districts forced by the enactment in 1945 of a law providing for minimum teachers' salaries of \$100 per month. Enrollment in 929 high schools included 343,332 pupils with 10,441 teachers. Five state teachers' colleges had 545 teachers and 5,061 students. Total expenditures on schools were \$204,754,288. State contributions to local school funds were \$11,161,202; to the University of Illinois, Urbana, \$16,566,841.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—Almost one-half of the cost of the state government was composed of relief expenditures. For the fiscal year ended June 30, 1944, the state spent \$53,347,070 for old age pensions; welfare institutions, \$27,759,273; aid to dependent children, \$10,078,380; direct relief, \$9,224,706; blind pensions, \$2,033,623. The total population of all state institutions was 42,000 in 1945.

The state unemployment compensation fund paid \$33,146,559 to 222,083 persons in 1945. After Oct. 6 there was a gradual tapering off in claims filed; from 127,000 in October to 95,000 at the end of the year. The total number employed in Dec. 1945 was 3,250,000.

An Illinois postwar planning commission was organized Sept. 1, 1945, to direct the expenditure of \$101,000,000 for public works authorized by the legislature. Work was begun on the repair and rehabilitation of state welfare institutions at a cost of \$3,500,000. The legislature appropriated \$10,000,000 for slum clearance and public housing with the understanding that the sum would be matched by the city of Chicago.

**Communications.**—Before World War II halted highway construction, Illinois had 13,683 mi. of high-type paved highways connecting with approximately 75,000 mi. of township roads, lanes, etc., of which 50,000 mi. were unsurfaced. Highway expenditures by the state government for the fiscal year ending June 30, 1944, were \$49,103,683. The construction of paved farm to highway roads, authorized by the legislature, was started in 1945 with an initial outlay of \$10,000,000. The state also made a contract with Chicago and Cook county for a superhighway to be jointly financed by the three governments, each paying one-third—\$15,000,000.

Illinois railway mileage approximated 11,000 mi. Eighty per cent of Illinois communities had rail service.

**Banking and Finance.**—The Illinois banking system comprised on June 30, 1943, 813 banks, of which 340 were national; 120 state banks were members of the federal reserve system; 353 state banks were nonmembers. The growth of deposits and holdings of government bonds was so rapid that the bank call at the end of 1945 disclosed that deposits of Chicago banks alone had increased to a greater total than those of the entire state on June 30, 1943.

Total appropriations of the legislature in 1945 for the two-year period ending June 30, 1947, were \$773,000,000, a sum greater by \$256,000,000 than all appropriations for the two-year period ending June 30, 1945. The state treasury surplus resulting from unexpectedly high sales tax collections reached \$135,788,997 on June 5, 1945. Of this surplus \$101,000,000 was earmarked for postwar public works. Balances in regular state funds amounted to \$222,393,366 on June 5. Trust funds on that date totalled \$307,017,729, a large part of which was in the state unemployment compensation fund, which was subject to heavier drafts and smaller contributions after V-J day. The state debt was \$115,000,000 in the form of noncallable bonds maturing in 1954 and 1959.

**Agriculture.**—Illinois farmers produced crops valued at \$817,000,000 in 1945—the highest in 26 years. Harvested acreage was slightly less than in 1944.

Table I.—Leading Agricultural Products of Illinois, 1945 and 1944

Crop	1945	1944
Corn, bu. . . . .	391,000,000	403,695,000
Soybeans, bu. . . . .	74,000,000	71,400,000
Oats, bu. . . . .	158,102,000	101,984,000
Wheat, bu. . . . .	25,000,000	24,632,000

**Manufacturing.**—The value of products manufactured in Illinois in 1939, according to the U.S. biennial census (last before World War II), was \$4,794,860,733; the number employed was 688,800; total wages and salaries were \$988,453,881. The principal industries and the value of their products were as follows: meat packing \$479,501,224; steelworks and rolling mills \$207,301,815; petroleum refining \$122,933,528; tractors \$121,550,621.

**Mineral Production.**—Coal production in Illinois in 1945 was handicapped by lack of manpower and the greater age of miners who remained in the coal fields after the younger men were inducted into the army and navy. Although irregular from month to month, the output for the year was estimated at 69,500,000 net tons, compared with 73,492,000 net tons produced in 1944.

Illinois oil exploration continued to discover new pools in 1945. The average initial production of new wells was 141 bbl. per day. The daily

Table II.—Production of Coal and Petroleum in Illinois, 1944, 1943 and 1942

	1944	1943	1942
Bituminous coal, net tons . . . . .	73,492,000	72,430,000	65,071,000
Petroleum, bbl. . . . .	76,987,000	77,637,000	106,590,000

average production climbed to 202,000 bbl. per day in June 1945. Total oil production in Illinois in 1945 was expected to show a drop.

The total value of minerals produced in Illinois in 1943 was \$332,186,464.

(L. H. L.)

**Illinois, University of.** In 1945 George Dinsmore Stoddard, commissioner of education of the state of New York and president of the University of the State of New York, was named to become president of the University of Illinois on July 1, 1946, when Arthur Cutts Willard, president from 1934, would reach the mandatory retirement age.

Building plans totalling \$16,809,000 for 1945-47 were announced as the beginning of a ten-year program to meet accumulated needs. The university plant value in 1945 reached \$47,061,393.

The 762-ac. airport was dedicated as a centre for aeronautics education and research, commercial service, private flying and military training. Three new educational programs in aeronautics were established: flight training; aviation technician training at trade school level; and courses in aeroplane mechanics for prospective high school teachers of industrial education.

Included in plans for new buildings and equipment was a betatron to generate more than 250,000,000 electron volts energy and expected to produce cosmic ray effects in the laboratory. For his invention of the betatron in 1940, Prof. Donald W. Kerst of the university's physics department received the Cyrus B. Comstock prize of the National Academy of Sciences, voted him in 1943 but delayed in presentation by war secrecy of everything involving nuclear physics.

The dean for a new college of veterinary medicine and surgery was appointed. An allergy unit was established in the college of medicine to provide wide-scale training and research in this field. Special refresher short courses in medicine and pharmacy were instituted for veterans. The graduate school was provided with a "distinguished professorship fund" and several noted scholars were appointed under it.

Fall enrolment of 1945 included 1,500 war veterans. Their numbers were expected to increase greatly in succeeding terms. Total enrolment in the university was estimated to reach 18,000 by 1950. (For statistics of enrolment, endowment, library volumes, etc., see UNIVERSITIES AND COLLEGES.)

**Illumination:** see ELECTRICAL INDUSTRIES.

**I.L.O.:** see INTERNATIONAL LABOUR ORGANIZATION.

**Immigration and Emigration, U.S.** The migration of aliens to and from the United States is regulated by law and treaty, and is under the jurisdiction of the commissioner of the immigration and naturalization of the department of justice. The principal immigration acts are the act of Feb. 5, 1917, which sets certain mental, physical, moral and economic standards; and the Quota act of May 26, 1924, which limits the number that may enter for permanent residence from certain countries.

Arrivals during the fiscal year ended June 30, 1945, were as reported in the table.

Number of Citizen and Alien Arrivals Examined During Fiscal Year Ended June 30, 1945

	Total	Alien	Citizen
Total . . . . .	57,775,089	28,305,803	29,469,286
Arrived at land borders . . . . .	55,801,140	27,395,495	28,405,645
Canadian . . . . .	23,515,596	10,482,226	13,033,370
Mexican . . . . .	32,285,544	16,913,269	15,372,275
Arrived at seaports . . . . .	310,113	141,387	168,726
Crewmen . . . . .	1,663,836	768,921	894,915

Of the total number, 97% were persons who crossed and recrossed the land borders. Alien admissions for permanent residence numbered 38,119 of which 26,496 were nonquota and 11,623 were quota immigrants; only 7.5% of the permissible quota of 153,879 was filled. The most recent quota allotment, that of 105 persons of the Chinese race, authorized by the act

of Dec. 17, 1943, was the only quota completely filled. Immigration for permanent residence exceeded emigration by 30,677. Immigration officers boarded and inspected 76,946 vessels, 44,389 planes, and in so doing examined 768,921 alien and 894,915 citizen crewmen.

The continued manpower shortage led to the extension of regulations and agreements reached with nearby countries regarding the importation of alien labourers. After 1942, when the first agreements were made, there were 354,896 labourers temporarily admitted to the United States, chiefly from Mexico and the West Indies. Most of these persons were repatriated. On June 30, 1945, there remained in the United States 99,434 agricultural labourers, 64,990 railroad track workers and 17,333 others employed in industries and services essential to the war effort.

During the fiscal year 1945, 2,341 aliens seeking admission for 30 days or longer, and 1,901 aliens applying for entry for less than 30 days were denied admission to the United States; 11,270 aliens were deported from the United States, 69,490 aliens who had been adjudged deportable were allowed to depart at their own expense without warrants of deportation, and 12 indigent aliens were returned to their own countries at the expense of the government.

The immigration border patrol patrolled 8,863,416 mi., examined 1,254,533 conveyances and questioned 4,161,573 persons, which resulted in the apprehension of 69,164 persons and the seizure of 100 conveyances. (See also ALIENS; CENSUS DATA, 1945; REFUGEES.) (U. C.)

**Imports:** see INTERNATIONAL TRADE; TARIFFS. See also under various countries.

**Incendiary Warfare:** see WARFARE, INCENDIARY.

**Income, U.S. Distribution of:** see WEALTH AND INCOME, U.S. DISTRIBUTION OF.

**Income and Product, U.S.** The ending of World War II in Aug. 1945 resulted in an abrupt change in the wartime expansion of the national income and national product of the United States. The preliminary estimate of the national income for 1945 was \$160,000,000,000 compared with the 1944 total of \$160,700,000,000. The gross national product for 1945 was estimated at \$196,200,000,000 in comparison with \$197,600,000,000 for the previous year. The comparatively small decline in these aggregates for the year as a whole tended to minimize the change in the economic situation brought about by the end of the war. As a matter of fact, the level of national income and national product during the first eight months of 1945 was slightly higher than that prevailing in 1944. But during the latter months of the year, the stoppage of war production on a wide scale initiated a downward trend in the flow of both national income and product which reduced the totals for the year below those of 1944.

**Meaning of National Income and Gross National Product.**—National income as understood in this survey represents a summation of the net earnings of the various factors of production derived from their association in current economic production. Both money income and income in kind are included, so long as they are derived from participation in current production. Such income receipts as relief, unemployment benefits, pensions, gifts, capital gains or losses and gains from illegal activities are excluded since they do not represent earnings derived from current productive activity. The incomes included in the compilation are net incomes; that is, in the case of business enterprises, the incomes are counted after deduction of costs of doing business and after allowance for depreciation

and business taxes. In the case of corporations, the income is taken after allowance for income and excess profits taxes. The estimates are limited to those incomes which are ordinarily derived from the market economy. Thus, the value of the services of housewives is not included, whereas the income derived from government employment or government obligations is included. It is well to emphasize that the national income is not simply the sum of money incomes of all persons in the U.S., such as might be reported for income tax purposes.

The gross national product, as measured by the U.S. department of commerce, represents a summation of three major components: (1) the market value of goods and services flowing to consumers; (2) the value of the gross output of capital goods retained by private business; and (3) the cost value of the goods and services produced or purchased by government. The gross national product differs from the national income in that no allowance is made for depreciation and other reserves (which constitute business expenses in the computation of income) or for taxes paid by business.

Taken together, the national income and national product estimates provide a comprehensive picture of the current economic activity of the U.S. as a whole. The two sets of estimates represent the receipts (national income) and expenditures (national product) sides of a consolidated national account showing the major transactions that occurred during the year relative to current production of goods and services. The data are useful in giving quantitative expression to economic trends and problems of the national economy as well as in comparing the operations of an individual business firm with the national totals for all economic activity. During World War II the data proved of considerable value in dealing with problems of economic mobilization and fiscal policy. With attention being turned to postwar economic problems, this body of statistics was being utilized in studying postwar market potentials and in providing the framework for analyzing such problems as taxation and social security.

A significant development in the peacetime use of the national income and national product data was illustrated by the provisions of the Full Employment Bill of 1945. This bill, which was designed to set forth national policy with regard to maintaining full employment, provided for the submission of national product statistics in the budget message of the president to analyze the current and prospective economic situation as a background for formulating economic policies and programs to assure continuing full employment and full production.

**Changes in U.S. National Income, 1919-45.**—Estimates of national income from 1919 to 1945 are shown in Table I. It will be noted that the economic boom associated with World War I reached its high point in 1920. There followed a sharp and short liquidation in 1921 and then an almost continuous upsurge of economic activity during the prosperous '20s, with a new high for national income in 1929 not surpassed until 1941.

The estimates in the accompanying tables are in terms of dollars, and consequently are affected by the general level of prices as well as by the physical quantity of goods and services produced. Since for many purposes the physical quantity of national production, or real national income, is required, a series depicting this volume is also shown in Table I, average prices of 1935-39 being used as a base.

In assessing the importance of the rise in national income over a period of time, it is essential to take account of the increase in population. As population rises, there are more persons to share in the goods being produced for present and future consumption and also more hands available for contributing to total output. The changes in income produced

## INCOME AND PRODUCT, U.S.

Table I.—National Income in Current and Average 1935–39 Dollars

Year	Current dollars	1935–39 dollars	
	Total (In 000,000,000s of dollars)	Total (In 000,000,000s of dollars)	Per capita (\$)
1919	\$ 67.6	\$ 47.8	\$455
1920	69.7	44.1	414
1921	52.6	40.8	377
1922	60.4	49.5	451
1923	70.0	56.7	508
1924	70.0	56.4	499
1925	74.6	59.5	518
1926	76.8	60.7	521
1927	76.2	61.9	524
1928	80.1	64.8	541
1929	83.3	68.1	566
1930	68.9	58.0	471
1931	54.5	51.0	411
1932	40.0	41.6	334
1933	42.3	45.7	364
1934	49.5	50.6	400
1935	55.7	56.1	440
1936	64.9	65.2	509
1937	71.5	69.0	536
1938	64.2	64.2	494
1939	70.8	71.9	549
1940	77.6	78.0	591
1941	96.9	92.8	696
1942	122.2	107.2	796
1943	149.4	123.7	906
1944	160.7	128.0	927
1945*	160.0	124.5	890

Source: U.S. department of commerce.

\*Preliminary.

per capita, after adjustment for fluctuating prices, are shown in Table I.

The outbreak of World War II marked 1939 as the end of a definite phase in the economic life of the U.S. The stimulus provided by the great U.S. defense effort was already evident in 1940, when the national income rose more than \$6,000,000,000, even though the program was not inaugurated until the middle of that year. It was not until 1941, however, that the full impact of the rearmament program became apparent. In that year the national income rose by \$17,000,000,000.

With the actual outbreak of war at the end of 1941, the efforts to obtain the maximum output of armaments in the U.S. were intensified, leading to an ever greater use of available economic resources. As a consequence, the national income continued to expand in 1942 and 1943, with a gain in the earlier year of more than \$25,000,000,000 and a gain of more than \$27,000,000,000 in the latter.

As may be seen by a comparison of the national income in current dollars and in 1935–39 dollars as shown in Table I, the rise in the national income after 1940 was in part due to the rising trend of prices, but the larger part of the expansion represented an increase in real income.

The period of rapid wartime expansion of the national income came to an end at about the close of 1943. By that time the national income was flowing at an annual rate of approximately \$155,000,000,000, and represented virtually complete utilization of economic resources. As inflation of the national income through rising prices was held in check during 1944 by the price control and rationing programs, the national income in that year rose only moderately to \$160,700,000,000. It may be seen, therefore, that the fairly substantial increase in the

Table II.—National Income by Distributive Shares

Item	(In 000,000,000s of dollars)					
	1929	1932	1939	1943	1944	1945*
Total national income	\$83.3	\$40.0	\$70.8	\$149.4	\$160.7	\$160.0
Total compensation of employees	53.1	31.7	48.1	106.3	116.0	114.0
Salaries and wages	52.6	31.0	44.2	103.1	112.8	110.8
Supplements to salaries and wages	.5	.6	3.8	3.2	3.2	3.1
Net income of corporations	7.2	—3.6	4.2	9.8	9.9	8.8
Net dividends	5.9	2.7	3.8	4.3	4.5	4.6
Corporate savings	1.3	—6.4	.4	5.5	5.4	4.2
Net income of noncorporate business	13.6	4.8	11.2	23.5	24.1	25.6
Agriculture	5.2	1.5	4.3	11.9	11.8	12.7
Other	8.5	3.4	6.9	11.6	12.3	12.9
Net interest	5.9	5.6	5.1	6.0	6.7	7.5
Net rents and royalties	3.6	1.5	2.3	3.7	3.9	4.2

Source: U. S. department of commerce, bureau of foreign and domestic commerce, national income unit.

\*Preliminary.

Table III.—U.S. National Income by Industrial Origin

Item	(In 000,000,000s of dollars)					
	1929	1932	1939	1943	1944	1945*
Total national income	\$83.3	\$40.0	\$70.8	\$149.4	\$160.7	\$160.0
Agriculture	6.8	2.4	5.2	13.5	13.6	14.5
Mining	1.9	.5	1.3	2.5	2.6	2.6
Manufacturing	20.9	6.2	17.0	48.5	50.1	45.0
Contract construction	3.5	.9	1.9	4.3	2.9	3.1
Transportation	7.0	3.6	5.0	9.7	10.7	10.9
Power and gas	1.4	1.1	1.5	1.7	1.8	1.8
Communication	1.0	.7	.9	1.2	1.3	1.3
Trade	11.9	5.6	11.0	17.5	19.5	20.6
Finance	10.1	5.3	6.8	9.2	9.5	9.5
Government	6.4	6.6	10.0	26.3	32.1	33.8
Service	8.3	4.7	7.0	10.4	11.6	11.8
Miscellaneous	4.0	2.4	3.2	4.6	5.0	5.1

Source: U.S. department of commerce.

\*Preliminary.

national income from 1943 to 1944 occurred largely during the earlier year. Even so, 1944 national income exceeded the 1943 total by only 8% in terms of current dollars, while in terms of constant dollars the increase was limited to 6%.

The 1944 level of national income continued to prevail through the summer of 1945. Although the war production program was curtailed somewhat after the end of the European phase, re-employment in civilian industries was sufficient to hold the income level substantially stable. With the end of the Japanese phase, however, the cutback of war production was so substantial and affected so large an area of industry that unemployment rose and the flow of income turned downward. The reconversion of industry to peacetime products proceeded fairly rapidly after the end of the Japanese phase, but re-employment in civilian goods lines was not large enough to offset the release of workers from war production and the release of men from the armed forces.

**Distributive Shares of the National Income.**—The changes in the distributive share components of the national income are shown in Table II. In general, the changes in the distributive shares in 1945 were small in magnitude, as was to be expected from the small change in the national income total. However, the decline in the total flow of income for the first time after 1939 did not have a similar effect on all the distributive shares.

Inasmuch as the cutback of war production was the immediate cause of the decline of income in 1945, it was to be expected that wages and salaries would be the component most markedly affected. From the total of \$112,800,000,000 in 1944, wages and salaries declined to \$110,800,000,000 in 1945. This decline reflected primarily curtailment in pay rolls of manufacturing industries and the reduction of military pay rolls as the size of the armed forces was curtailed. While these movements were fairly substantial by the end of the year, the high level of wages and salaries during the first eight months of 1945 held the total for the year above any previous figure except that for 1944.

The net income of corporations after allowance for taxes also declined moderately in 1945. From a wartime peak of \$9,900,000,000 in 1944, net corporate income declined to \$8,800,000,000 in the following year, according to the preliminary data available. The decline in profits was relatively small in view of the sharp curtailment of war production in latter months of the year, due partly to the fact that reduced industrial activity affected excess-profit taxes rather than profits after taxes. Dividend payments remained substantially the same as in the previous year so that the small decline in corporate earnings was reflected mainly in corporate savings.

All the other components of the national income increased in 1945 despite the decline in the total. Agricultural income rose to \$12,700,000,000 from the 1944 figure of \$11,800,000,000 to establish a new record total. This increase was due to the tendency of agricultural prices to move upward during the year. Even after the end of the war there was little setback in agricultural prices. Farm output remained very high during 1945 though it was apparent at the end of the year that some decline from the peak production that was reached during World War II would be necessary.

Preliminary figures indicated that the income of other noncorporate business in 1945 was slightly higher than in the previous year. The continued high volume of retail trade was the most important factor in the maintenance of this component of national income. This occurred, despite the decline in wage earners' income, because of the availability of savings accumulated during the war and the desire of many persons to acquire products that were coming on the market for the first time in several years.

The flow of both rent and interest income continued to increase in 1945 by fairly substantial amounts. Interest payments reached \$7,500,000,000 as compared with \$6,700,000,000 in 1944. This increase resulted entirely from the larger interest payments of the federal government that were required because of the continued expansion of the national debt. In the case of rents, the rise in the income was due mainly to a small rise in rental rates although there was some increase in the number of dwelling units available for rental.

**Industrial Origin of National Income.**—Statistics on the industrial origin of national income are presented in Table III. In 1945, the only significant



Table IV.—Gross National Product or Expenditure, 1939-45†  
(In 000,000,000s of dollars)

Item	1939	1943	1944	1945*
Gross national product or expenditure . . . . .	\$88.6	\$187.4	\$197.6	\$196.2
Government expenditures for goods and services	16.0	93.5	97.1	84.1
Federal government . . . . .	7.9	86.2	89.5	76.2
War . . . . .	1.4	81.3	83.7	69.5
Nonwar . . . . .	6.5	4.9	5.7	6.7
State and local government . . . . .	8.1	7.4	7.7	7.9
Output available for private use . . . . .	72.6	93.9	100.5	112.0
Private gross capital formation . . . . .	10.9	2.5	2.0	8.5
Construction . . . . .	3.6	1.6	1.6	2.7
Producers' durable equipment . . . . .	5.5	3.1	4.0	5.2
Net change in business inventories . . . . .	.9	— .6	—1.7	.5
Net exports of goods and services . . . . .	.8	—1.5	—1.8	.2
Net exports and monetary use of gold and silver . . . . .	.2	†	— .1	— .1
Consumers' goods and services . . . . .	61.7	91.3	98.5	103.6
Durable goods . . . . .	6.4	6.6	6.7	7.2
Nondurable goods . . . . .	32.6	55.1	60.0	63.3
Services . . . . .	22.7	29.7	31.7	33.0

\*Preliminary.

†Detail will not necessarily add to totals because of rounding.

‡Less than \$50,000,000.

change among these industrial components was that which occurred in manufacturing industry. The total income originating in this field declined from \$50,100,000,000 in 1944 to \$45,000,000,000 in 1945, reflecting the sharp cutback of war production after the end of the Japanese phase of the war. As income originating in manufacturing showed the greatest expansion during World War II, this development was not unexpected.

The changes of all the other industrial components in the national income were of small magnitude. It might be mentioned that income originating in government continued to rise in 1945 to reach a figure of \$33,800,000,000. Although government pay rolls began to decline after the end of the Japanese phase of the war, the fact that interest payments by the government were substantially larger and the rise in the size of the armed forces during the first half of 1945 raised the total income from government above the 1944 figure.

**Gross National Product.**—In Table IV are shown the statistical data on the gross national product. As previously mentioned, this aggregate declined in 1945 although not by a substantial amount. This decline was due entirely to the reduction in the war spending of the government which fell from \$83,700,000,000 in 1944 to \$69,500,000,000 in 1945. On the other hand, the nonwar expenditures of the government rose by \$1,000,000,000 in 1945.

As a result of the release of facilities from war production during the second half of 1945 it became possible for the first time after 1941 to obtain a moderately increased flow of civilian goods. Due to the initial reconversion difficulties, the increase of civilian goods was not very large in 1945, but it was well under way by the end of the year. Construction activity showed an immediate pickup with the ending of hostilities, reaching \$2,700,000,000 for the year as compared with \$1,600,000,000 in 1944. Expenditures on machinery and equipment also rose significantly during the year due to reconversion requirements, expenditures on these goods reaching \$5,200,000,000. With supplies being considerably freer after the end of hostilities, the wartime shrinkage of business inventories stopped, although there was no appreciable replenishment of manufacturers' and dealers' stocks.

Consumers' expenditures on goods and services rose moderately in 1945 to a total of \$103,600,000,000. This contrasted with the 1944 figure of \$98,500,000,000. The expansion of consumers' expenditures was divided among durable goods, nondurable goods and services, though the nondurable goods segment showed the largest dollar rise. There was little tendency for prices to rise in 1945 so that the expansion of consumers' expenditures largely reflected an increase in the availability of supplies. In the nondurable goods field, the ending of gasoline and fuel oil rationing was an important factor in the increased expenditures and certain food and clothing items were also more plentiful. In the durable goods field, supplies were increased during the second half of the year although production was far from on a peacetime basis by the end of the year.

**Consumer Income and Savings.**—The data on the disposition of national income are shown in Table V. The primary purpose of this breakdown of the national income is to show the allocation of income between consumers' expenditures, savings and taxes.

Although the national income declined in 1945, income payments to individuals actually increased more than \$3,000,000,000 above their 1944 total. This was due primarily to the increase in government transfer payments, particularly unemployment benefits and mustering-out pay to members of the armed services. Taxes paid by individuals were also increased in 1945 with the result that the disposable income of individuals

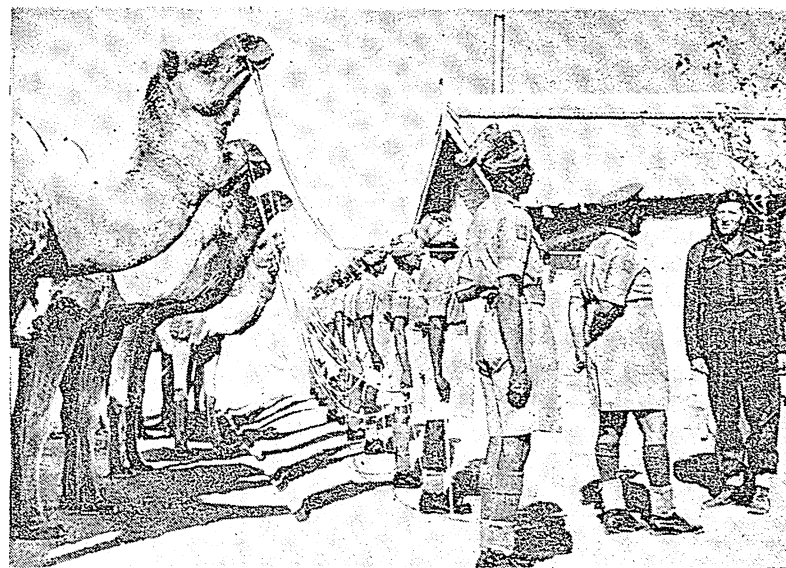
rose from \$137,400,000,000 in 1944 to \$138,900,000,000 in 1945. This small rise in disposable income did not affect consumers' expenditures disproportionately due to the fact that the savings of individuals during the entire wartime period had been abnormally high. With consumers' expenditures advancing a little more than \$5,000,000,000 there was a decline in net savings of individuals from \$38,900,000,000 in 1944 to \$35,300,000,000 in 1945. This was still an unusually high level of individual savings. (See also BUDGET, NATIONAL; BUSINESS REVIEW; DEBT, NATIONAL; WEALTH AND INCOME, U.S. DISTRIBUTION OF.) (M. Gt.)

### Income Tax: see TAXATION.

**India.** A sub-continent projecting from the mainland of Asia, India lies between the 8th and the 37th degrees of north latitude. It comprises 11 major or "autonomous" provinces, five minor areas directly administered by the central British government and a large number (between 500 and 600) of states under Indian rulers. The latter states are scattered about the sub-continent and vary greatly in size and importance, as well as in the powers enjoyed by their chiefs. British India (the 16 major provinces and minor areas) has its capital at New Delhi and is under a viceroy and governor-general (Field Marshal Viscount Wavell), who is also the representative of the crown in its relations with the native states. The total area is 1,581,410 sq.mi. of which the native states and agencies total 715,964 sq.mi.; pop. (1941 census) 388,997,955. Chief cities (census, 1941): Calcutta (2,108,891); Bombay (1,489,883); Madras (777,481); Hyderabad (739,159); Delhi (521,849); Lahore (671,659). Languages: Hindi, Tamil and Urdu the most important; religions, Hinduism (approx. two-thirds), Moham-medan (approx. one-fifth). Ruler, George VI, emperor.

**History.**—The year 1945 was one of strenuous attempts to arrive at a political settlement. After the failure of the Gandhi-Jinnah conversations and the conciliation committee called by Sir Tej Bahadur Sapru, it was evident that the government would have to take the initiative. The immediate problem was that of the Indianization of the viceroy's executive council. On March 23, Lord Wavell went to London for consultation with the British cabinet, and on June 14 a statement of policy was made in the house of commons by L. S. Amery, the secretary of state for India. He said that if the offer made by his majesty's government were accepted, all the portfolios except that of war member, held by the commander in chief, would be transferred to Indian hands. They would include not only those of the home and finance departments, but also external affairs, up to that time reserved to the viceroy in person. This would naturally be accompanied by the appointment of fully accredited representatives abroad, and so constitute a definite advancement of India's international status. In selecting his council the viceroy would endeavour to secure a balanced representation of

AN INDIAN CAMEL cavalry unit guarding its home frontier was inspected in 1945 by British General Sir Claude Auchinleck

Table V.—Disposition of National Income, 1939-45†  
(In 000,000,000s of dollars)

Item	1939	1943	1944	1945*
National income . . . . .	\$70.8	\$149.4	\$160.7	\$160.0
Add: Transfer payments . . . . .	2.4	3.2	5.3	8.1
Less: Corporate savings . . . . .	.4	5.5	5.4	4.2
Contributions to social insurance funds . . . . .	2.0	3.8	3.9	3.8
Equals: Income payments to individuals . . . . .	70.8	143.1	156.8	160.1
Less: Personal taxes and nontax payments . . . . .	3.1	18.6	19.4	21.2
Federal . . . . .	1.3	16.6	17.4	19.1
State and local . . . . .	1.9	2.0	2.0	2.1
Equals: Disposable income of individuals . . . . .	67.7	124.6	137.4	138.9
Less: Consumer expenditures . . . . .	61.7	91.3	98.5	103.6
Equals: Net savings of individuals . . . . .	6.0	33.3	38.9	35.3

\*Preliminary.

†Detail will not necessarily add to totals because of rounding.

the main communities, including equal proportions of Moslems and Hindus. The new executive would thus be made representative of organized Indian political opinion. If these proposals were agreed to, ministerial government would be resumed, on a coalition basis, in the provinces which had passed under "governor's rule" when the congress ministries were withdrawn on the outbreak of war. The 15 members of the Congress Working committee, who had been interned in Aug. 1942 were to be released.

On his return to India the viceroy called a round table conference of 21 representatives of the Indian political parties at Simla on June 25. The various groups were asked to submit lists of names from which the viceroy would choose after consultation with the party leaders. After protracted discussions the conference broke down because Mohammed Ali Jinnah, the head of the Moslem league, refused to submit a list of nominees without a preliminary guarantee that all the Moslem members should come from the Moslem league. On Aug. 25 the viceroy went again to London to consult with Lord Pethick-Lawrence, who had succeeded Amery as secretary of state.

On Sept. 12 Lord Wavell returned to India, and it was announced that elections to the central and provincial legislatures would be held in the coming cold weather. This would be followed by positive steps to set up a constituent assembly of Indian elected representatives charged with the task of framing a new constitution. The viceroy would undertake preliminary discussions with the representatives of the new provincial legislatures and of the Indian states to ascertain whether the proposals in the Cripps offer were acceptable or should be modified. After the elections, the viceroy would, as an interim measure, bring into being an executive council having the support of the main Indian parties, in order that India might deal itself with its own social and economic problems, and take its full part in working out the new world order.

On the economic side, Sir John Woodhead's report on the Bengal famine revealed the necessity of systematic planning if the problem of Indian poverty were to be solved. Sir Ardesir Tata, formerly director of the Tata iron and steel works, was appointed as reconstruction officer, and the Indian government announced that it was engaged on plans for taking over 20 basic industries after the war, together with others for which adequate private capital was not forthcoming; these would be spread over

MOHANDAS K. GANDHI, in Simla, India, as an adviser at the conference which opened June 25, 1945, is shown being photographed under protest. Discussions on British plans for increased self-government for India ended in failure.



wide areas, so as to secure a balanced economy. Loans would be advanced to encourage private enterprise. A party of nine leading Indian industrialists visited England and the United States to purchase capital goods for postwar development.

(H. G. RN.)

**Education.**—(1940-41): Number of recognized institutions in British India (excluding Burma): primary schools, male 161,122; female 26,042; scholars, male 10,258,201; female 1,539,648; secondary schools, male 12,957; female 1,754; scholars, male 2,404,745; female 346,494. Unrecognized institutions 18,862 with 590,567 scholars. Universities, British India 15, scholars, male 109,098; female 5,006.

**Finance.**—Revenue, central government (est. 1944-45) \$1,114,980,000; (est. 1945-46) \$1,071,980,000; expenditure, central government (est. 1944-45) \$1,279,798,800; (est. 1945-46) \$1,563,640,000; public debt (March 1945) \$5,675,800,000; notes in circulation (June 1, 1945) \$3,384,300,000; reserve (May 31, 1945): gold \$133,732,800, silver rupee coins \$48,192,000, sterling securities \$3,070,131,600. Currency: 1 rupee (Rs.1); Rs.100,000 = 1 lakh, written Rs.1,00,000; Rs.10,000,000 = 1 crore = 100 lakhs, written Rs.1,00,00,000; 100 crores is written Rs.100,00,00,000. Exchange rate (July 1945) Rs.1 = 30.12 U.S. cents.

**Trade.**—Overseas trade (1944-45): imports, merchandise \$605,353,000; exports, Indian merchandise \$635,699,000; re-exports (1943-44), merchandise \$32,912,000; gold coin and bullion (1939), imports \$4,939,700; exports \$94,094,900; imports of Afghan merchandise (1939-40), \$11,950,000; exports of Indian produce to Afghanistan (1939-40), \$2,200,000.

Table I.—Indian Imports and Exports 1943-44

Imports from		(\$'000)	Exports to		(\$'000)
U.K.	.....	89,769	U.K.	.....	181,296
U.S.A.	.....	55,409	U.S.A.	.....	121,339
Iran	.....	83,001	Australia	.....	40,097
Egypt	.....	33,694	Ceylon	.....	43,245

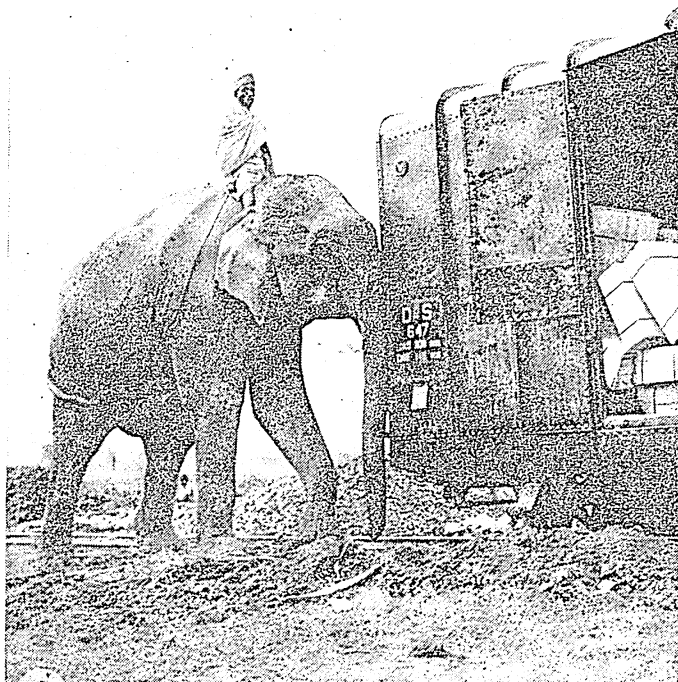
**Communication.**—Roads (1942) British India only, 85,792 mi. motorable roads, 261,340 unsurfaced. Railways (March 31, 1942) route mileage: broad gauge 20,698 mi.; metre gauge 15,968 mi.; narrow gauge 3,868 mi. Shipping, tonnage entered (monthly average 1939) 924,200; tonnage cleared (monthly average 1939) 917,500. Motor vehicles licensed (March 31, 1940): British India 94,788 cars and taxis; 43,187 commercial vehicles; 8,602 cycles. Wireless receiving set licences, all India (Jan. 1941) 121,534. Telephones (March 31, 1940): 86,219 straight-line connections, 626 exchanges.

**Agriculture, Manufacturing, Mineral Production.**—See Table II for latest figures available in 1945 for production of commodities in India.

Table II.—Leading Agricultural and Mineral Products of India

Commodity	Year	000 short tons
Rice	1943-44	51,305
Wheat	1944	10,835
Maize	1940	2,341
Barley	1941	2,530
Cane sugar (raw)	1943-44	3,817
Tea	1943	275
Tobacco	1940	524
Jute	1943	1,398
Cotton	1943	1,012
Linseed	1943	458
Rapeseed	1943	1,196
Groundnuts	1943	3,714
Sesamum	1943	508
Coal (British India)	1940	29,146
Iron ore (metal content)	1939	2,193
Pig iron and ferroalloys	1943	2,200
Steel	1943	1,760
Manganese ore (metal content)	1941	539
Chrome ore	1939	27.5
Bauxite	1940	16.5
Gold	1944	0.00638
Petroleum (crude)	1943	385

**Industry.**—(excluding Burma): Cotton (1942-43) yarn spun 766,868 short tons; woven goods 4,109,336,790 yd.; number of



SHUNTING BOXCARS at a railroad siding near Ledo, India, in 1945, an 80-year-old elephant replaced a shunting engine for the U.S. army whose Military Railway Service operated this section of the railroad

mills 401; average number employed 502,650. Jute (1938-39): mills 107; average number employed (1937-38) 309,000. Total number of factories (1939) 10,466; average daily number employed (1939) 1,751,137. (See also BURMA; FAMINES; WORLD WAR II.)

**Indiana.** A north central state with the popular name "Hoosier," Indiana entered the union Dec. 11, 1816, as the 19th state. The total area of the state is 36,519 sq.mi., including 314 sq.mi. of water. Pop. (1940 census) 3,427,796. According to the 1940 census 1,887,712 or 55.1% were urban; 1,540,084 or 44.9% rural. Of the total, 93.2% were native white, 3.2% foreign-born white and 3.6% Negro. Estimated population in 1945 was 3,743,328. Capital, Indianapolis (pop. 1940, 386,972), the largest city. Other cities: Fort Wayne (118,410); Gary (111,719); South Bend (101,268); Evansville (97,062); Hammond (70,184); Terre Haute (62,693); East Chicago (54,637); Muncie (49,720); Anderson (41,572).

**History.**—The 84th regular session of the general assembly convened Jan. 4-March 5, 1945. It provided for an aeronautics commission, a flood control commission, a veterans' affairs commission, the establishment of the Northern Indiana hospital for treatment of mental disorders, and appropriation for additional buildings on the site of the Indiana War memorial for the use of the American Legion national headquarters and created a public employees' retirement fund.

Officers of the state in 1945 were: Ralph F. Gates, governor; Richard T. James, lieutenant governor; Rue J. Alexander, secretary of state; Frank T. Millis, treasurer; Alvin V. Burch, auditor; James A. Emmert, attorney general; Clement T. Malan, superintendent of public instruction.

**Education.**—The number of schools in the state in the school year 1944-45 was 2,764. Enrolment in the elementary or common schools was 456,770, with 11,579 teachers. Enrolment in the high schools (grades 9-12) was 168,817, with 1,147 junior high school teachers and 7,490 senior high school teachers. Parochial schools had an enrolment of 48,073 in the elementary grades and 8,984 in high school.

The sum of \$29,197,220.39 in state support funds was allotted to the local school corporations in the fiscal year ending June

30, 1945 (\$24,741,287 for the fiscal year ending June 30, 1944). Total expenditures for the schools in the fiscal year ending June 30, 1945, were \$68,425,260.90.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—The total expenditure of the state's welfare program in the fiscal year 1944-45 was \$26,131,421.83 of which \$10,844,878.85 was paid from federal funds, \$7,910,148.80 from state funds and \$7,376,394.18 from county funds. Aged assistance totalled \$17,819,999; blind assistance \$788,770.45; aid to dependent children \$2,863,022.96. Receipts of the state for unemployment insurance for the fiscal year ending June 30, 1945, were \$35,710,998. Benefits paid were \$1,256,108.

The state in 1945 maintained eight institutions for mental cases (including epileptics); nine homes, hospitals and schools; three university hospitals; and six correctional institutions. Inmates of the state institutions June 30, 1945, numbered 18,991, which included 12,891 in institutions for mental cases, and 4,700 in correctional and training schools. As of June 30, 1945, there were 3,628 in the 87 county infirmaries in the state.

**Communications.**—Total mileage of state highways as of June 30, 1945, was 10,431.30. Total expenditures of the state highway commission on roads in the fiscal year 1944-45 were \$19,475,095. On June 30, 1945, there were 6,659 mi. of steam railroads (sidetracks omitted) with an assessed valuation of \$362,414,276. There were 239.69 mi. of electric railroads with an assessed valuation of \$8,653,744.

According to the latest (Dec. 1944) survey by the Indiana Economic council, Indiana had 63 airports and the state was served by four commercial air lines.

**Banking and Finance.**—On June 30, 1945, there were 374 state banks and trust companies with total resources of \$1,281,850,501.94 and deposits of \$1,207,288,567.58. In Dec. 1945 there were 126 national banks.

State savings and loan companies numbered 178 (June 1945) with assets of \$116,844,390.17. The assets of the federal savings and loan associations as of Dec. 31, 1945, were \$178,392,000.

The revenue of the state to meet the 1944-45 budget was \$59,347,921 in the general fund and \$26,091,440 in special funds. Appropriations for the fiscal year 1944-45 amounted to \$42,142,558 and disbursements amounted to \$26,570,919.14. The estimated state revenue for 1945-46 fiscal year was \$50,500,000. Appropriations amounting to \$54,208,170 were made for the fiscal year 1945-46. The state balance on July 1, 1945, was \$29,145,382. Approximately \$49,000,000 was in the state general fund on Dec. 31, 1945.

The state constitution strictly limits state borrowing; therefore on June 30, 1945, there was no state debt.

**Agriculture.**—In 1945 there was the largest corn crop in the history of the state with an average yield of 53 bu. per acre, which was the highest for any state in the country. Indiana ranked third in the nation in the production of canned tomatoes and tomato juice. It produced two-thirds of the United States production of peppermint and spearmint oil.

#### Leading Agricultural Products of Indiana, 1945 and 1944

Crop	1945 (est.)	1944
Corn, bu. . . . .	243,376,000	176,244,000
Wheat, bu. . . . .	37,590,000	26,408,000
Oats, bu. . . . .	62,092,000	31,400,000
Soybeans, bu. . . . .	28,640,000	23,150,000
Rye, bu. . . . .	1,330,000	1,080,000
White potatoes, bu. . . . .	4,620,000	3,115,000
Barley, bu. . . . .	1,134,000	1,296,000
All tame hay, tons . . . . .	2,639,000	2,577,000

**Manufacturing.**—In the period June 1940-May 1945 Indiana received government contracts for war supplies amounting to \$8,917,000,000 (\$3,676,000,000 in aircraft production, \$1,530,000,000 in communication equipment, \$464,000,000 in ship production and \$3,247,000,000 in ordnance). Indiana ranked



seventh in the U.S. in the production of war supplies. Reconversion from war industries made a steady gain in the later months of 1945 with the manufacture of automobiles and automotive parts, aircraft parts, steel and rolling mill products, implements, pharmaceuticals and hosiery the chief industries.

**Mineral Production.**—Total production of coal tons mined in the fiscal year ending June 30, 1945, was 12,609,262. Total wages paid were \$16,211,681. The number of employees in all mines was 6,050. There were 21 fatalities. In 1944, 331 oil and gas wells were completed; 4,950,000 bbl. of oil were produced. In the first 11 months of 1945, 240 oil and gas wells were completed.

(M. H. A.)

**Indians, American.** On Jan. 19, 1945, after serving 12 years, John Collier tendered his resignation as commissioner of Indian affairs to the president. William A. Brophy was appointed his successor and was confirmed by the senate on March 6, 1945. Brophy had been a lawyer in Albuquerque, N.M., and for nine years served as attorney for the Pueblo tribes. In 1942, he accompanied a senatorial committee investigating Puerto Rico, and after assisting in the preparation of the committee report became director of the Puerto Rican section of the division of territories and island possessions of the department of the interior. He held this position at the time of his appointment as commissioner. Brophy thus was familiar with the minority problem and sympathetic with the needs of the Indians.

On Feb. 3, 1945, the Colorado river Indian tribes adopted a resolution opening three quarters of their reservation to settlement by other Indians of the Colorado river watershed. The area involved amounted to about 75,000 ac. which together with the northern 25,000 ac. would be subjugated and irrigated in accordance with congressional policy as stated in numerous appropriation acts. Approximately 2,000 ac. were subjugated by the War Relocation authority, which occupied the land for a Japanese relocation centre. With the closing of this centre toward the end of 1945, 16 Hopi families composed of approximately 85 persons became the first voluntary settlers to move to this new area. It was believed that approximately 15,000 Indians might ultimately find homes there.

Beginning in the late spring of 1945, the Aleuts who had been evacuated to the Alaska mainland were returned to their island villages by the navy, and under the supervision of the Indian service began reconditioning their homes with funds made available by the federal government. Mrs. C. Foster Jones, formerly Indian service teacher on Attu, who had been captured by the Japanese during the invasion, was returned to the United States on Sept. 12. About 25 out of the 45 natives who were on the island at the time of the invasion were also released from a Japanese prison camp. Mr. Jones and several of the natives had been killed during the invasion. Aside from a few cruelties at the time of the immediate invasion, all had been well treated by the Japanese, and the Attu islanders returned to Alaska in December.

In Feb. 1945, the Alaska territorial legislature enacted a civil rights statute, forbidding discrimination. This made illegal refusal by restaurants, hotels, etc., to serve natives because of race.

On March 12, 1945, the United States supreme court rejected an appeal by the Shoshone Indians of Utah from a decision of the court of claims denying their claims to reimbursement for lands taken by the United States after 1907 without compensation. It was a 5-4 decision and the majority opinion written by Justice Jackson held that any wrongs involved were committed by U.S. white forefathers against the remote ancestors of the plaintiffs, and therefore the U.S. was not legally obligated to correct them. Many of the statements in the decision with regard

to the nonexistence of aboriginal exclusive occupancy shocked anthropologists and others familiar with Indian life and customs. The decision resulted in a surprisingly unanimous editorial condemnation by daily newspapers as well as friends of the Indians. A request for rehearing was denied.

On July 27, 1945, the secretary of the interior issued an opinion in answer to the petitions of the natives of the villages of Hydaburg, Klawock and Kake, Alaska, claiming certain lands and waters in southeastern Alaska. Extensive hearings had been held in several communities in Alaska, and at Seattle, Wash., before an examiner appointed by the secretary. Briefly the secretary's conclusions denied the claims of the natives of Hydaburg, Klawock and Kake to exclusive possession of 92% of the lands claimed as aboriginally occupied, and confirmed their title to 8% of the claims adjacent to these villages. Their claims to exclusive possession of adjacent ocean waters were also rejected. Their right to hunt, fish, trap and gather wild products in common with other persons on areas remaining in public ownership was confirmed. The policy of the United States to recognize aboriginal rights where native possession has been continuous and exclusive is affirmed as applicable in Alaska as in the states of the union. The petitioners and protestants requested a rehearing.

Announcement was made during 1945 that the purest form of helium yet found in the United States had been discovered in connection with oil drilling on the northern part of the Navaho reservation. A plant was developed by the federal government during World War II but extraction stopped with the end of hostilities and the deposit was to be retained as a federal reserve.

Reports for the year indicated that there were 27,767 Indians in the army, 1,910 in the navy, 121 in the coast guard and 723 in the marines. These figures do not include officers, for whom no statistics were available in 1945. Several hundred Indian women were in the various branches of the services.

The Indian office was informed of 72 awards of the air medal, 35 of the distinguished flying cross, 52 of the silver star, 53 of the bronze star medal, 4 of the distinguished service cross, 3 of the soldier's medal, and 2 of the congressional medal of honour to Indians. Lieut. Ernest Childers, a Creek, of Broken Arrow, Okla., was the first winner of the nation's highest award, and Lieut. Jack Montgomery, a Cherokee, was the second.

Many awards were not reported to the Indian office, and some of the ribbons worn were decorated with oak leaf clusters awarded in lieu of further medals. It was not unusual to see an air medal with nine oak leaf clusters, and there were some with 12 or 14.

A full-blooded Pima, Pfc. Ira Hayes, was one of the six flag raisers on the summit of Mt. Suribachi, Iwo Jima. Harvey Natchees, a Ute, was the first U.S. soldier to enter the centre of Berlin. LeRoy Himlin, another Ute, was with the first group to make contact with the Russians on the Elbe river. The marine corps enlisted about 300 Navaho Indians to serve as code talkers in their front line communications using their native language which proved an unbreakable code.

FILMS.—*Navajo Children; Navajo Indians* (Encyclopædia Britannica Films Inc.) (W. W. B.)

**Indo-China, French:** see FRENCH COLONIAL EMPIRE.

**Industrial Health.** The cessation of industrial production in the United States for World War II in the late months of 1945 was attended by marked reductions in the industrial health activities of the army, navy and maritime commission. Medical, nursing and technical personnel as-

signed to the vast wartime operations in shipyards, munitions plants, aeroplane factories and ports of embarkation were available for redistribution elsewhere. Nevertheless, in respect to industry as a whole, experience indicated that interest in industrial health and welfare would continue well into the postwar era. The demand for industrial health service was still greater than the medical and allied professions were prepared to meet, although returning medical officers began to alleviate these shortages. Many of these returning physicians felt the need of additional training. A number of medical schools and professional bodies therefore undertook to meet this requirement and began preparations for refresher and orientation courses as well as longer periods of study calculated to lead toward specialization in industrial medicine. The end of the year was further signalized by the decision of the American Medical association to publish a monthly journal devoted to the advancement of standards of medical care in industry and to promote greater medical participation in the solution of socioeconomic problems in rehabilitation and workmen's compensation.

The predominant medical problem in industry continued to be veteran reconditioning and re-employment. Actual experience showed that the uninjured veteran was not a problem and that he readjusted to civilian employment readily and well. The full impact of the seriously disabled veteran had not yet reached industrial medical departments. The Veterans' administration announced that its rehabilitation activities would be greatly intensified, that physical and occupational therapy would be available in all its facilities, and that great care would be taken in bridging the gap between vocational training in a hospital and civilian employment. Considerable progress was made in the federal-state rehabilitation program sponsored by the Office of Vocational Rehabilitation in the Federal Security agency. Administration of this plan was accelerated in the states by improved medical advisory relations and the steady development of standards of medical care, hospitalization and vocational training. Since aid to the handicapped must be largely conditioned on the willingness of industry to accept them as employees, the United States Employment service and the Council on Industrial Health of the American Medical association continued to investigate the values of medically supervised placement in jobs adapted to physical, mental and emotional disability or maladjustment. Studies were continued on the advisability of setting up community rehabilitation centres which would provide suitable quarters, equipment and personnel to admit handicapped individuals, evaluate their disability and supply such services as are necessary to return them to full employment, selected jobs, sheltered work, or home bound activity as the case may be. A special subcommittee of the committee on labour of the house of representatives conducted a series of hearings relating to the status of the blind, deaf and hard of hearing, epileptics, amputees and victims of other disabling conditions eligible for aid under the existing government plans. The apparent intention was to consolidate government activities in rehabilitation as a means of promoting efficient care and avoidance of duplicating efforts.

Several developments designed to extend industrial medical service to groups not previously covered gained momentum. Bills under consideration in the senate and house would entitle government employees to receive treatment for minor illness, pre-employment and other examinations, health education, alleviation of hazards and referral to private physicians for non-occupational illness. Small plants in the Long Island city area were being provided with nursing supervision by the New York city health department on condition that they employ a physician, maintain proper records and set up suitable facilities. Industrial executives, as a class, have not ordinarily participated in

industrial health service. One large corporation adopted a plan of physical examinations for executives, the defects discovered to be corrected through the regular channels of community medical practice.

The physician's ability to contribute to human relations in industry came in for serious study. Counselling techniques in certain industries, which enabled workers to secure help in the solution of personal problems not necessarily related to work, were recognized as excellent psychotherapy. Psychiatrists in other ways were drawn into the industrial health picture. A plan for the employment of psychoneurotics, whether veterans or victims of industrial accidents, was prepared for the National Association of Manufacturers. A committee was developed representing psychiatric medicine, industrial medicine, management and labour, to explore behaviour problems, occurrence of friction between worker and supervisor, motivation, aptitudes and other similar matters which might be expected to improve under study and observation from the psychosomatic point of view.

Steps were taken to associate aviation medicine more closely with the industrial medical program. Co-operation between the Aero Medical association and the Council on Industrial Health of the American Medical association was arranged in order that advances made in military aviation medicine could be brought to the attention of physicians at large. Tropical disease became a factor in industrial medicine, detected largely in veterans examined for employment. The use of aluminum in a number of forms to prevent the occurrence of and to treat silicosis was the subject for special investigation by a committee made up of industrial physicians, pharmacologists, pathologists and representatives of the aluminum industry. Many other advances were recorded in the medical literature regarding identification, prevention and clinical management of occupational exposures.

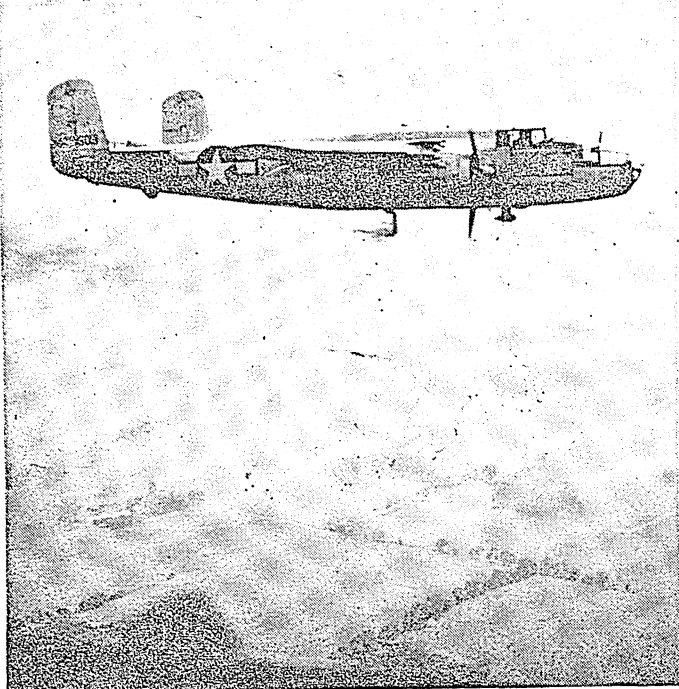
Casualty insurance interests and the medical profession joined hands with administrators of workmen's compensation in the United States and Canada to set up a National Workmen's Compensation board designed to investigate and recommend improvements in the whole structure of indemnification for industrial accidents and occupational diseases. This step was considered as the greatest advance in this field after the adoption of the commission form of administering workmen's compensation affairs. (See also ACCIDENTS; DERMATOLOGY; MEDICINE.)

(C. M. PN.)

**Industrial Production:** see BUSINESS REVIEW; WAR PRODUCTION, U.S.

**Infantile Paralysis.** During 1945 additional evidence was accumulated showing that infantile paralysis (poliomyelitis) increased both geographically and numerically. Apparently these increases were actual and not the result of better reporting. Differential diagnosis of the disease was aided, at least to a degree, by more accurate diagnosis of other neurotropic virus diseases frequently confused with, and often reported as, infantile paralysis. Reports on a world-wide basis were necessarily fragmentary and incomplete, but outbreaks were reported in several European countries, the Philippines, Central and South America. In the United States more than 13,000 cases were reported, making the total for the three-year period 1943, 1944 and 1945 greater than during any previous five years of the past.

Intensive study of numerous outbreaks added further evidence in support of the theory that this disease is spread largely by contact, and that water, food, milk, flies and other vectors play relatively unimportant roles in dissemination of the virus. Study of the child population surrounding a known case brought forth once more the fact that during an infantile paralysis outbreak there are far more mild poliomyelitis-like illnesses than



B-25 BOMBER, loaded with 1,650 gal. of DDT solution, sprayed the city of Rockford, Ill., in the summer of 1945, in an experiment aimed at killing flies believed to be possible carriers of the polio virus

paralytic infections. A history of contact could be elicited in the majority of these mild illnesses. By careful laboratory work a large percentage of these vague, undiagnosed and unreported deviations from normal health was shown to be associated with, if not due to, a poliomyelitis virus infection, with the virus recoverable from both throat and stools. These cases were in addition to the entirely symptomless healthy carrier.

A study in Chicago, Ill., showed that when these mild infantile paralysis-like infections were considered, the communicability of this disease in the child population of one and one-half to three and one-half years of age was approximately 90%. The disease was far less infectious in those under one and one-half and decreasingly so in the older groups.

No advances were recorded during 1945 in the attempt to develop a specific therapeutic agent. The old problem of the role of convalescent serum was restudied in a new form. Gamma globulin was administered to alternate cases in a series of 111 proven infantile paralysis patients. Fifty-six preparalytic patients were given large doses of gamma globulin known to have a high poliomyelitis neutralizing antibody content. These patients were followed for six months, together with 55 control cases. There was no evidence of any benefit from the use of serum. This most carefully conducted and controlled study should put an end for all time to any question of prevention of paralysis, or speedy recovery, in infantile paralysis through the use of this type of therapy.

Reports were published during the year of the supposed value of various drugs in the treatment of the spasm of infantile paralysis. These, however, were contradictory in nature or were based on too few and too superficial observations to warrant definite conclusions. Prostigmine and curare derivatives received the major amount of attention, but no critical experiments were undertaken and a vast amount of work remained to be done before it could be determined what role, if any, these drugs play in treatment of this disease.

Additional evidence was produced to show that the symptoms of infantile paralysis were not dependent solely upon damage of anterior horn cells, but were to a very large extent the results of both temporary and permanent lesions of a highly complex

and diffuse character in higher levels. The wide range of disturbance of the neuromuscular system was shown to be due, not to known motor neuron damage, but to injury to other parts of the nervous system.

The early use of physical therapy and particularly muscle re-education in infantile paralysis gained wider acceptance and greater use than ever before. While statistical proof was lacking, it was the opinion of well-informed workers that the intelligent and intensive use of this method of treatment had reduced the number of permanent deformities and lessened the handicapping effects of such deformities and paralyzes as persisted.

In the United States, the National Foundation for Infantile Paralysis, with its chapters serving more than 95% of the population, spent approximately \$6,500,000 for the medical care of reported cases. For the most part these patients were hospitalized. This amount of additional medical service could not help but lessen the dangers of this disease. (See also EAR, NOSE AND THROAT, DISEASES OF; EPIDEMICS AND PUBLIC HEALTH CONTROL; NERVOUS SYSTEM.)

**BIBLIOGRAPHY.**—M. S. Eveleth and A. J. Ryan, "Prostigmine in Acute Anterior Poliomyelitis," *Yale J. Biol. & Med.*, 17:351-357 (Dec. 1944); A. E. Casey, "Place of Contact and Radial Spread of Epidemic Poliomyelitis," *Am. J. Dis. Child.*, 69:152-156 (March 1945); H. E. Pearson and R. C. Rendtorff, "Studies of the Distribution of Poliomyelitis Virus: I. In the Environment of Sporadic Cases," *Am. J. Hyg.*, 41:164-178 (March 1945); "II. In a Small Town," *ibid.*, 41:179-187 (March 1945); H. E. Pearson, G. C. Brown, R. C. Rendtorff, G. M. Ridenour and T. Francis, Jr., "Studies of the Distribution of Poliomyelitis Virus: III. In an Urban Area During an Epidemic," *ibid.*, 41:188-210 (March 1945); A. Milzer, F. Oppenheimer and S. O. Levinson, "A New Method for the Production of Potent Inactivated Vaccines with Ultraviolet Irradiation: III. A Completely Inactivated Poliomyelitis Vaccine with the Lansing Strain in Mice," *J. Immunol.*, 50:331-340 (June 1945); A. M. Bahlke and J. E. Perkins, "Treatment of Preparalytic Poliomyelitis with Gamma Globulin," *J.A.M.A.*, 129:1146-50 (Dec. 1945); A. E. Casey, W. I. Fishbein and H. N. Bundesen, "The Transmission of Poliomyelitis by Contact," *ibid.*, 129:1141-45 (Dec. 1945). (D. W. G.)

**Infant Mortality.** A new low point in infant mortality was reached in the United States in 1945, according to provisional records for the first nine months of the year. The infant mortality rate during this period was 4% below that for the corresponding period of 1944; only February and August were above the previous year. Altogether, there were 111,127 deaths within the first year of life in the U.S. during 1944, the infant mortality rate being 39.8 per 1,000 live births. Compared with 1941, the last prewar year for the U.S., the rate for 1944 shows an improvement of 12%. Within this brief period, there were record numbers of births whose delivery and care had to be handled by a dwindling supply of civilian physicians and nurses; at the same time, the demand for hospital services strained their facilities. A favourable factor during these years was the federal emergency maternal and infant care program introduced in 1943 to provide for the mothers and infant children of men in the initial ranks of the armed services; by the standards set, many mothers and their babies received a level of attention not otherwise available to them. The proportion of births attended by a physician in 1945 was undoubtedly higher than the 93% observed in 1943 (the latest figure available).

The infant mortality rate for white babies in the U.S. was 36.9 per 1,000 live births in 1944; the comparable rate for 1943 was 37.5 per 1,000. For nonwhite races the rate was 60.3 in 1944 and 62.5 in 1943. Infant mortality rates per 1,000 live births reported in 1943, the latest year with complete records, varied from 36.3 in cities of 100,000 or more population to 41.2 in cities of 25,000 to 100,000; to 42.9 in cities of 10,000 to 25,000; and then to 44.5 in places of 2,500 to 10,000; rural areas had a rate of 41.4. The lowest rate, 30.0 per 1,000, was found in Connecticut; Oregon and Minnesota were almost as good with rates of 30.8 and 30.9 respectively. With the excep-



tions of Maine and New Hampshire, the states in the northern tier of the country and on the Pacific coast had rates below 40 per 1,000. With the exception of Arkansas, all the states of the south had rates above 40 per 1,000. New Mexico was highest with a rate of 93.1 and Arizona next with 79.6 per 1,000.

Infant mortality rates per 1,000 live births in 1943 from the principal causes of death for the white, Negro and other races were, respectively: premature birth, 11.4, 15.1, 11.4; pneumonia and influenza, 5.3, 12.6, 20.2; congenital malformations, 5.2, 2.6, 4.1; injury at birth, 3.8, 3.3, 3.3; and diarrhoea and enteritis, 2.7, 4.8, 13.1. The distribution of deaths according to age within the first year of life for white infants was: 30.4% of all first year deaths within the first day of life; 51.5% during the first week; and 63.2% during the first month. For Negro infants, the corresponding figures were 21.6%; 40.7%; and 53.8%; while for other races, they were 13.4%; 25.4%; and 34.7%.

In England and Wales infant mortality during 1945 was not quite as favourable as in 1944, according to provisional reports received for the first nine months from London and the great towns; these show an increase in infant mortality of more than 4% from one year to the next. For all of 1944 there were reported 33,456 deaths under one year of age and an infant mortality rate of 45 per 1,000 live births; the corresponding rate in 1943 was 49 per 1,000 live births. During the war years, England and Wales had a high point of 60 infant deaths per 1,000 live births in 1941. The most recent record for Canada, relating to 1944, reported 15,498 deaths in the first year of life, with an infant mortality rate of 55 per 1,000 live births; the corresponding figure for the two previous years was 54 per 1,000.

The accompanying table summarizes infant mortality rates recorded for a number of countries in 1943.

Deaths Under One Year of Age per 1,000 Live Births, 1943

Country	Rate	Country	Rate
Argentina . . . . .	78	Nicaragua . . . . .	99
Australia . . . . .	36	Portugal . . . . .	133
Belgium . . . . .	67	Puerto Rico . . . . .	96
Canada . . . . .	54	Salvador . . . . .	110
Chile . . . . .	194	Spain . . . . .	99
Costa Rica . . . . .	117	Sweden . . . . .	29
Denmark . . . . .	45	Switzerland . . . . .	40
Ecuador . . . . .	136	Union of So. Africa (white) . . . . .	48
France . . . . .	75	United Kingdom . . . . .	52
Germany . . . . .	72	England and Wales . . . . .	49
Ireland . . . . .	80	Northern Ireland . . . . .	78
Mexico . . . . .	117	Scotland . . . . .	65
Netherlands . . . . .	40	United States . . . . .	40
New Zealand (white) . . . . .	31	Venezuela . . . . .	109

Reviewing the factors which may influence infant mortality, J. Yerushalmy (*Annals of the American Academy of Political and Social Science*, 237:134-141, Jan. 1945) points to recent investigations which indicate the beneficial effects of proper nutrition and rest to mothers during pregnancy. Babies born to mothers from 20 to 30 years of age have lower infant mortality rates than those with younger or older mothers. The rates are most favourable for children second and third in order of birth. Evidence was also found to suggest a familial-tendency to stillbirths and high mortality in early infancy.

**BIBLIOGRAPHY.**—U.S. department of commerce, bureau of the census, *Vital Statistics—Special Reports* (issued irregularly), *Monthly Vital Statistics Bulletin, Current Mortality Analysis* (issued monthly), and *Annual Reports of Vital Statistics*; Population Association of America, *Population Index* (issued quarterly at Princeton, N. J.). (A. J. Lo.)

**Infantry:** see MUNITIONS OF WAR; WORLD WAR II.

**Inflation:** see BUSINESS REVIEW; CONSUMER CREDIT; PRICES. See also under various countries.

**Information Organization, United Nations:** see UNITED NATIONS INFORMATION ORGANIZATION.

**Inland Waterways:** see CANALS AND INLAND WATERWAYS.

**Inner Mongolia:** see MONGOLIA.

**Insects:** see ENTOMOLOGY.

**Instalment Selling:** see CONSUMER CREDIT.

**Institutum Divi Thomae.** The Institutum Divi Thomae is the graduate school of scientific research of the Athenaeum of Ohio. Its purpose is to foster fundamental research in the natural sciences and to determine, as far as possible, the basic laws governing natural phenomena. Its aim also is to train a limited number of graduate students in the various fields of the natural sciences for which they are best suited.

The Institutum was established in June 1935 by the Most Reverend John T. McNicholas, archbishop of Cincinnati, with Dr. George Sperti, member of the Pontifical Academy of Science.

With a limited number of select students, methods of teaching employed in the mediaeval schools were adopted. Formal classes are attended regularly but the greater part of the time is devoted to study and research in the laboratories where small groups, working under their professors, investigate problems in the field of their major interest.

The Institutum Divi Thomae has its principal laboratories in Cincinnati, O., and maintains a marine biological laboratory together with a floating laboratory at Palm Beach, Fla.

A series of affiliated laboratories engaged in both scientific and clinical research is established at colleges and hospitals throughout the United States. The researchers are a part of a co-ordinated program under the direction of the Institutum. An annual conference of research workers from the various units aids in promoting the co-operative research program.

The affiliated laboratory units in 1945 were as follows:

Rosary college, River Forest, Ill.; Siena Heights college, Adrian, Mich.; Barry college, Miami, Fla.; Marymount college, Salina, Kan.; Our Lady of Cincinnati college, Cincinnati, O.; St. Mary's Dominican college, New Orleans, La.; Incarnate Word college, San Antonio, Texas; Mercy hospital, Mariemont, O., an irradiation unit for the treatment of cancer; St. Scholastica, Duluth, Minn.; St. Mary's of the Springs, Columbus, O.; Immaculata college, Immaculata, Pa.; St. Joseph's college, Rensselaer, Ind. A research program is conducted in co-operation with the Skin and Cancer clinic of the New York Postgraduate Medical school and hospital, New York. Umbrian Farms, Lafayette, N.J.; Burlington Farm Agricultural unit, Burlington, Ky.; Rookwood Ceramic Research unit, Rookwood Pottery, Cincinnati, O.

The Institutum Divi Thomae in 1945 had reconverted to a peacetime schedule of research activity after devoting a major portion of its program to assist in the war effort of World War II. (E. M. HN.)

**Insulin:** see DIABETES.

**Insurance.** Life.—During 1945 the legal reserve life insurance companies of the United States and Canada increased their investments in government bonds by about \$5,000,000,000, an amount greater than the increase for the year in the companies' total assets. At the end of 1945 the total life insurance (excluding reinsurance) in force in these legal reserve companies was estimated at approximately \$163,000,000,000, about 4% greater than the amount outstanding at the end of 1944. New paid-for insurance during 1945 amounted to about \$16,000,000,000. The assets of the companies at the end of 1945 reached a total of about \$48,000,000,000, after paying or crediting to policyholders and beneficiaries about \$2,900,000,000 during 1945.

Apart from war deaths, 1945 ranked among the years of relatively low mortality in the United States and Canada. Indeed, civilian mortality in these countries was remarkably good throughout the duration of World War II. The record for the armed services was, of course, of a different nature. In the first eight and one-half months of 1945, i.e., up to the termination of the war in August, war deaths resulting from enemy action com-

prised about 13% of total deaths among ordinary policyholders, as compared with 8% for the year 1944; the corresponding figure for the full year of 1945 was about 10%. The proportions among industrial policyholders were considerably smaller because of the larger ratio of women and children insured under policies of this type.

Leaving out of account the temporary effect of asset gains, the interest rate earned during 1945 on the aggregate of life insurance companies' assets continued the steady decline characteristic of previous years. This reflected to a marked degree the low yield obtainable on suitable new investments, particularly on United States and dominion government bonds which represented almost 50% of the assets of the companies at the end of 1945, and also on new issues and open-market securities generally.

Continued progress was made during 1945 in the nation-wide legislative program to have new standard valuation and nonforfeiture laws enacted in the individual states. Up to the end of 1945 the proposed standard legislation had been enacted by 23 states; there were 11 other states in which the proposed measures appeared acceptable under existing statutes. The proposed legislation had been recommended by the National Association of Insurance Commissioners and endorsed by many life insurance organizations. It provided for the use of modern mortality tables, and dissociated, to a greater extent than did existing laws, the minimum nonforfeiture requirements from the policy valuation basis. It also provided a new method of determining minimum nonforfeiture values under which such values were more nearly related to the real equities of the policyholder at the time of default than had been true under existing nonforfeiture legislation.

After the supreme court of the U.S. had decided in June 1944 that insurance was commerce and when conducted across state boundaries was interstate commerce as respects such statutes as the federal Sherman Anti-Trust act, legislation which was introduced in congress in this connection became of acute interest to the whole insurance business and to the state regulatory authorities. A law was finally enacted in March 1945, under which supervision and taxation of the insurance business by the individual states was continued. With some exceptions, the application of the federal anti-trust and certain other laws to insurance was suspended until Jan. 1, 1948, but these laws would be in effect thereafter to the extent that such business is not regulated by state laws.

**BIBLIOGRAPHY.**—*The Spectator (Life) Insurance Year Book (1945); Report of the Superintendent of Insurance of the Dominion of Canada, vol. ii, Life Insurance companies (Ottawa, Ont., 1945).* (L. A. L.)

**Automobile.**—The unfavourable trend of automobile experience in the U.S. continued through 1945. A marked increase in frequency occurred when gasoline rationing was lifted. The property damage and collision coverages were particularly unprofitable. Collision rates were substantially increased in the early part of the year but the increase was inadequate. Liability and property damage rates for private passenger cars were increased to a point slightly under the 1941 level at the end of the year with most companies returning to the old classification plan of rating.

(F. M. R.)

**Blue Cross.**—Membership in nonprofit Blue Cross plans for hospital care increased nearly 5,000,000 in 1945 to total 21,000,000 persons enrolled through 86 plans in 43 states, Puerto Rico and seven Canadian provinces. Only South Carolina, Mississippi, Arkansas, Wyoming and Idaho lacked Blue Cross coverage by Jan. 1946. Plans expanded reciprocity agreements to furnish greater care to members hospitalized outside home areas; opened a national enrolment office; adopted more comprehensive contracts increasing the number of days' care allowed each year and adding special services to those already provided; and formulated plans to use Blue Cross as administrative agency in providing hospital care to discharged servicemen in nongovernment hospitals for service-connected conditions. The Veterans' administration requested Blue Cross co-operation to relieve the need for a greatly expanded veterans hospital building program. Michigan led in negotiating such arrangements.

There were 33 nonprofit medical service plans that co-operated during 1945 with 43 Blue Cross plans to provide surgical or medical care to 2,000,000 subscribers. There was a wide increase in employer participation in meeting employees' subscription costs for Blue Cross and affiliated surgical-medical plans. Blue Cross opposed adoption of federal compulsory health insurance proposals but endorsed other phases of the administration's health legislation program.

(A. G. S.)

**Accident and Health.**—Premiums for accident and health insurance and hospitalization increased approximately 15% in 1945 in the U.S., totalling around \$525,800,000. According to the latest available figures, commercial coverage accounts for 25% of the total, hospitalization 3%, group 40%, noncancellable 7%, franchise 2%, monthly premium 5%, weekly premium 9%, limited 5% and unallocated 4%. Federal and state compulsory health measures created some concern. One company group prepared a new manual to aid in writing impaired risks and general attention was being given to the possibilities of underwriting borderline and substandard risks. Attention was also given to setting up standards for franchise insurance, a plan of wholesale insurance for smaller organizations with not enough employees to qualify for group insurance. With the prospects for more civilian flying, broader aviation accident coverage was offered on a world-wide basis. (See also SOCIAL SECURITY.) (C. D. Sp.)

**Great Britain.**—Some changes occurred in accident and miscellaneous insurance during 1945. The restoration of the basic gasoline ration in June led to a great reinstatement of private car insurance, and to a considerable increase in motor premiums, though the 20% war rebate remained in force. Personal accident insurance was in much demand in the early part of the year, as a protection against war risks, and the demand was stimulated by the V-1 and V-2 weapons. After V-E day, however, this business returned to normal. As usual in unsettled times, burglary insurance caused anxiety to insurers. This was particularly so in trade risks handling food or clothing. The proposal to transfer insurance against industrial accidents to the state was further considered. (C. E. G.)

**Fire.**—The primary problem before the business of fire insurance, and in fact before all forms of insurance, was to develop a system of operation which would enable the companies to do business under each of the states. Congress passed a law permitting the companies to have time to make the readjustments up to Jan. 1, 1948. The reason for this law grew out of the decision of the supreme court of the United States, October term, 1943, in which the decision of *Paul v. Virginia*, also by the supreme court, December term, 1868, was overruled. In *Paul v. Virginia* the supreme court held "issuing a policy of insurance is not a transaction of commerce." This decision placed in the several states, and not the U.S., the control of insurance. The decision of '43 overturning this made it necessary to have a complete new set up. By the law granting the companies until 1948 to work out satisfactory adjustments between what the states and the U.S. government would control of insurance was considered a breathing spell. Naturally a great business which had adopted itself to a decision of 1868 could not 75 years later change its methods and practices without the most intense consideration and planning. This was the outstanding problem before the insurance companies.

According to the *Insurance Year Book, 1944*, published by the Spectator company, premium receipts during 1944—the last year for which complete statistics were available—from all forms of underwriting—stock, mutual, Lloyds and reciprocal—amounted to \$1,154,000,000. The total income including interest, rents, etc., amounted to \$1,275,000,000. The losses paid amounted to \$554,000,000 and the total disbursements, including all forms of expenses, amounted to \$1,151,000,000. (See also FIRES AND FIRE LOSSES.) (E. R. H.)

**War Damage.**—War Damage corporation was created as a corporation by Reconstruction Finance corporation on Dec. 13, 1941, with a capital of \$100,000,000 for the purpose of providing insurance protection against damage to property resulting from enemy attack. By public announcement the corporation immediately extended to owners of property in the United States, Alaska, Hawaii, the Philippine Islands, Puerto Rico and the Virgin Islands assurance of reasonable protection, pending future arrangements for coverage under policies of insurance.

By act of congress approved March 27, 1942, Reconstruction Finance corporation was authorized to supply War Damage corporation with funds in an aggregate amount not exceeding \$1,000,000,000, for the purpose of providing through insurance reasonable protection against loss of or damage to property resulting from enemy attack or from the action of the military, naval or air forces of the United States in resisting enemy attack. War Damage corporation placed its program of policy insurance in operation, effective July 1, 1942, and the free protection theretofore effective was terminated on the same date.

To avoid the necessity for creating a complete governmental organization to handle the program the corporation entered into separate agreements with 546 fire insurance companies pursuant to which such companies agreed to act as "fiduciary agents" for the corporation in receiving applications and premiums, issuing policies, and otherwise handling the program. This meant the corporation operated through approximately 1,450 established policy-issuing offices. The insurance agent or broker who submitted the applications received a service fee of 5% of the premium, with a minimum of \$1 per policy and a maximum of \$1,000 per policy. The insurance company through which the application was submitted received an expense reimbursement of 3 1/2% of the premium, with a minimum of 50 cents per policy and a maximum of \$700 per policy, subject to adjustment on the basis of actual costs and expenses. The insurance industry, represented by the 546 participating companies, had a 10% interest in the operating profits or losses of the program, subject to a limit of \$20,000,000. As of June 30, 1945, premiums collected aggregated approximately \$244,900,000, and it was estimated that approximately \$114,000,000 of War Damage corporation insurance was in force on June 30, 1945. More than 8,700,000 policies or renewal certificates were issued by the corporation. Premium rates were uniform throughout the territories covered and vary with types of property, classes of occupancy, and types of construction. This insurance was not compulsory.

Effective Dec. 21, 1942, the corporation made available insurance on money and securities through the facilities of 88 casualty and surety insurance companies likewise acting as fiduciary agents of War Damage corporation. The service fees and expense reimbursement were the same as for the general program, and the participating companies had a similar 10% interest in the operating profits or losses, subject to a limit of \$5,000,000. As of June 30, 1945, premiums from the Money and Securities program aggregated approximately \$980,000, and it was estimated that approximately \$3,000,000,000 of War Damage corporation insurance

covering money and securities was in force under approximately 2,800 policies.

On April 1, 1944, the secretary of commerce and the War Damage corporation made public announcement that insurance duly in effect on March 31, 1944, under policies of the corporation would be extended for an additional term of 12 months from the respective dates of expiration of such insurance without payment of premium or other charge in addition to that theretofore paid. The corporation's premium rates for new or additional insurance remained as published. The extension of insurance thus granted was generally automatic, but insurance companies acting as fiduciary agents of the corporation were authorized, upon request, to execute endorsements evidencing such extensions.

On Feb. 28, 1945, the War Damage corporation made public announcement that insurance duly in effect on Feb. 28, 1945, under policies of the corporation would be extended for an additional term of 12 months from the respective dates of expiration of such insurance without payment of premium or other charge in addition to that theretofore paid. The corporation's premium rates for new or additional insurance remained as published. The extension of insurance thus was generally automatic, but insurance companies acting as fiduciary agents of the corporation were authorized, upon request, to execute endorsements evidencing such extensions.

Pursuant to the provisions of the above-mentioned act War Damage corporation was also authorized to compensate for loss or damage to property sustained during the period from Dec. 6, 1941, to July 1, 1942, without premium or other charge, subject to the limitations prescribed in the act. The corporation investigated and adjusted claims for losses sustained during this period as a result of enemy attack or action of the military, naval or air forces of the United States in resisting enemy attack in the Hawaiian Islands, Alaska and certain other areas within the geographical purview of the act. Practically all of the Hawaiian eligible claims were paid. The Alaskan claims were in process of adjustment and payment, as were certain marine claims. As of June 30, 1945, \$327,500 was paid to compensate for losses sustained during the period from Dec. 6, 1941, to July 1, 1942. Such claims were paid from the funds originally made available to War Damage corporation by Reconstruction Finance corporation and not from premium collections. (H. A. Mu.)

**Great Britain.**—War risk to property on land practically ceased with the end of hostilities in Europe in June 1945, though possible danger from unexploded bombs and similar hazards remained. Under the building scheme, the final instalment of contributions was paid in July, though whether a further levy might have to be made depended on the ultimate cost of repairing the damage. No further premiums were required under the commodity, business and private chattels schemes. War risk insurance at sea was still in demand, but the risk and the rates of premium were much reduced. (C. E. G.)

In a White Paper issued on Dec. 5 it was disclosed that a total of \$804,000,000 (conversion rate \$4.00 to £) had been paid out in claims and expenses up to March 31, 1945, under the board of trade's three war-damage schemes. Under the business equipment scheme \$108,000,000 had been paid and \$244,000,000 "noted" for deferred payment. Corresponding figures relating to the private chattels scheme were \$212,000,000 and \$116,000,000. Under these two schemes claims estimated at \$20,000,000 remained outstanding in each case. The commodity scheme details showed \$484,000,000 paid and claims estimated at \$4,000,000 outstanding. Policies issued totalled 17,500,000 and of some 2,750,000 claims received 97% had been disposed of. (X.)

**Marine and War Risk.**—The year 1945 was a momentous year to marine insurance, as it was to the whole world, for it marked the beginning of the transition from war to peace. War perils do not cease with the end of war hostilities, for risks such as floating mines persist for many months and insurance against war perils continues to be placed. The restoration of normal marine navigation is also a slow process.

In the first few months of 1945 marine and war risk conditions differed very little from those in the last months of 1944 except that the gradual decline in submarine warfare in Atlantic waters and the slackening of Japanese activity in the Pacific were reflected in a gradual reduction of war risk rates. In May following V-E day war risk rates were materially reduced in the Atlantic areas and a similar drastic reduction in the Pacific followed V-J day in August. A gradual reduction in war risk rates in all waters continued for the rest of the year.

Although these reductions in rates caused a fall in the premium income of commercial war risk underwriters, the actual amount and value of cargoes insured by them against war risks increased over 1944, due in part to the complete discontinuance by the War Shipping administration of its cargo war risk writings in midsummer.

The beginning of the transition from war to peace was also felt in marine insurance during the latter months of the year. Ships began to sail without convoy, lights and other aids to navigation were beginning to be restored, and work was started on clearing ports and rebuilding docks, warehouses and transportation facilities. However, in spite of these improvements in navigation and transportation, the basic marine cargo rates were still inadequate to meet shipping conditions and it was necessary to continue additional charges for the marine extension clauses. These charges were reduced from time to time as improvements were felt. Packing conditions were improved very little, if any, and theft and pilferage claims were heavy throughout the year.

Until late in 1945 most of the ocean hull marine insurance business was still insured under the Wartime Hull agreement between the War Shipping administration and the American Marine Hull Insurance syndicate. However, in the latter months of the year tankers which were privately owned and had been requisitioned during the war were released to private owners and marine and war risks insurance on these vessels was arranged in the commercial market. (O. C. T.)

**Insurance, Crop:** see AGRICULTURE.

**Insurance, Old Age:** see SOCIAL SECURITY.

**Inter-Allied Debts:** see WAR DEBTS.

## Inter-American Affairs, Office of.

Operations of the U.S. office for 1945 grouped themselves into two broad classifications—economic development work with related health, sanitation and food supply programs, and informational activities involving the press, radio, motion pictures and education. In turn, operations in these groups were diverted with the military victories of the year from wartime to peacetime channels.

In the basic economy program some 800 health and sanitation projects, developed by the U.S. jointly with governments of 18 other American republics, were directed toward laying solid foundations upon which each country could base its long-range program for better living. These projects included control of malaria and other tropical diseases, drinking water and sewage disposal installations and programs for training medical and nursing personnel. The health and sanitation agreements for co-operative activities were to run through 1947 in ten republics and through 1948 in five of the neighbouring countries.

The food supply program for 1945 was centred in eight republics. Migration of workers to areas of strategic materials production during World War II had aggravated existing food shortages. Agricultural technicians were loaned by the U.S. to the eight republics to combat these and other food production problems in co-operative programs extending in Costa Rica, Haiti, Paraguay, Brazil, Peru and Venezuela through 1946. In Costa Rica, Haiti, Paraguay and Venezuela they were to run through 1947. Following the military victories the co-operative phases of the Brazilian food program were terminated in Aug. 1945, after successfully easing food shortages in the strategic "bulge" and Amazon basin areas of Brazil, where concentrations of troops and migratory rubber and agricultural workers had gathered. Farm demonstration and experimental stations, machinery for the distribution of seed, stimulation of fruit and vegetable growing, storage and transportation facilities, all reverted to the Brazilian government for adaptation to its peacetime program for elevation of agricultural standards. Similarly, three demonstration and experimental farms were turned over in Aug. 1945 to the government of Honduras for continued peacetime operation.

The information activities of the Office of Inter-American Affairs continued to stimulate exchange of all types of information and knowledge to aid mutual understanding and unity among the American republics. Wide distribution was given to news of inter-American significance, articles, news pictures, posters, display placards and pamphlets. An illustrated magazine, *En Guardia*, published in Spanish, Portuguese and French, was distributed upon request to approximately 550,000 people in Central and South America. Radio coverage provided a special inter-American news service 24 hours a day, seven days a week, as well as special programs dealing with the history, culture, resources, war and postwar activities of the other American republics. Wide use of motion pictures, particularly of 16-mm. educational and documentary films, continued during 1945.

By executive order of Aug. 31, 1945, the information activities of the office, including press, radio and motion picture divisions, were transferred to the U.S. department of state, there to become part of the permanent Office of International Information and Cultural Affairs.

The Inter-American Educational foundation, organized in 1943 to develop co-operative programs with the other American republics, was well under way in 1945. By the end of the year agreements among 17 republics were in operation. These agreements called for joint contribution of funds, materials and education specialists, for a comprehensive program of educational interchange.



In the transportation field the Office of Inter-American Affairs conducted advisory functions or field operations in railroad, highway or port operation programs in Mexico, Bolivia, Brazil, Ecuador, Colombia, Venezuela, Paraguay, Peru and Central America. Advice on aviation matters and assistance in procuring aviation equipment was given. During 1945 the office, in collaboration with other governmental agencies and trade associations, sponsored tours of the U.S. by a number of highway and railway officials from the other Americas. Technical help was also given on matters of economic development and advertising.

(F. A. J.)

## Inter-American Conference on Problems of War and Peace.

This conference, which met at Mexico City from Feb. 21 to March 8, 1945, was convened by the Mexican government on behalf of the "united and associated American states" then co-operating in World War II against the axis, in order to consider (1) methods of intensifying their wartime collaboration, (2) arrangements for the strengthening of the inter-American system and its participation in the projected United Nations organization and (3) measures to further postwar economic solidarity in the Americas. The origin of the conference may be traced to the request of the Farrell-Perón government of Argentina, submitted to the Pan American Union on Oct. 27, 1944, that a meeting of American foreign ministers be called to examine Argentina's claim that it had faithfully fulfilled the international obligations undertaken at the Rio de Janeiro conference of 1942. In order to avoid the embarrassing necessity of including Argentine representatives in such a gathering, the other American republics, largely at the instance of the United States, agreed through diplomatic channels to hold a special conference, thus circumventing the regular inter-American consultative machinery. The governing board of the Pan American Union consequently voted to defer Argentina's request since there would be opportunity to deal with it at the Mexico City meeting.

The deliberations of the conference, embodied in 61 resolutions, declarations and recommendations, represent a landmark in the history of Pan-Americanism. Of outstanding significance are the declaration of "Reciprocal Assistance and American Solidarity," called the Act of Chapultepec and the resolution for the "Consolidation, Strengthening and Reorganization of the Inter-American System." Part I of the Act of Chapultepec pledged the signatory states, for the duration of World War II, to consult together in order to agree upon collective measures of restraint, diplomatic, economic or military, against any aggression, whether threatened or overt, from within or outside the Americas. Part II recommended that there be concluded after the war a permanent inter-American treaty embodying similar principles and procedures, but with the proviso that such a treaty should constitute "a regional arrangement for dealing with matters relating to the maintenance of international peace and security as are appropriate for regional action in this hemisphere," consistently with "the purposes and principles of the general international organization, when established." The clear intent of this proviso, which reproduced almost verbatim the language of the Dumbarton Oaks proposals, was to ensure the integration of the inter-American system into the framework of the United Nations organization soon to be launched at San Francisco.

The Mexico City conference also went on record in favour of overhauling the machinery of the inter-American system itself, the participating governments agreeing, *inter alia*, (1) that the regular international conferences of American states should

thereafter ordinarily meet at four instead of five-year intervals, (2) that ordinary meetings of foreign ministers should be held annually and that special meetings might be called in emergencies by vote of an absolute majority of the governing board of the Pan American Union, (3) that the board's membership should in the future consist of *ad hoc* delegates, with an elected, annually rotating chairman, and with functions broadened to include "every matter which affects the effective functioning of the inter-American System and the solidarity and well-being of the American republics," (4) that a permanent Inter-American Economic and Social council should be created to serve as a co-ordinating and promoting agency for inter-American activities and to maintain liaison with the corresponding world organ, and (5) that the governing board should prepare a draft charter for the improvement of the Pan-American system to be submitted to the 9th International Conference of American States at Bogotá in 1946.

Among the other noteworthy accomplishments of the conference was a declaration of principles, the "Economic Charter of the Americas," pledging national and international action for higher standards of living, equality of access to trade and raw materials and the equitable distribution of production surpluses. Shortly before adjournment, the conference made a friendly gesture toward "the Argentine nation" (1) by formally expressing the hope that it would be able to co-operate fully with the United Nations and (2) by inviting it to adhere to the final act of the conference. Reacting favourably to this conciliatory move, Argentina on March 27 declared war on the axis powers and on April 4 subscribed to the Mexico City decisions.

(W. R. Sp.)

### Final Act of the Inter-American Conference on Problems of War and Peace Resolution VIII

#### RECIPROCAL ASSISTANCE AND AMERICAN SOLIDARITY (Act of Chapultepec)

##### WHEREAS:

The peoples of the Americas, animated by a profound love of justice, remain sincerely devoted to the principles of international law; It is their desire that such principles, notwithstanding the present difficult circumstances, prevail with even greater force in future international relations;

The inter-American conferences have repeatedly proclaimed certain fundamental principles, but these must be reaffirmed at a time when the juridical bases of the community of nations are being re-established;

The new situation in the world makes more imperative than ever the union and solidarity of the American peoples, for the defense of their rights and the maintenance of international peace;

The American states have been incorporating in their international law, since 1890, by means of conventions, resolutions and declarations, the following principles:

(a) The proscription of territorial conquest and the non-recognition of all acquisitions made by force (First International Conference of American States, 1890);

(b) The condemnation of intervention by one State in the internal or external affairs of another (Seventh International Conference of American States, 1933, and Inter-American Conference for the Maintenance of Peace, 1936);

(c) The recognition that every war or threat of war affects directly or indirectly all civilized peoples, and endangers the great principles of liberty and justice which constitute the American ideal and the standard of American international policy (Inter-American Conference for the Maintenance of Peace, 1936);

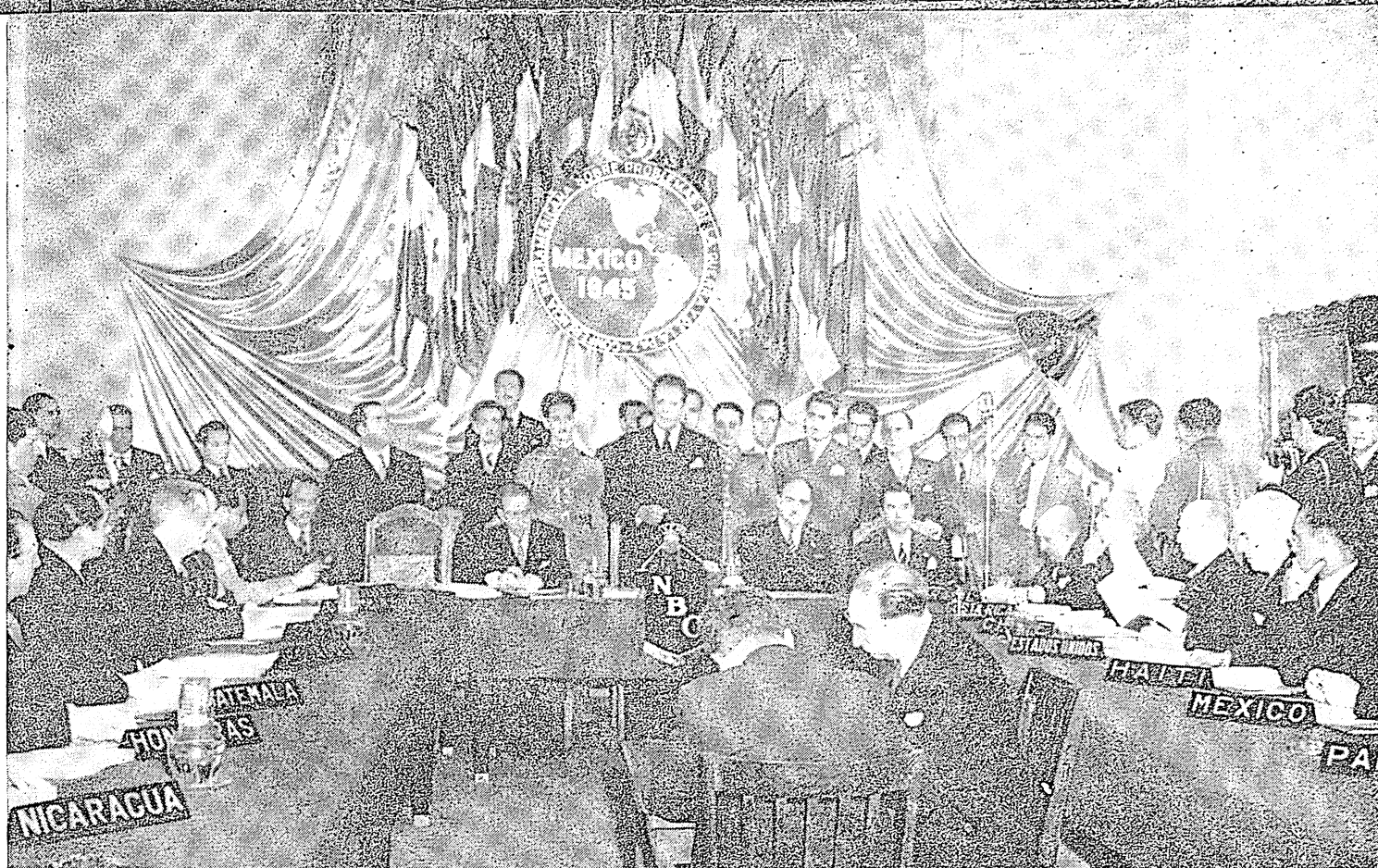
(d) The system of mutual consultation in order to find means of peaceful cooperation in the event of war or threat of war between American countries (Inter-American Conference for the Maintenance of Peace, 1936);

(e) The recognition that every act susceptible of disturbing the peace of America affects each and every one of the American nations and justifies the initiation of the procedure of consultation (Inter-American Conference for the Maintenance of Peace, 1936);

(f) The adoption of conciliation, unrestricted arbitration, or the application of international justice, in the solution of any difference or dispute between American nations, whatever its nature or origin (Inter-American Conference for the Maintenance of Peace, 1936);

(g) The recognition that respect for the personality, sovereignty and independence of each American State constitutes the essence of international order sustained by continental solidarity, which historically has been expressed and sustained by declarations and treaties in force (Eighth International Conference of American States, 1938);

(h) The affirmation that respect for and the faithful observance of treaties constitute the indispensable rule for the development of peaceful relations between States, and that treaties can only be revised by agreement of the contracting parties (Declaration of American Principles, Eighth International Conference of American States, 1938);



EZEQUIEL PADILLA addressing delegates to the Inter-American Conference on Problems of War and Peace at a preliminary session in Mexico City on Feb. 21, 1945. Argentina was not invited, but later accepted the conference's Act of Chapultepec, pledging mutual aid against aggression

(i) The proclamation that, in case the peace, security or territorial integrity of any American republic is threatened by acts of any nature that may impair them, they proclaim their common concern and their determination to make effective their solidarity, coordinating their respective sovereign wills by means of the procedure of consultation, using the measures which in each case the circumstances may make advisable (Declaration of Lima, Eighth International Conference of American States, 1938);

(j) The declaration that any attempt on the part of a non-American state against the integrity or inviolability of the territory, the sovereignty or the political independence of an American State shall be considered as an act of aggression against all the American States (Declaration XV of the Second Meeting of the Ministers of Foreign Affairs, Habana, 1940);

The furtherance of these principles, which the American States have constantly practised in order to assure peace and solidarity among the nations of the Continent, constitutes an effective means of contributing to the general system of world security and of facilitating its establishment;

The security and solidarity of the Continent are affected to the same extent by an act of aggression against any of the American States by a non-American State, as by an act of aggression of an American State against one or more American States;

#### PART I

The Governments Represented at the Inter-American Conference on Problems of War and Peace

#### DECLARE:

1. That all sovereign States are juridically equal among themselves.  
2. That every State has the right to the respect of its individuality and independence, on the part of the other members of the international community.

3. That every attack of a State against the integrity or the inviolability of the territory, or against the sovereignty or political independence of an American State, shall, conformably to Part III hereof, be considered as an act of aggression against the other States which sign this Act. In any case invasion by armed forces of one State into the territory of another trespassing boundaries established by treaty and demarcated in accordance therewith shall constitute an act of aggression.

4. That in case acts of aggression occur or there are reasons to believe that an aggression is being prepared by any other State against the integrity or inviolability of the territory, or against the sovereignty or political independence of an American State, the States signatory to this Act will consult among themselves in order to agree upon the measures it may be advisable to take.

5. That during the war, and until the treaty recommended in Part II hereof is concluded, the signatories of this Act recognize that such threats and acts of aggression, as indicated in paragraphs 3 and 4 above, constitute an interference with the war effort of the United Nations, calling for such procedures, within the scope of their constitutional powers of a general nature and for war, as may be found necessary, including: recall of chiefs of diplomatic missions; breaking of diplomatic relations; break-

ing of consular relations; breaking of postal, telegraphic, telephonic, radio-telephonic relations; interruption of economic, commercial and financial relations; use of armed force to prevent or repel aggression.

6. That the principles and procedure contained in this Declaration shall become effective immediately, inasmuch as any act of aggression or threat of aggression during the present state of war interferes with the war effort of the United Nations to obtain victory. Henceforth, and to the end that the principles and procedures herein stipulated shall conform with the constitutional processes of each Republic, the respective Governments shall take the necessary steps to perfect this instrument in order that it shall be in force at all times.

#### PART II

The Inter-American Conference on Problems of War and Peace

#### RECOMMENDS:

That for the purpose of meeting threats or acts of aggression against any American Republic following the establishment of peace, the Governments of the American Republics consider the conclusion, in accordance with their constitutional processes, of a treaty establishing procedures whereby such threats or acts may be met by the use, by all or some of the signatories of said treaty, of any one or more of the following measures: recall of chiefs of diplomatic missions; breaking of diplomatic relations; breaking of consular relations; breaking of postal, telegraphic, telephonic, radio-telephonic relations; interruption of economic, commercial and financial relations; use of armed force to prevent or repel aggression.

#### PART III

The above Declaration and Recommendation constitute a regional arrangement for dealing with such matters relating to the maintenance of international peace and security as are appropriate for regional action in this Hemisphere. The said arrangement, and the pertinent activities and procedures, shall be consistent with the purposes and principles of the general international organization, when established.

This agreement shall be known as the "ACT OF CHAPULTEPEC."

(Approved at the plenary session of March 6, 1945)

**Inter-American Defense Board.** During 1945 the Inter-American Defense board held 23 plenary sessions and approved and transmitted to the governments of the American republics seven resolutions embodying long-range recommendations for the co-operative defense of the western hemisphere. These included resolutions XVII, hemisphere telecommunications; XVIII, standardization of matériel; XIX, hemisphere-wide census; XX, utilization of manpower; XXI, standardization of organization and training of the armed forces; and XXII, inter-American military co-operation. These resolutions culminated the work of technical committees, and were accompanied by reports supporting and explaining the recommendations. Another recommenda-

tion, resolution XXIII, teaching of hemisphere languages in military schools, was accompanied only by a brief explanatory statement.

The board is an autonomous international organization created in March 1942 in accordance with resolution XXXIX of the third meeting of foreign ministers at Rio de Janeiro. It includes military, naval and air delegates from each of the American republics, and is charged with studying and recommending measures for the defense of the hemisphere. The board's offices and conference rooms are in the new war department building, Washington. Lt. Gen. S. D. Embick, U.S.A., was chairman in 1945.

Two resolutions of the Inter-American Conference on Problems of War and Peace, held at Mexico City early in 1945, had a bearing upon the future of the Inter-American Defense board. Resolution IV proposed the creation of a permanent military agency formed by representatives of each of the general staffs of the American republics, and suggested that the Inter-American Defense board be continued pending the implementation of this recommendation. Resolution IX, which dealt with the reorganization and strengthening of the inter-American system, recommended that the board continue to function until its future could be considered by the International Conference of American States, scheduled at Bogotá, Colombia, in 1946.

(E. W. H.)

**Inter-American Highway:** see ROADS AND HIGHWAYS.

**Interior, U.S. Department of:** see GOVERNMENT DEPARTMENTS AND BUREAUS.

## Interior Decoration.

Materials of all kinds used in interior decoration were scarce and difficult to obtain in 1945. This scarcity was mainly the result of labour shortages and the slowness with which reconversion from war to peacetime production progressed. Large-scale production for civilian goods was not expected to be back on a peacetime basis until 1946-47.

New ideas, designs and plans, however, were being studied and worked out in order to be ready for future production. The public was being prepared for these new designs in living through advertising, the release of sketches and small-scale models or samples of what was later to be put on the market.

New processes for making materials of all kinds more durable and easier to clean, as well as to retain or improve their attractiveness, were being developed. An example of this was a non-inflammable spun glass which was woven into fabrics for curtains and furniture coverings.

Processes for bending and shaping woods continued to develop. Designers of furniture had been working on this method of creating furniture since it simplifies form, labour and construction, and lowers cost. The public had to be educated to contemporary designs of living in related products, as well as other fields, before this process could develop profitably.

**Wall Treatment, Interior Trim and Floors.**—Walls were painted, generally in light colours, papered in gay stripes, plaids, florals, or scenic patterns and wood panelled of evenly grained thin veneers mounted on wallboard. Acoustic-tile, a soundproofing material, was an excellent wall and ceiling covering for offices and industrial plants. With fabrics stretched or draped over the acoustic-tile this soundproofing effect was also adapted to homes and executive or specialized offices, such as radio testing departments. Woodwork was painted in white or cream colour as a contrast to painted walls of a stronger colour, in the same colour as the walls, or was of the same wood as the panelled walls. Floors were hardwoods or tile.

**Floor Coverings.**—The carpet industry was one of the civil-



SECTION of the 2-story-high reception room in the penthouse completed in 1945 for Reynal and Hitchcock, New York publishers. Jedd Stowe Reisner was the designer

ian industries more critically affected by wartime material and labour shortages, and there were very few new rugs and carpets made during 1945. Those floor coverings that were made were produced in a limited colour range, were generally plain, without pattern, and materials which went into them were of cotton, linen, wool or felt. Oriental, Aubusson and other hand-loomed rugs available through importers and antique dealers were in great demand, along with the boom in the antique trade of other related furnishings, which resulted from small volume production, at its peak in 1945.

**Window Treatment.**—These were the most common treatments: the draw curtain across single or double windows or the entire window wall; panels at either side of windows with or without cornices across the top, covered in the same fabric as panels or painted; crisscross ruffled curtains. Curtain fabrics on the market were plain and printed spun glass, rayon, nylon and cotton casement cloth, rayon and/or nylon and cotton mixture plain and printed cloth, some with textured and others with flat surfaces.

**Furniture.**—The furniture that was made was generally in one of two categories, either reproductions of traditional designs or low cost contemporary designs. The latter were adaptable for offices, service men's and women's recreational buildings, hospitals and low cost housing projects. Antique furniture was very much in demand because of the limited production of the first category.

**Furniture Coverings.**—Leather and leatherette were allowed for civilian use for repair and maintenance of commercial furniture. Limited quantities of cotton, wool or rayon damask, tapestry, brocade, plain textures and prints were practically fought over at store counters—they were so scarce. Yarns and weavers were at a premium. One weaver employed the use of almost every known substitute for yarns in creating fabrics: among them, cellophane, lucite, metallic threads and leather strips.

**Decorative Accents.**—Decorative accents conformed to both the modern and the traditional. The artisans as well as patrons were becoming more interested in modern design, where previously traditional was thought to be the only way to decorate interiors.

(G. M. J.)

**International Bank for Reconstruction and Development:** see BANKING; UNITED NATIONS MONETARY AND FINANCIAL PROGRAM.

**International Court of Justice:** see UNITED NATIONS CONFERENCE ON INTERNATIONAL ORGANIZATION.



**International Labour Conference:** see INTERNATIONAL LABOUR ORGANIZATION.

**International Labour Organization.** Of the twenty-six years of international service for the International Labour organization none was more critical or more productive than 1945. The San Francisco conference of the United Nations organization (U.N.O.) (April-June 1945) adopted a charter, signed by representatives of 50 governments. A tripartite delegation of the governing body of the I.L.O. attended the conference. Without any formal declaration, the way was left open to make the I.L.O. an autonomous special agency, within its sphere, of the Economic and Social council of the U.N.O.

The I.L.O. activities of 1945 included meetings in London (January-February) of the governing body, 94th session; joint maritime commission, 14th session; committees on employment, constitutional questions, finance and standing orders; experts on proposed model safety code for factories; experts on social insurance. Experts on the protection of children and young workers met in Montreal, Canada, in May. The governing body, 95th session, met in Quebec in June, as well as the same four committees which met in January in London. Special tripartite committees of the joint maritime commission, and experts on the application of conventions, met in London, England, in July; the International Labour conference, 27th session, and the governing body, 96th and 97th sessions, met in Paris, France, in October; the Accident Prevention committee in Montreal in November; the Maritime Technical Preparatory conference in Copenhagen, Denmark, in November, the Coal Industry and Inland Transport committees in London in December.

The I.L.O. staff and experts made substantial contributions to the governments of member states by visits on request in aid of social legislation and administration; and by attendance at conferences of the United Nations Relief and Rehabilitation administration; the Inter-American Committee on Social Security (Mexico City, Mexico, Feb. 1945) and the Third Inter-American conference of Agriculture (Caracas, Venezuela, Aug. 1945).

Research and publication included the collection of firsthand, world-wide information, some from belligerent countries, much inaccessible even to governments in peacetime. Much of this information was communicated in the six reports<sup>1</sup> to the International Labour conference, and the eight reports<sup>2</sup> to the Maritime Technical Preparatory conference, aggregating 1,500 pages, which in the judgment of competent observers, were alone worth more than the total cost of the I.L.O. for the entire year—about \$2,500,000.

Important monographs published during the year included: *Social Security for Seafarers* (Studies and Reports, M-19); *The Exploitation of Foreign Labour by Germany* (286 pp., S. & R., C-25); *The Cooperative Movement and Present-Day Problems*, with special reference to rehabilitation and reconstruction (232 pp., S. & R., H-5); and in co-operation with the Inter-American committee, *Inter-American Hand Book of Social Insurance Institutions* (187 pp.). The serials appeared regularly: *The International Labour Review* (monthly); *Legislative Series* (quarterly); *Industrial Safety Survey* (quarterly); *Year Book*

*of Labour Statistics*; *Official Bulletin*; *Minutes of the Governing Body*; *Conference Documents*; *Questionnaires and Reports*, *Final Record of Proceedings*, texts of Draft conventions and Recommendations of International Labour conferences.

Ratifications of conventions, scarcely to be expected under world-war conditions, were increased by Peru's ratification of 11 conventions in Nov. 1945, making a total of 913 ratifications of the 67 conventions adopted after 1919, with 51 countries having ratified one or more.

A significant new departure in I.L.O. work was inaugurated by the governing body in setting up tripartite international committees for a number of the principal industries: inland transport, textiles, coal mining, iron and steel production, metal trades, petroleum production and refining, building, civil engineering and public works.

The 27th session of the International Labour conference which met in Paris, France, in October was the outstanding event of 1945. Forty-eight member states were represented by 470 delegates and advisers, as compared with 360 in Philadelphia, Pa., in 1944. One new member, Iceland, and two reinstated members, Italy and Guatemala, were admitted. Important statements pledging wholehearted support were made by the governments of the U.S.A., Great Britain, France and other countries. The I.L.O. constitution and procedures were amended to co-operate with new international agencies. The U.N.O.'s power to co-ordinate the activities of specialized agencies was welcomed, and it was felt that the Economic and Social council would reinforce the I.L.O. and provide the means to secure the application of its decisions.

The conference not only adopted an instrument of amendment, making important amendments effective when ratified by three-fourths of the members, but also established a delegation on constitutional questions—the working party—to meet in London in January 1946 and remain in session until it had prepared a report recommending all necessary changes in the constitution for action by the next conference (Montreal, Sept. 19, 1946). The governing body was empowered to negotiate relations with the U.N.O. and the Economic and Social council, and other international agencies. The conference adopted no new conventions but several resolutions, and one draft recommendation on minimum standards of social policy in dependent territories (supplementary provisions) 1945, aimed to give native labourers the protection of collective bargaining, minimum wage legislation, etc. The governing body put this subject on the agenda of the next conference for "first discussion" of a convention. (See also CHILD WELFARE; LEAGUE OF NATIONS.)

(S. McC. L.)

**International Law.** The year 1945 was one of the most important years in international law and relations. It marked the termination of World War II; the Yalta, Potsdam, London and Moscow meetings of the Big Three (U.S.S.R., Great Britain and the United States); the meetings for the organization of a new league, such as Dumbarton Oaks, San Francisco, United Nations organization in London, not to speak of the Chapultepec Conference of the American States meeting at Mexico, as well as the re-establishment of the Court of International Justice following the lines of the former court.

**Atomic Bomb.**—During 1945 the atomic bomb was perfected and used on Hiroshima and Nagasaki, Japan. It held such a threat for civilization that a world organization to control the atomic bomb became an indispensable device for mankind's self-preservation. This might be the beginning in the surrender of national sovereignty. But control must be regulated and be made effective if mankind is to survive.

<sup>1</sup> *Director's Report*; *Maintenance of High Levels of Employment during the Period of Industrial Rehabilitation and Reconversion*; *Protection of Children and Young Workers*; *Matters Arising out of the Work of the Constitutional Committee*, Part 1, "The Relationship of the I.L.O. to Other International Bodies." Part 2, "Revision of the Form and Arrangement of the Standing Orders of the Conference"; *Minimum Standards of Social Policy in Dependent Territories and Supplement*; *Reports on the Application of Conventions and App.*

<sup>2</sup> *Wages, Hours of Work on Board Ship, Manning, Leave, Accommodation on Board Ship*; *Food and Catering*; *Recognition of Seafarers' Organizations*; *Social Insurance*; *Continuous Employment*; *Entry, Training and Promotion of Seafarers*.

**War Criminals.**—As a result of World War II a great tribunal composed of Russians, Americans, British and French was set up at Nuernberg to try about 20 leaders of the Nazi party in Germany. In so far as they were responsible for war atrocities which are violations of the rules of war, possibly no objection could be raised. In so far as they were tried as responsible for the outbreak of war or acts against their own nationals, the precedent appeared to be highly questionable. It might have been better to subject them to political penalties. Any punishment as "aggressors"—chameleonic term—might mean that in future wars the leaders of the losing party would be liable to be liquidated. In addition to the Nuernberg trial, numerous trials of individual Nazis were undertaken by the several countries whose nationals were maltreated. This was in addition to trying their own collaborationists. Allied authorities also tried war criminals. The fact that neutrals were asked to surrender war criminals indicated that they would not be allowed to give refuge to proved war criminals. But they remained the judges as to whom they would surrender.

**Neutrality.**—Pressure was brought to bear on Switzerland and other neutrals to prevent the flight of Axis capital and the secretion of Axis assets and looted property. The neutrals apparently had frozen all German assets directly or indirectly held; prohibited earlier the import and export of all foreign currencies and the purchase of gold from Germany. Switzerland stopped the shipment of coal to northern Italy across Switzerland, and reduced its exports to Germany. In return, the Allied governments agreed to allow importation into Switzerland of various foodstuffs and raw materials.

On the question of asylum to be granted to accused war criminals and the responses made to Allied demands for surrender, see Dept. of State *Bulletin*, Feb. 11, 1945, p. 190.

The United States admitted responsibility to Switzerland for the accidental bombing of Swiss towns on Feb. 22 by U.S. aircraft. This was in keeping with the general practice.

On the request of the Allied governments that the neutrals surrender German private property, there was some hesitation to yield to this impairment of neutral sovereignty. A similar demand was authorized by the Treaty of Versailles but not honoured. It remained to be seen whether the Allied governments would try to use sanctions for such an unusual request.

The U.S. administration sought during 1945 to bring pressure on the Franco government in Spain. The president wrote the U.S. ambassador that Spain was not approved. This was dangerous policy, since it foreshadowed either intervention or retreat (*Bulletin*, Sept. 30, 1945, p. 466).

**World Organization.**—The effort to organize the world along new League of Nations lines was pursued at various conferences. The Dumbarton Oaks draft was slightly changed at San Francisco, but reflected the central theory for the United Nations organization, known as U.N.O. Its principal organ was a security council of 11 in which each of the Big Five (U.S.S.R., Great Britain, the United States, France and China) retained a veto power. It seemed probable, therefore, that the organization would never be able to act against one of the Big Five, for which reason many regarded the organization as unimportant. The assembly of fifty-one nations had recommendatory powers but only the security council had decisive powers. Possibly the economic and social council directed by the assembly would have a useful sphere of operation. (See also UNITED NATIONS CONFERENCE ON INTERNATIONAL ORGANIZATION.)

**Private Property.**—The most serious inroads upon this institution are found in the Potsdam declaration, which authorized each United Nation to confiscate German foreign assets. In addition, reparations were obtained by the U.S.S.R. in eastern

Europe out of 25% of the industrial property which could be removed. Of the 25% in western Europe, 10% was to go to the U.S.S.R. in return for foodstuffs, and the rest to the other Allied countries. In addition, munition plants were being or were to be destroyed or carried away. This was in addition to the looting of private property which was in process.

On Dec. 28, 1945, the U.S. alien property custodian announced his intention to wipe out Japanese and German economic power in the U.S. It was difficult to see how under this dispensation foreign investment and, indeed, the institution of private property had a chance of long survival. This was completely in violation of international law, whose wise injunctions of 400 years had been disregarded.

In addition to the private property to be taken, a sum was to be assessed upon diminished Germany as reparations (*Bulletin*, March 8, 1945, p. 434; *New York Times*, Dec. 4, p. 11; Dec. 22, p. 7; Dec. 24, p. 7; Dec. 28, p. 3).

**Petroleum.**—An Anglo-American oil agreement concluded as an executive agreement in 1944, was withdrawn at the request of the Foreign Relations committee of the senate by the president of the U.S. in Jan. 1945, for renegotiation as a treaty with Great Britain. This was designed to avoid unfair competition in obtaining petroleum concessions by nationals of the U.S. and Great Britain. A petroleum board's recommendations, which originally were to be conclusive, were made recommendatory only. The treaty was still pending in the senate in Dec. 1945.

**Pearl Harbor Attack.**—During 1945 the reports of the army board and the navy board were published. The former blamed Secretary Cordell Hull for giving an ultimatum to Japan which precipitated World War II. This was strongly denied by the departments of state and war. Congress was still investigating Pearl Harbor at the end of the year.

**Continental Shelf and Fisheries.**—On Sept. 25, 1945, two important claims were advanced by the president of the U.S. In one proclamation he announced that all the natural resources on the continental shelf to a place where it showed a depth of 100 fathoms or 600 feet were claimed by the U.S., and in another he claimed that all fisheries developed by U.S. industry no matter how far the fish go out to sea, were claimed by the U.S. Since subsoil minerals to at least 20 miles or so had been claimed by the riparian state, the president's claim merely extended the area to the whole of the continental shelf up to 100 fathoms depth. Resources had not yet been discovered in this area beyond three miles out in Jan. 1946, nor did the president seek to foreclose the question whether the state or the nation had the better claim to these resources. The fisheries claim differed only slightly from the claim defeated in the fur seal arbitration—that the U.S. could lay claim to the taking of seals by virtue of the fact that they spawned on the Pribilof Islands, Alaska. Spawning is not sufficient, therefore; but if U.S. citizens developed the industry it furnished a new ground of claim to U.S. jurisdiction.

**Government Immunity.**—In *Mexico v. Hoffman*, 324 U.S. 30 (1945), the immunity granted to a foreign vessel owned by a foreign government was extended only to such vessel when in the possession or service of the foreign government and not to a vessel merely owned by that government. If the government, therefore, charters the vessel to private interests, it loses its immunity in the U.S. courts.

**Lend-Lease.**—The Lend-Lease Act of March 11, 1941, under which more than \$35,000,000,000 of United States property was handed to various cobelligerents of the U.S., was terminated with the end of World War II on Aug. 21, 1945 (*Bulletin*, Aug. 26, p. 284).

**Armistices.**—During 1945 the terms of the armistices with

the various countries of eastern Europe, including Italy, were published.

**Intervention.**—During 1945 there was some demand that the U.S. should intervene in local governments if they were disfavoured and seemed to foreshadow aggression. This is directly contrary to the nonintervention which heretofore prevailed in Latin America. Uruguay in December proposed multilateral intervention against governments meeting joint opposition. While officials of the state department expressed approval, it was uncertain whether other Latin American countries would support the move. A London-Paris agreement looked to ending intervention in Syria and Lebanon by the removal of British and French troops from that area.

**Control of Germany.**—A German government was terminated and if any government then existed there it was the Allied Control council, a four-power government conducted by representatives of Great Britain, the U.S.S.R., the United States and France. Germany was divided into four zones, as was Austria later, administered respectively by nationals of one of the above countries. They were to co-ordinate their policy and needed unanimity for collective decisions. An eventual German government by Germans was contemplated. By the end of 1945 the condominium was not successful and much complaint was heard.

**Nationalization.**—The British Labour party carried out its campaign promises to nationalize the Bank of England and the coal mines and possibly other property. France nationalized the Bank of France and four other private banks, having previously nationalized the munitions industry. Other industries were likely to be nationalized as well. This followed the pattern laid down in Poland and Czechoslovakia. It seemed that it would probably be followed by most of Europe.

**Conscription.**—The president of the U.S. renewed his demand for some form of military conscription, which might indicate apprehension of national danger. The demand was greatly opposed by various interests in the U.S. It was expected to be settled during 1946.

**Foreign Policy.**—In October 1945, in his Navy day address, the president restated the foreign policy of the U.S. It appeared to be difficult to know how this policy would be interpreted in specific cases. (See also PRISONERS OF WAR.) (E. Bd.)

**International Monetary Fund:** see UNITED NATIONS MONETARY AND FINANCIAL PROGRAM.

**International Stabilization Fund:** see BANKING.

**International Trade.** Important developments in world trade occurred in 1945. Even before V-E day the Allies began plans for the relief of war-devastated areas and the reconstruction of world trade. U.N.R.R.A. started operations on a small scale in Sept. 1944, although not until June 1945 did its monthly scale of operations reach eight figures. In April, representatives of 51 nations met at San Francisco to plan the formulation of a United Nations organization for peace. The importance of unhampered world trade to the successful maintenance of peace was recognized in the various staff discussions.

Meanwhile the United States relaxed a few import-export controls on July 5, and on Sept. 20 many of those that remained. U.S. trade with Germany and Japan was prohibited; trade with "Group E" countries<sup>1</sup> remained subject to specific license control. In addition exports of a limited number of commodities still in short supply (termed the "positive" list) were subject to specific license for shipments valued above stated amounts re-

gardless of the country of destination. The lend-lease agreements were terminated Aug. 21. Later the U.S. Export-Import bank made loans to some countries to finance lend-lease shipments approved but not contracted for by the termination date.

Early in December a proposed U.S.-British loan agreement was announced. If ratified by congress, this agreement was to provide for the elimination of exchange control and discriminatory tariff restrictions on the flow of trade between the U.S. and the United Kingdom. Simultaneously plans were announced for a conference of all nations in the summer of 1946 to establish an International Trade organization. A "charter" presenting rules for the conduct of world trade was offered by the U.S. for consideration by other countries. Earlier conferences with some 15 leading trade powers were planned by the U.S. to consider revisions of the reciprocal trade agreements. On Dec. 27, the Bretton Woods monetary agreements were signed by 29 of the 44 nations that drafted them.

At the end of 1945, however, several important prewar trading areas remained closed to the free flow of trade. Enemy countries, of course, continued under Allied army occupation. Open fighting or an armed state of truce existed in several other areas. In many war-devastated regions transportation, communication and harbour facilities remained inadequate and production was still far below prewar levels.

**New Statistics Available.**—For the first time after World War II began, data on the foreign trade of many leading countries became available for publication. This permits comparisons between countries and estimates of total world trade not previously possible. The summary of international trade presented here is largely confined to an analysis of developments during 1945 in the trade of the leading countries for which statistics are available.<sup>2</sup> Some indication is given of prewar world trade and the progress made during the last half of 1945 in the reconversion of world trade from wartime channels.

Tables that show the growth and country composition of trade during the years 1936-45 for the U.S., United Kingdom, Canada and the Latin American republics are given (Tables

Table I.—United States Foreign Trade, 1936-45\*  
(In millions of dollars)

	General imports	Total exports	Lend-lease shipments		Exports exclusive of lend-lease shipments	
			Military	Nonmilitary	Military	Nonmilitary
1936-38 (average) . . . . .	2,489	2,967	...	...	54	2,912
1939 . . . . .	2,318	3,177	...	...	129	3,048
1940 . . . . .	2,625	4,021	...	...	399	3,622
1941 . . . . .	3,345	5,147	180	559	835	3,573
1942 . . . . .	2,745	8,080	2,218	2,715	762	2,385
1943 . . . . .	3,381	12,964	5,311	5,046	270	2,337
1944 . . . . .	3,921	14,257	5,425	5,880	188	2,764†
1945† . . . . .	4,200	9,700	1,800	3,700	100	4,100†

\*Exclusive of trade in gold and silver. †Partly estimated. ‡Includes U.N.R.R.A. shipments amounting to \$616,000 in 1944 and \$360,000,000 in 1945.

I, II and IV-VI). Discussion of these tables, however, is limited to statements of overall wartime changes in trade based on averages for the years 1939-44.

Table II.—Geographic Distribution of United States Foreign Trade, 1936-45  
(In millions of dollars)

Destination or origin	1936-38 (av.)	1939	1940	1941	1942	1943	1944	1945*
<b>Exports to:</b>								
Canada . . . . .	454	489	713	994	1,334	1,444	1,441	1,190
American republics . . . . .	485†	549	683	902	718	813	1,055	1,195
United Kingdom . . . . .	499	505	1,011	1,637	2,529	4,505	5,242	2,175
U.S.S.R. . . . .	49	57	87	108	1,425	2,995	3,473	1,920
Continental Europe§ . . . . .	678	716	537	90	35	98	602	1,430
Africa and near east . . . . .	160	148	191	534	975	1,711	954	590
Far east . . . . .	557	608	684	719	890	1,202	1,314	1,040
Other countries . . . . .	85	105	115	163	174	197	176	160
Total . . . . .	2,967	3,177	4,021	5,147	8,080	12,965	14,257	9,700
<b>Imports from:</b>								
Canada . . . . .	345	340	424	554	717	1,024	1,260	1,140
American republics . . . . .	542†	518	619	1,008	977	1,318	1,594	1,665
United Kingdom . . . . .	174	149	155	136	134	105	85	85
U.S.S.R. . . . .	25	25	21	30	25	30	50	55
Continental Europe§ . . . . .	507	438	207	106	56	96	149	270
Africa and near east . . . . .	97	117	179	208	249	264	321	455
Far east . . . . .	757	686	967	1,199	523	420	354	425
Other countries . . . . .	42	45	53	104	64	124	108	105
Total . . . . .	2,489	2,318	2,625	3,345	2,745	3,381	3,921	4,200

\*Partly estimated. †Exports, including re-exports; general imports. ‡Includes Canal Zone in 1936 and 1937. §Excludes U.S.S.R.

<sup>2</sup>Russian statistics are not available.

<sup>1</sup>Chief among these were Argentina, Austria, Bulgaria, Korea, Hungary, Rumania, and Spain.



**Prewar World Trade.**—Before World War II, the world's total trade averaged approximately \$47,000,000,000 annually. Twenty-five countries accounted for four-fifths of this total. The United Kingdom was first in imports and second in exports, to place first in total foreign trade. Although the U.S. ranked first in exports, relatively lower imports gave it second rank in total trade. Germany, France and Japan were third, fourth and fifth, respectively. Canada, recovering from the great depression, already regained sixth place.

A great variety of goods entered into prewar international trade. Nearly every conceivable product was represented. Over half of the trade, however, was concentrated in a relatively limited number of commodities, about 20, comprising foodstuffs, raw materials and manufactured goods. Principal foodstuffs included wheat and wheat flour, sugar, butter, coffee, meat, tea and rice. Cotton, coal, crude petroleum, gasoline and fuel oil, wool, tobacco, copper and rubber were the raw materials which led in total value of trade. Among the more important manufactured goods were machinery, iron and steel mill products and their manufactures, textile fabrics, chemicals, automobiles, and paper and paper manufactures.

**Wartime Trade of the Allies.**—The wartime roles of the various countries are reflected in their foreign trade for the years 1939-44 (Table III).

Table III.—Combined Exports and Imports of Leading Countries  
in World Trade, 1936-45

(In millions of U.S. dollars)

Country*	Average monthly value of total exports and imports 1936-38	1939-44	Jan. to June 1945†	July to Sept. 1945‡
United Kingdom . . . . .	606.6	500.7†	534.4	511.1
United States . . . . .	454.7	916.4	1,325.4	1,065.3
Germany . . . . .	346.7	□	0.0	0.0
France . . . . .	203.0	□	□	□
Japan . . . . .	141.9	□	0.0	0.0
Canada . . . . .	135.7	264.4	380.2	358.7
Belgium . . . . .	129.0	□	□	□
Netherlands . . . . .	109.7	□	□	□
British India . . . . .	103.7	93.8	123.7	58.8
Italy . . . . .	89.6	□	□	□
Australia . . . . .	84.2	88.6	102.2	□
Argentina . . . . .	83.3	68.9	68.1	99.3
Sweden . . . . .	79.1	64.1	26.1	76.7
British Malaya . . . . .	61.6	□	0.0	0.0
Czechoslovakia . . . . .	57.6	□	□	□
Denmark . . . . .	55.8	45.6§	20.6	28.8
Switzerland . . . . .	56.3	61.8	34.3	55.0
Netherlands Indies . . . . .	54.3	□	□	□
Brazil . . . . .	51.4	57.5	80.6	100.5
Union of South Africa . . . . .	47.4	□	□	□
U.S.S.R. . . . .	40.2	□	□	□
China . . . . .	38.5	□	0.0	0.0
Korea . . . . .	36.7	36.6	37.9	36.7§
New Zealand . . . . .	30.7	30.5	44.9	60.3
Mexico . . . . .	30.7	□	□	□
Total . . . . .	3,147.8	?	3,203.0§	2,992.0§

\*Countries ranked in order of magnitude of total exports and imports combined for the years 1936-38. †All 1945 figures are preliminary. ‡Including exports and imports by government departments of "munitions," i.e., aircraft and other vehicles (except tires and tubes for road vehicles) and arms, ammunition and naval and military stores during the years 1939-41. Shipments to United Kingdom armed forces abroad are excluded in all years. §1943 not available. ||1937 and 1938 only. ¶July 1945 only. ¶July and August only. ¶Includes combined estimates for the countries for which statistics are not available. ¶Not available.

The activities of the U.S. and Canada on the production front were spotlighted by tremendous increases in their foreign trade. While part of the rise was because of price increases—the U.S. department of commerce estimated an average rise of 24% for 1939-44, as compared with the 1936-38 average—the physical quantities of exports and imports combined of both countries rose by roughly 50 to 60%. The United Kingdom's export-import trade, on the other hand, declined considerably. Imports rose, but not enough to offset the decrease in exports. This was in keeping with Britain's proximity to European fighting fronts and its specialization on munitions production in accordance with the lend-lease agreements. Since prices rose, the decline in physical quantities was even greater than is shown by the value data.

Table IV.—Geographic Distribution of United Kingdom Foreign Trade,  
1938-45

(In millions of pounds sterling)

Destination or origin	1938	1939†	1940†	1941†	1942	1943	1944	1945*
<b>Exports† to:</b>								
American republics . . . . .	36	36	36	30	27	23	11	18
Canada . . . . .	23	22	32	38	26	23	22	25
United States . . . . .	20	28	33	32	23	19	18	18
Enemy and enemy occupied countries in Europe . . . . .	118	93	43	4	2	§	3	¶
Asia and Oceania . . . . .	134	114	133	118	78	64	81	93
Other countries . . . . .	140	147	134	143	115	104	123	228
Total . . . . .	471	440	411	365	271	233	258	382
<b>Imports‡ from:</b>								
American republics . . . . .	76	84	113	95	85	115	132	105
Canada . . . . .	79	80	147	191	150	200	208	210
United States . . . . .	118	117	275	409	353	535	533	325
Enemy and enemy occupied countries in Europe . . . . .	221	202	78	3	§	§	10	¶
Asia and Oceania . . . . .	241	217	316	228	187	168	186	200
Other countries . . . . .	185	186	223	219	221	215	237	280
Total . . . . .	920	886	1,152	1,145	996	1,233	1,306	1,120

\*Partly estimated. †Including exports and imports by government departments of "munitions," i.e., aircraft and other vehicles (except tires and tubes for road vehicles) and arms, ammunition, and naval and military stores. Shipments to United Kingdom armed forces abroad are excluded in all years. ‡Domestic exports; general imports. §Less than £500,000. ¶Included with "Other countries."

The Latin American republics contributed raw materials and food in increasing amounts, especially after merchantship construction bottlenecks and the submarine menace were conquered in 1942-43. Because of the tight supply situation, however, imports of these countries remained at prewar levels, or below, except for 1944.

The effects of the war in the Pacific on the foreign trade of far eastern countries are less clearly portrayed in the statistics. The foreign trade of Australia and New Zealand showed little change in dollar value. The slight increase in Australian trade was all in imports; exports were considerably below prewar levels in most years. The total trade of British India declined, exports more than imports. Like the United Kingdom, these countries were closer to fighting fronts than western hemisphere countries, so their trade reflected the effects of intensive defense preparations and lend-lease imports.

During 1945 trade between the Allies continued until V-E day much as it had in previous war years. U.S. shipments of military equipment to the Allies continued the slow decline begun in the last half of 1944 after completion of preparations for D-day. The chief new development was the reopening of trade on a limited scale between liberated countries on the continent and the U.S., United Kingdom, Canada and the Latin American republics. During the first half of 1945 exports of the United Kingdom and the western hemisphere countries to eight liberated coun-

Table V.—Foreign Trade of Canada, by Geographic Areas, 1936-45

(In millions of Canadian dollars)

Destination or origin	1936-38 (av.)	1939	1940	1941	1942	1943	1944	1945*
<b>Exports† to:</b>								
United Kingdom . . . . .	379	328	508	658	742	1,033	1,235	950
United States . . . . .	321	380	443	600	886	1,149	1,301	1,210
American republics . . . . .	19	20	26	33	23	27	33	55
All other countries . . . . .	205	197	202	330	713	762	871	1,005
Total . . . . .	924	925	1,179	1,621	2,364	2,971	3,440	3,220
<b>Imports‡ from:</b>								
United Kingdom . . . . .	130	114	161	219	161	135	111	120
United States . . . . .	428	497	744	1,004	1,305	1,424	1,447	1,100
American republics . . . . .	21	16	34	61	51	55	79	80
All other countries . . . . .	128	124	143	165	127	121	122	140
Total . . . . .	707	751	1,082	1,449	1,644	1,735	1,759	1,440

\*Partly estimated. †Domestic exports and imports for consumption, including silver bullion and coin.

tries<sup>3</sup> amounted to \$440,000,000. Over half of these were from the U.S. Imports from these liberated countries were negligible—perhaps \$15,000,000—largely into the United Kingdom.

**Reconversion.**—The last half of 1945 was characterized by the strenuous efforts of all countries to reconvert their foreign trade as well as their domestic production to peacetime channels. For the U.S. this involved the elimination of lend-lease and the restoration of commercial exports. By November the contraction of exports resulting from the termination of lend-lease was nearly completed. Increased U.N.R.R.A. and private relief shipments<sup>4</sup> and an expansion of commercial trade brought exports to a total well above the October figure. In contrast, total imports continued relatively steady throughout the year.

The foreign trade of the United Kingdom reflected the termination of the lend-lease agreements on the import side, and on the export side the re-establishment of trade with the continent. Although total trade declined in the last half of the year, the decline was all in imports. Exports to all areas increased, especially to continental Europe and Latin America.

Canadian exports, like those of the U.S., went through a process of contraction after the cessation of hostilities. This was a result of Canada's wartime role as a producer of munitions and food for the Allies. The re-

Table VI.—Foreign Trade of the Latin American Republics, by  
Geographic Areas, 1938-45

(In millions of U.S. dollars)

Destination or origin	1938	1939	1940	1941	1942	1943	1944	1945*
<b>Exports† to:</b>								
United States . . . . .	548	651	775	1,095	1,118	1,378	1,547	1,510
Other American republics . . . . .	99	100	119	182	290	353	463	420
United Kingdom . . . . .	298	317	301	260	308	432	482	420
All other countries . . . . .	775	748	479	397	340	412	466	875
Total . . . . .	1,720	1,816	1,674	1,934	2,056	2,575	2,958	3,225
<b>Imports‡ from:</b>								
United States . . . . .	498	541	753	922	779	828	1,143	1,180
Other American republics . . . . .	134	121	165	211	330	423	521	570
United Kingdom . . . . .	184	153	162	133	111	115	62	90
All other countries . . . . .	658	539	335	221	175	164	195	260
Total . . . . .	1,474	1,354	1,415	1,487	1,395	1,530	1,921	2,100

\*Partly estimated. †Nonmonetary gold and silver included.

duction was confined to exports to the United Kingdom and the U.S. Exports to other countries including Latin America and continental Europe increased. On the import side, the receipt of munitions components from the U.S. declined. Both the import and export trade of the Latin American republics increased after V-E day to set new records for the year. Renewed trade with continental Europe was an important factor in both increases. Trade with the United Kingdom also increased, although reduced shipments in the early months of 1945 kept the year's totals below those of most previous war years.

**World Trade At Year's End.**—By the end of 1945, total world trade in dollar values declined to an estimated monthly rate of about 75 to 80% of the prewar average from 1936-38. Since prices rose around 50%, trade

<sup>3</sup>Belgium, Czechoslovakia, Denmark, France, Netherlands, Norway, Poland, Yugoslavia.

<sup>4</sup>Shipments to armed forces abroad are excluded from foreign trade statistics by most countries. Since the Allied armed forces did considerable relief work, the relief picture is not adequately covered by foreign trade statistics.

in physical quantities was only about half that of prewar years. Shipments of military equipment were reduced to regular peacetime levels. But trade in many foodstuffs, raw materials and manufactured goods, although increasing, had not regained prewar levels.

Moreover, the concentration of this trade between the U.S., the United Kingdom, Canada and the Latin American republics was, in itself, evidence of the gigantic problems ahead in relief and in the reconstruction of trade for the balance of the world (Table VII). The value of the trade of these countries with each other in the fourth quarter of 1945 was almost double its quarterly rate in the years 1936-38. Even in physi-

world production and the improvement of the economic well-being of all peoples through a world trade increased by the removal of international commercial discrimination. (W. L. C.)

**Interstate Commerce Commission.** The duties and powers of the Interstate Commerce commission are set forth in the Interstate Commerce act, as amended. That act is divided into four parts and deals with the regulation of rail, motor and water carriers and freight forwarders. The regulatory powers of the commission extend, among other things, to the charges made by these carriers for transportation services; to questions involving the financial reorganization of railroads; the issuance of securities; to the acquisition or control of these various carriers by other carriers or persons; to their accounting practices and the abandonment of lines of railway; and to matters involving the determination of whether public convenience and necessity require the institution of new services by motor and water carriers or by freight forwarders, or for the construction and operation of new lines of railway.

The membership and organizational plan of the commission did not change materially during 1945 nor did its statutory powers and duties. John L. Rogers was selected by its members as chairman, to serve in that capacity for the year. Two of its members, Charles D. Mahaffie and J. Haden Alldredge, were reappointed by the president to serve additional terms as commissioners. Commissioner J. Monroe Johnson continued as director of the Office of Defense Transportation (*q.v.*), devoting most of his time to the business of that office but acting in his capacity as a member of the commission in cases where his action was necessary to break a tie decision.

The various carriers subject to the jurisdiction of the commission experienced their most difficult year from the standpoint of physically conducting transportation. War traffic moved in unprecedented volumes. With cessation of hostilities in Europe, the redeployment of troops to the Pacific area, followed by the surrender of Japan and widespread demobilization, all facilities of transport were taxed beyond capacity. Transportation was conducted under the most difficult circumstances, the result of equipment and manpower shortages and poor maintenance because of the lack of repair and replacement parts. The movement of troops required restrictions on civilian travel. All records for passenger travel in the United States, by public facilities of transport, were believed to be broken during the Christmas holidays of 1945. This unprecedented volume of freight and passenger traffic necessitated the constant vigilance of the Office of Defense Transportation and required emergency regulations. The commission continued to work with that office in the promulgation and administration of these emergency measures.

One of the outstanding decisions in 1945 involved an investigation into the various railroad freight classifications in effect throughout the U.S., and the various systems and levels of class rates in effect in the territory east of the Rocky mountains.

BIBLIOGRAPHY.—*Class Rate Investigation, 1939, 292 I.C.C. 447.* (J. L. R.)

**Intestinal Disorders:** see ALIMENTARY SYSTEM, DISORDERS OF.

**Intoxication, Alcoholic.** The year 1945 continued to witness a need for formulating and making effective more concerted public policies for the amelioration or correction of chronic drunkenness. Such policies touch on the social and cultural outlook of a people. In a more specific sense they embrace legislative control measures governing the manufacture, distribution and sale of alcoholic beverages.

Table VII.—Combined Trade of the United States, United Kingdom, Canada and the American Republics, Prewar and Postwar

(Monthly rates in millions of dollars)

Destination or origin	1936-1938	1st half	1945 3rd Quarter*	4th Quarter*
Total exports . . . . .	680.2	1,591.8	1,385.7	1,227.7
To each other . . . . .	305.6	874.1	723.7	610.4
To rest of world . . . . .	374.6	717.7	662.0	617.3
Russia . . . . .	5.8	245.0	115.0	75.0
Other . . . . .	368.8	472.7	547.0	542.3
Total imports . . . . .	770.6	1,039.3	1,018.0	941.3
From each other . . . . .	319.2	766.3	706.3	608.0
From rest of world . . . . .	451.4	273.0	311.7	333.3
Russia . . . . .	11.3	7.7	6.0	4.0
Other . . . . .	440.1	265.3	305.7	329.3

\*Partly estimated.

cal quantities both exports and imports rose by some 30%. Their trade with the rest of the world (excluding Russia) contrasts sharply with this. The value of their exports rose above the 1936-38 average in about the same proportion as prices. Thus exports in physical quantities were only at prewar levels, despite the urgent demand for increased shipments to meet relief, rehabilitation and reconstruction needs.

The disorganization of production and transportation outside of the western hemisphere and the United Kingdom is further emphasized by the 25% decline in the value of imports of the U.S., the United Kingdom, Canada and the American republics from other countries. In physical quantities the reduction from the prewar average was more than 50%. However, some revival of trade with continental Europe and countries elsewhere did occur during the last half of 1945. In the fourth quarter of 1945 exports of the selected countries to the rest of the world were 15% higher than the quarterly average for the first half of the year. Imports were 24% higher. Meanwhile trade of the western hemisphere countries and the United Kingdom with each other declined from the first six months because of reduced shipments of munitions, components and war materials. (See also BUSINESS REVIEW; FOREIGN ECONOMIC ADMINISTRATION.) (P. Ws.)

**U.S. Trade Agreements.**—Under the authority of the Trade Agreements act of 1934, which congress renewed four times, the United States concluded 32 reciprocal trade agreements with 28 countries.

These agreements provide for the reciprocal reduction and other concessions in customs duties on commodities listed in the schedules of the agreements, for the reduction and elimination of other forms of trade barriers, and for equality of treatment for the trade of the signatory countries. Through application of the unconditional most-favoured-national principle long followed by the U.S., concessions granted by the U.S. in each agreement are automatically extended to all countries which do not discriminate against the trade of the U.S.

In the order of signing the 29 countries with which trade agreements were concluded were: Belgium, Bolivia, Brazil, Canada, China, Colombia, Costa Rica, Czechoslovakia, Ecuador, Egypt, Ethiopia, France, Greece, Guatemala, Honduras, Iceland, India, Iraq, Luxembourg, Netherlands, Norway, Paraguay, Philippine Commonwealth, Poland, Union of South Africa, United Kingdom of Great Britain and Northern Ireland, United States of America, Uruguay and Yugoslavia.

In 1945, the Trade Agreements act was extended for a three-year period from June 12, 1945, with increased authority to modify customs duties. In accordance with its provisions, rates of duty may be modified by 50% of the rates existing on Jan. 1, 1945. (Under the original act enacted in 1934 and renewed for three-year periods in 1937 and 1940, and for a two-year period in 1943, the authority to modify rates of duty was limited to 50% of the rates of duty existing when the act was first passed.)

After the reciprocal trade agreements program was adopted, substantial progress was made towards reducing and eliminating trade barriers and reopening the markets of the world to commerce. Owing to the exigencies of the war, however, the major trading nations of the world were compelled to utilize commodities, material and shipping to a maximum for the prosecution of the war.

In Dec. 1945, the United States issued its "Proposals for Expansion of World Trade and Employment."

Fifteen countries were invited to participate in a preliminary meeting. They are: Australia, Belgium, Brazil, Canada, China, Cuba, Czechoslovakia, France, India, Luxembourg, the Netherlands, New Zealand, the United Kingdom, the Union of Soviet Socialist Republics, and the Union of South Africa.

The "Proposals for Expansion of World Trade and Employment" were issued by the U.S. as a basis of discussion at the two suggested international conferences. The proposals are comprehensive. They cover trade barriers and restrictions that result from governmental policies and those imposed by private business organizations. They also deal with special problems concerning certain commodities that move in large volume in international trade, and with the structure of a proposed International Trade organization.

The fundamental objectives of the proposals are the expansion of

These were predicated largely upon moralist, profit and revenue motivations that obscure the medical, health, sociological and economic significance of the abusive uses of alcohol.

Other but equally important measures embrace the adoption of adequate provisions for the community supervision of chronic alcoholics, including such matters as the technique of police and court procedure; those involving facilities for medical diagnosis, supervision and treatment; and the need for financial assistance and for job and social placement for the individual involved.

Significant in these regards was the appearance in the United States of the "Report of the Research Council's Studies on Problems of Alcohol," the announcement of the organization of the National Committee on Alcohol Hygiene, Inc. and the issue of its bimonthly publication. The year witnessed a decrease in France of deaths from cirrhosis of the liver and the occurrence of alcoholic psychoses, following the inauguration of restrictive measures on the sale and uses of wine and other alcoholic beverages.

Further reports on electroencephalographic studies continued to reveal no abnormalities resulting from the prolonged uses of alcohol when uncomplicated by a psychosis. Abnormalities exist during the course of delirium tremens and particularly in the Korsakoff's syndrome.

Further observations were made upon the value of insulin administration as a rapid method of treatment for situations arising from an alcoholic debauch.

On the clinical aspects of alcohol ingestion a word of caution was given against mixing caffeine-containing and alcohol-containing beverages by persons predisposed to peptic ulcer. Alcohol or caffeine alone are considered as stimulants to gastric secretion. When taken together they act synergistically through the liberation of histamine. (See also LIQUORS, ALCOHOLIC.)

**BIBLIOGRAPHY.**—*Report of the Research Council's Studies on Problems of Alcohol* (1939-44); *Alcohol Hygiene*, National Committee on Alcohol Hygiene, Inc.; D. B. Rotman, "Alcoholism a Social Disease," *J.A.M.A.*, 127:564-567 (March 10, 1945); "Symposium on Therapy of Alcohol Addiction," *Quart. J. Stud. on Alcohol*, 5:185-339 (Sept. 1944); Robert G. Heath, "Group Psychotherapy of Alcohol Addiction," *ibid.*, 5:555-562 (March 1945); C. Landis and J. F. Cushman, "The Relation of National Prohibition to the Incidence of Mental Disease," *ibid.*, 5:527-534 (March 1945); Sidney J. Tillim, "Acute Alcoholism Treated with Insulin," *Amer. J. Psychiat.*, 101:396-399 (Nov. 1944); J. A. Roth, A. C. Ivy and A. J. Atkinson, "Caffeine and Peptic Ulcer," *J.A.M.A.*, 126:814-820 (Nov. 25, 1944); O. Roe, "Clinical Investigations of Methyl Alcohol Poisoning with Special Reference to the Pathogenesis and Treatment of Amblyopia," *Acta med. Scandinav.*, 113:558-608 (1943), abstracted, *J.A.M.A.*, 128:315 (May 26, 1945.) (W. L. T.)

**Inventions:** see PATENTS.

**Investment Banking:** see BANKING.

**Iodine.** The only information available on the production of iodine in the United States was that during World War II the output was much higher than the 299,286 lb. reported in 1937. Large accumulated stocks led to some decrease in output in 1944, while imports from Chile were 1,204,303 lb., against 2,744,930 lb. in 1943. (G. A. Ro.)

**Iowa.** A north central state of the United States, admitted as the 29th state on Dec. 28, 1846; popularly known as the "Hawkeye state." Area, 56,280 sq.mi., of which 294 sq.mi. are water. The population in 1940 was 2,538,268 with 1,084,231 listed as urban and 1,454,037 as rural. Only 16,694 were Negroes, and of the white population only 117,245 were foreign-born. In 1944 the population was officially estimated to be 2,269,759. The principal cities are: Des Moines, the capital (159,819); Sioux City (82,364); Davenport (66,039); Cedar Rapids (62,120); Waterloo (51,743); Dubuque (43,892); and Council Bluffs (41,439).

**History.**—Principal state officers in 1945 were: governor,

Robert D. Blue; lieutenant governor, Kenneth A. Evans; secretary of state, Wayne M. Ropes; auditor, Chet B. Akers; treasurer, J. M. Grimes; secretary of agriculture, Harry D. Linn; attorney general, John M. Rankin; and superintendent of public instruction, Jessie M. Parker. All these elected state officers, the U.S. senators (George A. Wilson and Bourke B. Hickenlooper) and the eight Representatives from Iowa, were Republicans. The 51st general assembly, consisting of 50 senators and 108 representatives, met in regular session from Jan. 8 to April 12. One of the principal laws enacted was a compulsory retirement and annuity plan for all state and local government employees. Inadequate support and political control of state penal and charitable institutions finally culminated in such deterioration of administration that an inmate of the Training School for Boys at Eldora died from the infliction of corporal punishment and a series of concerted escapes followed. A general investigation of conditions was begun.

**Education.**—During the school year of 1944-45, out of the school population (ages 5-21) of 631,403, there were 343,464 pupils enrolled in the 9,499 public elementary schools; 116,277 in the 802 public high schools; and 472 in the 15 public junior colleges. This was about 4% less than in 1942-43 which corresponded with the rate of population decrease. Enrollment in the 27 other colleges and universities, 3 of them state-supported, totalled 18,205 in Oct. 1945. Teachers employed in the public schools (not including colleges) numbered 22,951. In the general revision of school laws in 1945, the adoption of state aid was one of the most significant changes. Annually \$1,000,000 was appropriated to supplement local funds in districts where the maximum tax levy is insufficient to produce the prescribed minimum support, and \$2,000,000 annually was appropriated to provide transportation of pupils.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—During the fiscal year ending June 30, 1945, Iowa paid out \$19,128,360 for old-age assistance; \$1,078,007 for aid to dependent children; \$540,829 for aid to the blind; \$108,966 for child welfare; and \$1,413,925 for emergency relief. Of these amounts the federal government contributed \$9,281,235 for old-age assistance, \$542,691 for aid to dependent children; \$266,266 for aid to the blind; and \$22,340 for child welfare. The sum of \$12,968,862 was collected for unemployment insurance and \$265,925 expended, leaving a balance on July 1 of \$59,117,040.

On Nov. 1 there were 13,485 inmates in the 15 state charitable and correctional institutions, the principal groups among them being: 6,685 in the 4 hospitals for the insane; 1,821 in the school for the feeble-minded; 1,672 in the hospital for epileptics; and 1,635 in the 3 state prisons.

**Communications.**—There were in 1945 approximately 100,000 mi. of roads in Iowa, of which more than 9,600 mi. were primary and about 13,750 mi. were county trunk highways. The remainder were local roads. Practically all the primary roads were paved, and more than 90% of the county trunk roads and about 45% of the local roads were hard-surfaced. Highway construction almost ceased during World War II.

Railroads in Iowa operated 13,692 mi. of track including sidings in 1944. They carried 15,302,597 passengers, while 20,229,078 passengers rode in motor buses. The number of motor vehicles licensed in 1945 was 800,430, of which 590,579 were automobiles.

**Banking and Finance.**—On June 30, 1945, there were 97 national banks in Iowa with deposits of \$667,074,000 and resources of \$701,904,000. The 545 state banks had deposits of \$1,196,343,013 (which was an increase of \$157,682,690 over 1944) and assets of \$1,265,504,428. From 13 special taxes and profits from the state liquor business the government of Iowa obtained an income of \$80,176,461, the highest in the history of the state.

The principal sources of revenue were the retail sales tax \$25,140,370; gasoline tax \$19,622,624; motor vehicle tax \$11,807,754; income tax \$8,291,538; cigarette tax \$2,670,868; inheritance tax \$2,034,015; insurance tax \$1,944,957; and profits from the sale of liquor \$5,000,000. Budgeted expenditures for the biennium 1945-47 were fixed at \$53,830,000 annually (an increase of 1.5% over the previous two years), the largest items of which were \$18,420,000 for schools; \$11,300,000 for highways; and \$10,454,000 for hospitals. The treasury had a balance of about \$2,000,000 at the end of June 1945.

**Agriculture.**—There were 209,863 farms in Iowa in 1945 with 34,435,047 ac., averaging 164.1 ac. per farm. The assessed value of farm land and buildings in 1945 was \$1,679,844,771 which was supposed to be about 60% of actual value, and more than \$2,000,000 less than in 1944 due mainly to deterioration of buildings. For the first nine months of 1945 Iowa farmers received a cash income of \$1,083,887,000 which was \$110,279,000 less than for the same period of 1944. Of the total cash income for 1944, \$1,229,898,000 came from livestock; \$213,765,000 from crops; and \$35,518,000 from government payments. On Jan. 1, 1945,

Table 1.—Leading Agricultural Products of Iowa, 1945 and 1944

Crop	1945 (est.)	1944
Corn, bu. . . . .	508,106,000	607,608,000
Oats, bu. . . . .	214,440,000	144,270,000
Soybeans (grain), bu. . . . .	34,848,000	42,580,000
Hay (tame), tons . . . . .	5,644,000	5,528,000
Potatoes, bu. . . . .	3,960,000	2,470,000
Wheat, bu. . . . .	2,745,000	2,248,000
Popcorn, bu. . . . .	1,500,000	1,221,570
Rye, bu. . . . .	174,000	150,000
Barley, bu. . . . .	84,000	259,000



Table II.—Principal Mineral Products of Iowa, 1944 and 1943

Mineral	1944		1943	
	Production	Value	Production	Value
Bituminous coal . . .	2,140,963 tons	\$7,493,370	2,770,610 tons	\$8,575,522
Cement . . . . .	3,408,616 bbls.	5,677,787	3,912,307 bbls.	6,335,173
Stone . . . . .	3,563,020 tons	4,175,005	3,544,560 tons	4,327,782
Sand and gravel . . .	5,271,031 tons	2,084,149	5,070,927 tons	1,979,559
Gypsum . . . . .	398,143 tons	655,392	418,092 tons	595,602

there were 10,990,000 hogs on Iowa farms; 5,528,000 cattle; 1,723,000 sheep; 581,000 horses; and 31,000 mules, all less than in 1944.

**Manufacturing.**—Although meat packing and cereal processing continued as major Iowa industries in 1945, most of the factories were converted to war production. In addition to the huge munitions plants at Burlington and Des Moines, 63 companies turned out ordnance valued at \$225,229,842 during the war. Many factories supplied articles for military use.

**Mineral Production.**—Iowa ranked 28th among the states in the total value of minerals produced in the U.S. from 1911 to 1943.

(J. E. B.)

**Iowa, State University of.** Located at Iowa City, Ia., this institution of higher education was established Feb. 25, 1847, and was the first state university to admit women on equal standing with men. With the number of veterans exceeding 700, enrolment increased about 815 or nearly 25% in the fall of 1945, reaching 4,608. A new record for number of women students, 2,878, was established. The U.S. navy pre-flight school, in operation from April 1942, closed in December, after having trained some 17,000 cadets. Alumni and former students in the armed forces passed the 9,700 mark. President Virgil Hancher in September announced a \$10,000,000 building program, with a library and communications centre among the first units to be started in 1946.

(For statistics of enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.)

**Iowa State College.** This land-grant college, located at Ames, Ia., founded in 1858, contributed notably to the war program through the discovery by its scientists of the process of producing metallic uranium used in the atom bomb. Co-operating with the armed forces educational program, Iowa State college at one time had 3,400 students in uniform. A permanent N.R.O.T.C. program was installed in November 1945; an R.O.T.C. unit had been in operation for many years. Bachelor of science degrees are awarded in about 50 different fields of instruction in the five divisions, agriculture, engineering, home economics, science and veterinary medicine. In the graduate college the degrees conferred are master of science and doctor of philosophy.

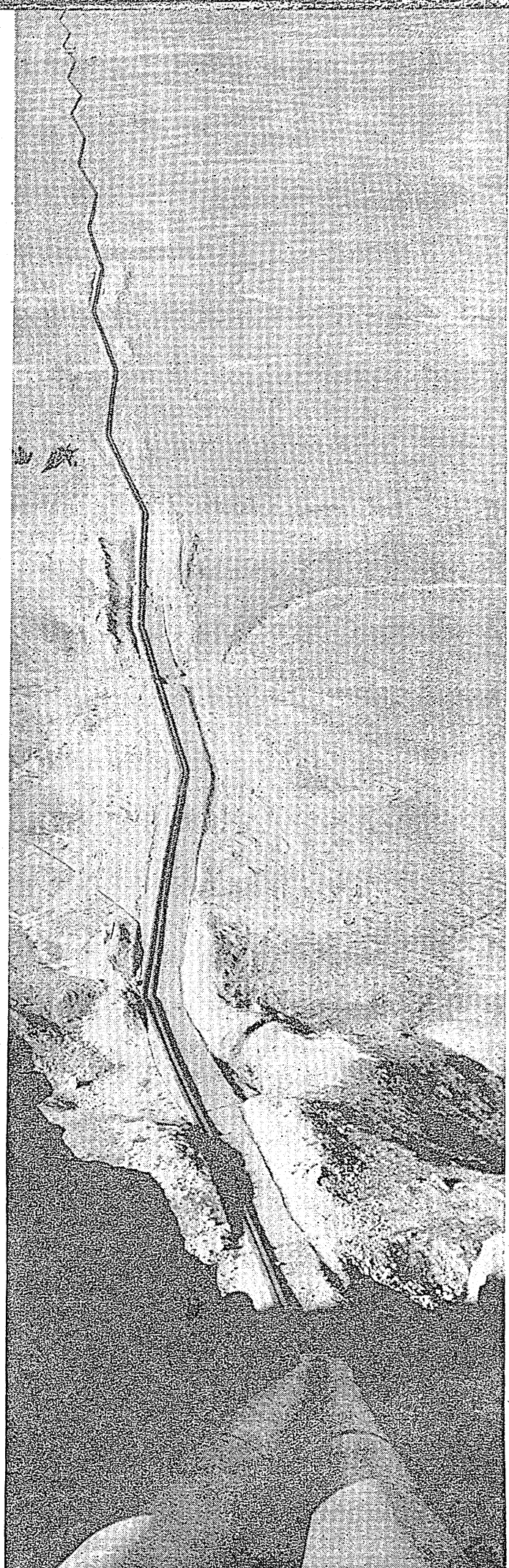
In 1945 the college was on the approved list of schools co-operating in the educational program established by the passage of the Veterans' Readjustment act. It was soon to launch a \$2,297,500 building program.

(For statistics of enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.)

**Iran.** Known before March 1935 as Persia, a country of western Asia bounded to the east by India and Afghanistan, on the north by the U.S.S.R., on the west by Iraq and Turkey, and on the southwest and south by the Persian gulf and Arabian sea; ruled after 1926 as a constitutional kingdom. Ruler: Shah Mohammed Riza Pahlavi; premier: Ebrahim Hakimi (1945). Area, c. 628,000 sq.mi.; pop. (est.), 15,000,000. Chief towns (pop. 1940 census): Tehran (cap., 540,087), Tabriz (213,542), Isfahan (204,598), Meshed (176,471), Shiraz (129,000). Language, Persian; religion, Mohammedan.

**History.**—In May 1945, after the end of the war in Europe,

OIL PIPE LINE in Iran connecting a new field developed in 1945 at Agha Jari with the refinery at Abadan. All are owned by the Anglo-Iranian Oil Co.



the government of Iran asked the British, Russian and U.S. governments to withdraw their troops from the country. In fact the treaty concluded by Iran with Great Britain and the U.S.S.R. in Jan. 1942 was generally interpreted as providing for withdrawal of foreign troops from Iran within six months after the end of the war with Japan; and in September the Iranian government again sent notes to the three powers, this time declaring that March 2, 1946, was the final date for evacuation. The matter was discussed at the Berlin conference, where it was agreed that soviet and British troops should be withdrawn from Tehran, and again at the council of foreign ministers in London. On the latter occasion, in September, notes were exchanged between the British and soviet foreign ministers, the former specifying March 2, 1946, as the date for the completion of the withdrawal, and the latter confirming that the withdrawal should be effected within the period laid down in the Anglo-Soviet-Iranian treaty.

Simultaneously with the Iranian notes of September, a protest was made to the soviet embassy on the ground that a unit of the Iranian gendarmerie had been stopped by soviet troops on its way to take action against mutinous officers of the Iranian army in the northern part of the country. The control of the Iranian government over the northern provinces was certainly defective, and in Azerbaijan a democratic party was organizing a movement for autonomy which led to a rising in November. Troops sent north by the central government were stopped by the Russians in front of Kazvin, on the ground that their entry into Azerbaijan would have provoked more serious disorders and would thus have necessitated the dispatch of additional Russian troops to restore the situation. Thus protected, the autonomists formed a committee to administer the province, and held provisional elections. At the same time there was unrest among the Kurds in the northwest. After the incident at Kazvin, representations were made in Moscow by both the U.S. state department and the British foreign office.

The government of Nurteza Qualikhan Bayatt resigned in April on failing to obtain a vote of confidence in the Majlis. Its successor, formed by Ebrahim Hakimi, failed for the same reason after an existence of only three weeks. On June 7 a new administration was formed by Mushin Sadr, but in October Hakimi was again elected to succeed Sadr and form a new government.

Figures of Iranian oil production were again published, showing an increase from 8,300,000 tons in 1939 to 11,500,000 in 1944. It was also announced that the supplies sent to Russia by the trans-Iranian route had reached a total of more than 5,000,000 tons by the spring of 1945, when other and easier routes supplanted it. The operation of the railway between Tehran and the Persian gulf reverted in June to the Iranian government, who purchased U.S. installations and running stock.

Dr. Arthur C. Millspaugh, the U.S. financial adviser, resigned in June.

**Education.**—(1938) 8,381 schools; 457,236 scholars; 13,078 teachers; one university at Tehran.

**Banking and Finance.**—Revenue, ordinary (1944-45) \$137,900,000; expenditure, ordinary (1944-45) \$137,900,000; foreign loan (nil); public debt (1944) \$76,925,000; note circulation (March 1945) \$230,775,000; gold reserve (March 31, 1944) \$32,062,300; exchange rate (1944) 1 rial=3.077 cents U.S.

**Trade and Communication.**—Foreign trade (merchandise) 1943-44: imports \$69,140,200; exports \$135,818,800. Communications 1938: roads fit for wheeled traffic, c. 8,700 mi.; railways open to traffic, 1,072 mi.

**Agriculture and Minerals.**—Production (in short tons): petroleum, crude (1943) 11,330,000; wheat (1941) 1,870,000; barley 1,210,000; rice (est. 1937-38) 420,300; cotton (1943)

22,000; wool (1943) 13,200; beet sugar (1941-42) 26,400; tobacco (1940-41) 13,970.

**Iraq.** An Arab state of the near east, between Iran, Syria and Arabia, watered by the Tigris and Euphrates; an independent kingdom after 1932, when the British mandate was terminated. Area, 116,000 sq.mi.; pop. (census Oct. 1934) 3,561,000 (est. 1944) 4,500,000. Chief towns: Baghdad (cap. 400,000), Mosul (260,000), Basra (180,000). Ruler: King Feisal II; regent: Crown Prince Abdul-Ilah; premier (1945): Hamdi al-Pachachi; language: Arabic; religion: mainly Mohammedan, but also Christian, Jewish, and other communities.

**History.**—Together with six other Arab states, Iraq became an original member of the Arab league on its formation in March 1945. The regent, Prince Abdul-Ilah, visited the United States in May for an official visit at the invitation of President Truman. He returned home by way of Great Britain and Turkey, paying a state visit to the latter country.

In June the Iraqi and British governments reached agreement on the supply of dollars and other "hard currencies" for Iraq's foreign trade. Under this agreement Iraq was to be supplied with such currencies at a rate of £6,000,000 per annum.

The government of Iraq was preoccupied during the autumn by a revolt of the Barzan tribe of Kurds under the leadership of Mullah Mustafa.

**Education.**—In 1938: elementary schools, government, 741; scholars 94,368; new schools opened 1938-39, 22; secondary schools 14; scholars 1,904; intermediate schools 48; scholars 10,611.

**Finance.**—Revenue, ordinary (est. 1943-44) \$37,350,000; expenditure, ordinary (est. 1943-44) \$49,600,000; notes in circulation (Sept. 1944) \$158,200,000; foreign assets reserves (March 1944) \$160,300,000; exchange rate 1944 (currency based on sterling): 1 dinar=£1 sterling=approx. 403.5 cents U.S.

**Trade and Communication.**—Foreign trade 1943 (merchandise): imports \$63,073,579; domestic exports \$19,916,889. Leading imports by value: cotton and cotton cloth \$13,981,166, coffee, tea and spices \$9,036,890, clothing \$4,839,324, sugars and confectionery \$4,068,857. Leading exports by value: dates \$7,757,154, cereals \$4,758,265, wool and wool cloth \$1,973,050, cotton and cotton cloth \$1,653,946, hides and leather \$1,458,773. Communications: roads open to traffic (1940) c. 4,000 mi.; railways, open to traffic (June 1940) 947 mi.

**Agriculture and Minerals.**—Production 1938-39 (in short tons): petroleum, crude (1940) 3,781,000; wheat, 860,000; rice, 393,000; barley, 1,251,400; tobacco, 4,400; wool (1938) 9,100; cotton (1940-41) 3,960; cotton seed (1940-41) 9,350.

**Ireland:** see EIRE.

## Ireland, Northern.

Northern Ireland comprises the six counties of Antrim, Armagh, Down, Fermanagh, Londonderry and Tyrone, forms part of the United Kingdom of Great Britain and Northern Ireland, but (after 1920) has its own parliament and executive, with limited powers for local purposes, though also represented in the imperial parliament by 13 members. Area, 5,238 sq.mi.; pop. (June 1939) 1,295,000. Chief cities (pop. census 1937): Belfast (cap. 438,086), Londonderry (47,813). Language: English; religion: Christian (Roman Catholic 33.75%; Presbyterian 31.4%; Episcopalian 27%). Ruler and national flag, as for Great Britain. Governor in 1945: the earl of Granville; premier: Sir Basil Brooke.

**History.**—King George, Queen Elizabeth and Princess Elizabeth visited Ulster in July 1945. The king, in his message to the

senate and house of commons, thanked the people of Northern Ireland for their contribution to victory, and for welcoming the first contingent of United States troops to British shores, thus strengthening Great Britain's bond of friendship with the United States.

At the general election held in July the Unionists won a majority of 14 seats. Sir Basil Brooke, the premier, and his cabinet were returned. Commenting on Eamon de Valera's statement that Eire was a republic, Sir Basil Brooke said in the house of commons on July 24 that Northern Ireland was British in outlook, socially and economically, and the government would act firmly against those people who might think that violence would attain what constitutional means could not.

There was labour unrest during 1945, notably among aircraft workers in Belfast, who protested against being dismissed from work without being given alternative employment. A new act empowering the government to give financial assistance to new industrial undertakings likely to create employment was expected to help ease the transition from war to peace production.

On Sept. 7 Vice-Admiral Lord Granville was sworn in as governor of Northern Ireland, in succession to the duke of Abercorn. (J. RA.)

**Education.**—In 1944-45: elementary schools 1,667, scholars 185,621; secondary schools 76, scholars 18,854; university students 2,663; technical schools 61, students 24,890.

**Finance.**—Revenue (est. 1944-45) \$219,400,000; expenditure (est. 1944-45) (including \$141,000,000 imperial contribution, and surplus \$145,000), \$219,000,000; exchange rate (1945) £1=403.5 cents U.S.

**Trade and Communication.**—External trade 1943: imports \$408,500,000; exports \$401,000,000. Communications 1943: roads used by motor traffic 13,192 mi.; railways, broad gauge 619.15 mi., narrow gauge 52.76 mi.; canals, 88½ mi.; shipbuilding, tonnage (merchant ships more than 100 tons) launched (1943), 119,439; value of linen goods exported 1943, \$14,800,000.

**Agriculture.**—Total area under crops and grass June 1, 1945, 2,264,787 ac., including 447,848 ac. oats, 531,606 ac. rotation grass, 947,456 ac. permanent grass, 189,733 ac. potatoes, 80,295 ac. flax. Cattle 919,280; sheep 654,311; pigs 249,004; poultry 17,471,353. In 1944-45 cattle and sheep to the value of \$12,020,000; eggs \$14,090,000; ware potatoes \$3,620,000, seed potatoes \$2,417,000—total \$6,037,000; and fruit to the value of approximately \$5,020,000 were shipped from Northern Ireland to Great Britain. In addition 3,900,000 U.S. gal. of milk were shipped for liquid consumption in Great Britain during the winter months.

**Irish Free State:** see EIRE.

**Iron and Steel.** For convenience in coverage, this subject is subdivided under three heads—iron ore, pig iron, and steel. There are still many gaps in the production tables.

**Iron Ore.**—All available data on important iron ore producing countries are included in Table I.

The close of World War II again made possible international trade in iron ore, which had been largely discontinued except where it could not be dispensed with. The first shipment of ore from Chile was received in the United States in Aug. 1945, and the first shipments of Swedish ore were made to Great Britain in July. Algeria showed a marked increase in activity in 1945, and Spanish Morocco had a smaller increase; Tunisia was still largely inactive, and there was a sharp decline in Spain, both in output and exports. However, as conditions became more nearly normal these and other exporting countries would doubtless revert more nearly to their prewar status, and domestic outputs

Table I.—World Production of Iron Ore, 1939-44

	(In millions of short tons)					
	1939	1940	1941	1942	1943	1944
United States . . . .	57.94	82.54	103.50	118.18	113.39	105.41
Newfoundland . . . .	1.85	1.69	1.08	1.34	0.61	0.52
Chile . . . . .	1.80	1.93	1.88	0.45	0.33	0.72
Czechoslovakia . . . .	0.85	0.95	?	?	?	?
France . . . . .	?	14.03	11.65	14.07	18.61	10.22
Germany . . . . .	16.52	21.33	19.84	17.53	?	?
Great Britain . . . . .	16.23	20.03	21.08	21.58	20.57	17.33
Italy . . . . .	1.05	1.30	1.48	?	?	?
Luxembourg . . . . .	2.60	?	?	?	?	?
Spain . . . . .	2.82	2.22	1.90	1.77	1.75	1.72
Sweden . . . . .	15.20	12.45	16.07	?	?	?
U.S.S.R. . . . .	?	30.31	25.07	?	?	?
India . . . . .	3.49	3.47	3.58	3.60	2.98	?
Malaya . . . . .	2.19	2.06	?	?	?	?
Philippines . . . . .	1.27	1.31	0.94	?	?	?
Algeria . . . . .	3.03	?	0.36	0.34	0.20	0.87
Morocco (Span.) . . . .	1.14	0.68	0.61	0.60	0.60	0.74
Australia . . . . .	2.88	2.59	2.50	2.38	2.44	?
Total . . . . .	219	234	257	270	?	?

that were inflated by war demands were expected to decline. This reaction was manifest in the United States and Great Britain.

**United States.**—Iron ore production began to decline slowly as soon as the peak of war demand had been passed in 1943. In 1943 there was a 4% decline from 1942, and in 1944, 7%. There was a further decline in 1945, the total for the first ten months being 92,587,191 short tons, 6% under the same period of 1944, while shipments in the same periods dropped 8%.

**Pig Iron.**—World production of pig iron, so far as data were available, is shown in Table II. In most instances the figures given include ferroalloys.

**United States.**—There was only a minor increase in pig iron output in 1944, followed by a decline in 1945. During the first ten months of 1945 output totalled 45,185,310 short tons, not including ferroalloys. This rate was still above the level expected for the postwar demand, and further decline was to be expected.

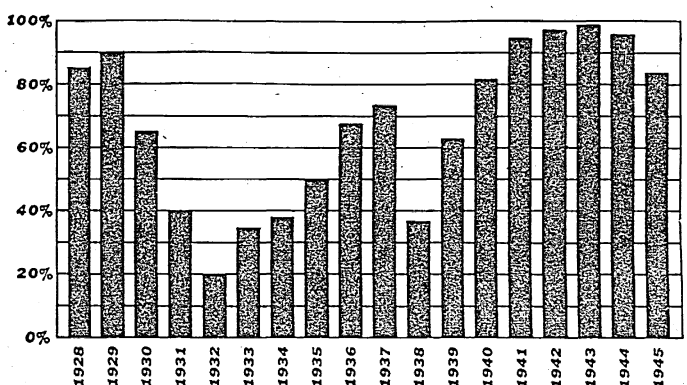
**Great Britain.**—During the first ten months of 1945, pig iron

Table II.—World Production of Pig Iron, 1939-44

	(In millions of short tons)					
	1939	1940	1941	1942	1943	1944
United States . . . .	35.63	47.43	56.72	60.98	62.80	62.90
Canada . . . . .	0.93	1.46	1.74	2.19	1.98	2.04
Belgium . . . . .	3.37	1.98	1.57	1.39	1.68	?
Czechoslovakia . . . .	1.10	1.33	1.25	1.26	1.32	?
France . . . . .	8.20	4.19	1.76	1.76	2.28	?
Germany . . . . .	19.27	15.38	17.01	16.90	17.60	15.08
Great Britain . . . . .	8.94	9.19	8.28	8.52	8.05	?
Italy . . . . .	1.21	0.98	?	?	?	?
Luxembourg . . . . .	2.04	1.21	?	?	?	?
U.S.S.R. . . . .	16.8	16.8	14.4	7.80	?	?
India . . . . .	1.97	2.23	2.25	2.05	1.96	?
Japan . . . . .	3.3	3.3	?	?	?	?
Australia . . . . .	1.24	1.24	?	?	?	?
Total . . . . .	113	108	?	?	?	?

production was at an annual rate of 8,510,000 short tons, and was increasing.

**Canada.**—In the first ten months of 1945 pig iron production was 1,508,082 short tons, and ferroalloys 158,162 tons, a total



STEEL PRODUCTION in the United States, 1928-45; monthly average percentage of capacity (figures compiled by American Iron and Steel Institute)



of 1,666,244 tons, against 1,721,504 tons in the same period of 1944. Pig iron declined but ferroalloys increased slightly.

**Steel.**—World data on steel were much less complete than on pig iron, and many of the figures given in Table III are estimates, the reliability of which is uncertain.

Table III.—World Production of Steel, 1939–44

	(In millions of short tons)				
	1939	1940	1941	1942	1943
United States . . . . .	52.80	66.98	82.84	86.03	88.84
Canada . . . . .	1.51	2.17	2.7	3.12	3.00
Belgium . . . . .	3.43	2.04	1.84	1.57	1.88
Czechoslovakia . . . . .	1.71	1.79	1.83	1.82	1.91
France . . . . .	8.72	4.96	2.42	2.03	2.51
Germany . . . . .	25.21	21.44	23.34	22.94	30.43
Great Britain . . . . .	15.1	15.0	?	14.6	14.6
Italy . . . . .	3.01	2.80	2.9	2.8	1.1
Luxembourg . . . . .	1.94	1.21	1.6	1.7	1.8
Poland . . . . .	1.8	?	?	?	?
Sweden . . . . .	1.30	1.28	1.28	1.37	1.35
U.S.S.R. . . . .	20.7	21.8	16.8	12.3	13.4
Japan . . . . .	7.1	7.1	7.8	8.4	9.9
Total . . . . .	150	165	163	163	164

**United States.**—Steel production made a slightly larger increase in 1944 than did pig iron, and then declined rather sharply in 1945. Production during the first 11 months of the year was 73,706,031 short tons, as compared with 82,275,405 tons in the same period of 1944. Beginning in March, the average weekly output dropped from 1,739,947 tons to 1,263,608 tons in October, but recovered somewhat in November. The year's total was expected to be close to 80,000,000 tons.

**Great Britain.**—Production through Oct. 1945 was at an annual rate of 14,157,000 short tons.

**Canada.**—Steel production through Oct. 1945 totalled 2,454,061 short tons, against 2,517,005 tons in the same period of 1944.

**Brazil.**—The largest steel plant in Latin America, the integrated plant at Volta Redonda, was nearing completion. Coke ovens, blast furnace, open hearth steel furnaces, boiler house, power house and blooming mill were finished at the end of 1945. A rail and structural mill and a sheet and tin mill were expected to be completed in the first half of 1946. (See also BUSINESS REVIEW; METALLURGY.) (G. A. Ro.)

**Iron and Steel Institute, American:** see SOCIETIES AND ASSOCIATIONS.

**Irrigation.** **United States.**—The run-off forecast of the U.S. department of agriculture issued in the spring of 1945, based on snow surveys of the department and co-operating agencies, predicted an adequate irrigation water supply for the 1945 irrigation season for the majority of western states. The report of the U.S. geological survey for the water year 1945 substantiated the pre-irrigation season forecast since the season ended with storage reserves for power, irrigation, industrial and municipal use in favourable condition. The greatest improvements were reported in the west, where run-off averaged 100% of normal during 1945 as compared with 88% during the preceding year. As a result holdover reserves for irrigation greatly improved.

The treaty concluded with Mexico Feb. 3, 1944, and effective Nov. 8, 1945, provided for the equitable distribution between the U.S. and Mexico of waters of the Colorado river and the Rio Grande below Fort Quitman, Texas; studies regarding the conservation and utilization by these two countries of the waters of the Tijuana river system; the construction and operation of certain works required for the conservation of waters of the Rio Grande, for flood control, and for the distribution between the two countries of the waters of the Rio Grande and of the Colorado river; studies relating to feasible hydroelectric plants at the international dams on the Rio Grande as well as for necessary flood control works, in addition to the multiple-purpose

dams specifically enumerated, on that stream and the Colorado river, and for the subsequent construction of such hydroelectric plants and flood control works as would be approved by both governments.

The treaty equitably apportioned the waters of the three international streams (Rio Grande, Colorado river and the Tijuana river). It made provision for the construction or utilization of such works as would be necessary to make the division effective and permit of the most efficient and economical use of the waters. It vested in an already existing and experienced international agency, the joint International Boundary and Water commission, general supervision over the carrying out of treaty provisions, subject at all times to the control of the two governments. The U.S. section of the commission was to act as the U.S. representative in the discharge of functions imposed upon the U.S., and in the protection of U.S. rights under the treaty, subject to the control of the U.S. government and, where expenditures of funds were involved, to congressional appropriations. In effect, the U.S. section was to act as a clearing-house through which matters involving treaty rights, obligations and functions would be cleared, without in any way encroaching upon the jurisdiction of any interior agency, federal, state or local.

In the Imperial valley, marketing of agricultural products continued on a very satisfactory basis during 1945, which was reflected by a continued era of prosperity in this agricultural community. Canal and drainage maintenance continued on a restricted basis because of the labour shortage and the difficulty in maintaining equipment in good operating condition. The increased use of irrigation water continued to tax the facilities very heavily and required enlargement of both canals and structures in certain locations.

The All-American canal was still operated by the U.S. bureau of reclamation in the upper portion. Some serious difficulty was encountered during the first three months of 1945 in the operation of the desilting works at Imperial dam. Excessive scouring developed in the lined effluent channels which required several complete cutouts of water during this period, one of which deprived a portion of the valley of water for about eight days. Crop damage was not unduly heavy because of the time of year at which this occurred.

Operation of the electric power system of the district continued throughout the year without any undue difficulties, but expansion of the system was hampered greatly by the shortage of materials and labour. Independent studies and reports were made during 1945 in which the need was developed for additional generating capacity. These reports led to the calling of a special election in December, at which time the voters of the district approved the issuance of power revenue bonds in the amount of \$6,200,000 for the financing of additional generating and transmission facilities as outlined in these reports. The principal items included were a 20,000-kw. steam electric generating station to be located in El Centro and the installation of additional turbogenerators at both the Drop 3 and Drop 4 plants.

U.S. bureau of reclamation irrigation facilities in 1945 served more than 4,000,000 ac. of land in the arid and semi-arid regions of the west, where agricultural economy is dependent on adequate supplies of irrigation water.

In addition to agricultural products, reclamation development provided great blocks of hydroelectric energy from falling water at great dams, such as Boulder, Grand Coulee and Shasta. Thirty-one hydroelectric plants on bureau projects had a record output in the fiscal year 1945 of almost 14,000,000,000 kw.hr. Electric energy was generated at bureau projects to provide power for irrigation pumping and other purposes. Surplus power was sold

for municipal use, rural electrification and other industrial needs, the revenue from such sales being used to repay part of the costs of irrigation development. New hydroelectric systems and additional installations in power plants on reclamation projects were expected to bring the total capacity from 2,439,300 kw. in 1945 to a proposed 9,324,000 kw.

In April 1945, the bureau presented to the congress an inventory of 415 projects proposed for construction in the postwar period. This inventory included projects under construction and those on which preliminary studies had been completed.

Approximately 200,000 new irrigated farms would be made available for settlement by veterans and others, by construction of all the projects listed. The proposed work called for the irrigation of nearly 11,000,000 ac. of new lands, and supplementary irrigation for approximately 11,000,000 ac., where water shortages had hampered crop production.

With the relaxation on wartime restrictions of manpower and materials and the appropriation of sufficient funds, the bureau was expected to be able to advance construction which would offer employment and settlement opportunity to thousands of persons.

During 1945, however, all work was focused on the dual purpose of war-food and war-power production. Outstanding irrigation structures completed during the year included the 37-mi. Madera canal in the central valley project. Construction was also started on the 160-mi. Friant-Kern canal and other important features of California's great multiple-purpose development.

In New Mexico, the first section of the Conchas canal was completed on the 45,000-ac. Tucumcari project. Construction passed the halfway mark on Anderson Ranch dam, Boise project, Ida. This was to be the highest earth-fill dam in the world. It would provide flood control and store irrigation water for 290,000 ac. which were inadequately watered.

An earth dam was under construction on the Deschutes project, Ore., to provide irrigation for approximately 20,000 ac. On the Yakima Roza project, Wash., construction was continued on canals and a distribution system for irrigating 32,000 ac.

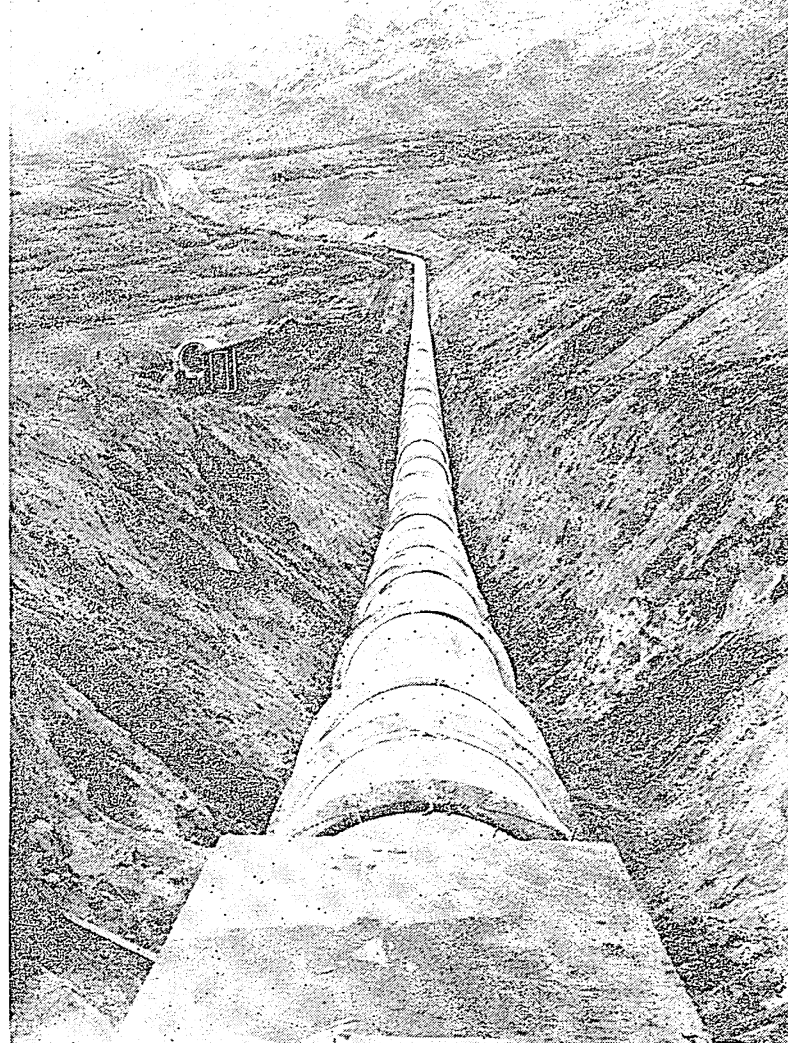
Work progressed on the Gila project in Arizona and on the Coachella canal in southern California. Other construction included the initiation of lining operations on the 13-mi. Alva B. Adams tunnel under the Continental Divide. Limited work was carried forward on the Green mountain and Shadow mountain dams of the Colorado-Big Thompson project. This project was designed to serve 615,000 ac. in northeastern Colorado.

Fifty miles of canals were constructed, and work was continued on other water distribution facilities.

A survey of construction by the bureau of reclamation from June 30, 1902, to June 30, 1945, revealed that the bureau of reclamation had built 15,495 mi. of irrigation canals. Storage reservoirs behind its dams had a capacity of 66,558,840 ac.ft., and its storage and diversion dams, combined, contained a total of 83,743,155 cu.yd. of materials.

The 347 tunnels constructed by the bureau had a combined length of 560,271 ft. Thirty-one hydroelectric plants operating on its projects had an installed capacity of 2,439,300 kw. Part of the energy was marketed over 2,164 mi. of transmission lines built by the bureau.

Bureau of reclamation irrigation works built over the 43-yr. period also included 209,016 canal structures; 5,196 mi. of waste water ditches and drains; 13,676 bridges with a combined length of 362,002 ft.; 23,620 culverts totalling 1,101,146 ft.; 6,318 flumes with a combined length of 873,989 ft.; 331 pumping plants having a discharge capacity of 7,422 cu.ft. per second; and protective levees containing 12,758,365 cu.yd. of materials.



SECTION OF PIPE LINE of the Salt Lake aqueduct, under construction in 1945. It is part of the U.S. bureau of reclamation's Provo river project in Utah, to irrigate lands along the eastern Salt Lake valley and supply water to Salt Lake City

Schedules on incompleted projects and on proposed projects were being adjusted to meet employment demands. Completion of all proposed developments, however, would not mean the end of employment opportunities. It would open more and more jobs on farms, in businesses in project towns and in factories of the other sections of the country, which would be kept busy supplying new western markets.

**Bolivia.**—With the Angostura dam in the department of Cochabamba, designed to supply water for the irrigation of 22,000 ac., Bolivia was planning to enlarge its program of irrigation development. Other projects under consideration in 1945 planned for the construction of the Rio Viscachani dam in the department of La Paz, to irrigate 6,200 ac.; Rio Tacaqua dam in the province of Collapata, department of Oruro to irrigate 12,000 ac.; Rio Desaguadero dam in the department of Oruro, to irrigate 15,000 ac.; and the Rio Pilcomayo dam in the department of Tariji to irrigate 100,000 ac.

Hydroelectric energy would also be developed in connection with the irrigation program.

**China.**—The Szechwan provincial government was reported to have undertaken plans for the biggest irrigation project in northwestern Szechwan to water the whole agricultural region drained by the Ya river.

Under the name of the Chengyi irrigation system the project was planned to have aggregate facilities for the irrigation of several million acres and would benefit around 1,800,000 inhabitants in the river basin. It was estimated that the irrigated area would increase the yield of rice annually by 250,000,000 piculs. Construction was scheduled to start in Sept. 1945. The Ya river and the Min Kiang drain a triangular region covering 8 large districts, 3 of which were irrigated with water from the Min Kiang while the remaining 5 were without the benefit of irrigation. The project was planned to supply water for these arid areas.

**India.**—In India, irrigation had been practised for centuries, but it was mainly during the last 100 years that extensive state-controlled works were constructed and benefits of irrigation extended to vast areas. The water supplies for irrigation were obtained, in the great plains of northern India and Madras, by diversion barrages on perennial rivers; the largest single barrage was that on the Indus, at Sukkur in Sind, which diverted 46,000 cu.ft. of water per second to irrigate, on full development, 5,000,000 ac. of crops annually. In the hills of central and southern India, water

was stored in reservoirs during rains and was gradually let into canals in the dry season. Throughout India, irrigation from wells was practiced on a large scale. In the United Provinces a system of state-managed tube wells was introduced in the Ganges canal area, worked by power generated at falls in the main canal.

The total area irrigated was 70,000,000 ac. annually, by far the largest acreage of any country in the world, of which 65% was from government-managed works and 35% by private enterprise.

A major project under construction in 1945 in the Punjab, which already had the most extensive irrigation works in the country, was the Thal project which included a barrage 4,890 ft. between abutments, with a maximum discharging capacity of over 900,000 cusecs. The total cost of the scheme including the cost of headworks, main canal, branches and distributaries was expected to amount to Rs. 7,75,00,000 (about \$25,000,000) (1 Rs.=30.122 U.S. cents, Nov. 1945). The annual area which the project was expected to irrigate was over 800,000 ac. The main canal and branches were being lined with concrete. Work was also started on the Tungabhadra project in Madras. The reservoir was to have a water spread of 138 sq.mi. and effective capacity of more than 2,600,000 ac.ft. The dam would be a masonry gravity type with a central length of about 1,800 ft. and an ogee type spillway to pass the maximum flood discharge of 650,000 cusecs. The spillway would have 26 gates 60'x20'.

The Emergency Irrigation schemes undertaken in pursuance of the "Grow more food" campaign, during World War II, included the employment of indigenous methods of irrigation—irrigation by mechanical means such as tube wells, river pumping, etc. and was expected to irrigate nearly 4,000,000 ac. of food crops. The additional yield of food grains to be obtained would be over 800,000 tons.

Mexico.—The Suchiate project in the state of Chiapas started work to utilize the flow of the Suchiate river which forms part of the boundary between Mexico and Guatemala. This was to provide for the irrigation of 10,000 hectares.

The Delicias Irrigation district in the state of Chihuahua continued construction of Las Virgenes dam on the San Pedro river, a tributary to the Conchos river. The Conchos is in turn a tributary to the Rio Grande which forms the boundary between Mexico and the United States. The district in 1945 irrigated 20,000 hectares and the completion of this dam was expected to increase the irrigated area to 60,000 hectares.

The Laguna Irrigation district in the state of Durango had under construction El Palmito dam on the Nazas river which was nearing completion. This is an earth- and rock-filled dam 92 m. high, and would create a reservoir capable of supplying enough water to irrigate 110,000 hectares.

In the state of Jalisco the Bajo Lerma Irrigation district was continuing work on the Lower Lerma in order to provide irrigation and drainage for 50,000 hectares reclaimed from the Chapala marsh. In addition 16,000 hectares in Ocotalan would be irrigated by pumping.

In the state of Oaxaca, construction was continued during 1945 on the Main Grand canal which took water from the Tehuantepec river to irrigate 20,000 hectares. With the completion of a great storage dam the irrigated area would be increased to 100,000 hectares.

The Valsequillo Irrigation district in the state of Puebla rushed construction of an earth-rock-fill storage dam 80 m. high. The accessory works included a 12-km. tunnel, the main and lateral canals with appurtenant structures and roads and drainage works. The project was designed to irrigate 45,000 hectares and was expected to cost more than 100,000,000 pesos (1 peso=20.578 U.S. cents, Nov. 1945).

The Sanalona project in the state of Sinaloa continued construction on an earth- and rock-fill dam on the Culiacán river during the year. This dam would create a reservoir of sufficient capacity to irrigate 110,000 hectares of very fertile land.

Construction was also continued on canals on both sides of the Yaqui river in the state of Sonora intended to increase the irrigated area from 60,000 to 120,000 hectares. This construction was being done because of the completion of La Angostura dam on one of the tributaries of the Yaqui river.

In the state of Tamaulipas work on canals and drainage systems for the Irrigation district of the Lower Rio Grande across from Brownsville, Tex., was continued. Due to the International Water Treaty ratified between Mexico and the United States, this irrigation district would have a total area of 250,000 hectares.

In Lower California (Mexico), canal work to increase the irrigated area of the Colorado river project was continued during 1945. This District would have an approximate area of 200,000 hectares with enough water allocated by the International Treaty.

In addition to the projects listed, the National Irrigation commission had under way fully 79 small irrigation projects throughout the republic to provide irrigation for units of from 2,000 to 30,000 hectares each.

Uruguay.—The Public Works program of Uruguay had under construction a program of intensive construction of irrigation works. The plans included electrification of various provinces as well as the economic transformation of the provinces through increased cultivation as a result of irrigation.

In the region of Arapey, a rich river zone of the republic, a major canal was to be built which would serve for navigation purposes, utilizing the upper reaches of the Uruguay river. This canal would also supply the water necessary for the irrigation of about 49,000 ac., and in addition serve to develop 10,000 kw. of electric energy for the two provinces of Salto and Artigas. The project was considered an important factor in the agricultural development of the region where the climate was adaptable to the production of sugar cane, flax, jute, garden crops and fruit. (See also DAMS; METEOROLOGY; SOIL EROSION AND SOIL CONSERVATION.)

BIBLIOGRAPHY.—C. N. Johnston, "Irrigation Wells and Well Drilling Methods in California," California Agricultural Experiment Station Circular 361 (1945); C. N. Johnston, "Farm Irrigation Structures," California Agricultural Experiment Station Bulletin 362 (1945); R. P. Bartholomew et al., "Irrigation of Arable Crops on a Rice Soil," Arkansas Agricultural Experiment Station Bulletin 455 (1945); R. L. Parshall, "Improving the Distribution of Water to Farms by Use of the Parshall Measuring Flume," Colorado Agricultural Experiment Station Bulletin 488 (1945).

FILMS.—*Irrigation Farming* (Encyclopedia Britannica Films Inc.). (A. T. M.)

**Islam.** The Pan-Arab conference at Alexandria in Sept. 1944 had laid stress on Arab unity and closer co-operation between Arab states, and in 1945 the modern movements in the direction of Islamic unity were illustrated by significant happenings in various Islamic countries. Syria and Lebanon earnestly discussed questions of joint policy. Arabic radio broadcasts covered larger and larger ground and the circulation of the Arabic *Listener* rose rapidly. King Ibn-Sa'ud established a radio station in his capital, which brought him into direct connection with the world at large. In Turkey the halkevleri or people's houses, instituted by Kemal Atatürk for educational and propaganda purposes, had great influence on modern Turkish life and thought. In India the twofold influence of the Aligarh university and the Moslem league gave fresh direction to the educational and political thought of Indian Moslems. In London the Arab diplomatic mission headed by Abdul Rahman Azam Bey had in 1945 considerable success in bringing together representatives of various Islamic countries in friendly social contact. (A. Y. A.)

**Isle of Man:** see BRITISH EMPIRE.

**Isotopes:** see ATOMIC BOMB; CHEMISTRY.

**Istria:** see TRIESTE; YUGOSLAVIA.

**Italian Colonial Empire.** The accompanying table gives essential information relating to the so-called Italian colonial empire.

The German garrisons in the Dodecanese surrendered to Greek troops, led by British and Greek officers, on May 8, 1945. The question of the future of these islands, together with the rest of the Italian colonial empire, was among the problems discussed at the council of foreign ministers held in London from Sept. 10 to Oct. 2.

Both the United States and Russian delegations made definite proposals. The U.S. plan was that all or most of the Italian colonies should be put under trusteeship, as was suggested in the United Nations charter. Independence would be granted to all the colonies in Africa except Italian Somaliland within 10 or 15 years. Each colony would be administered by a governor-general appointed by the trusteeship council of the United Nations organization. He would be aided by an advisory council of seven members, including representatives of the United States, Britain, France, Russia and Italy and separate representatives of the Arab and non-Arab inhabitants of the colonies. Britain and China were said to support this plan. France was said to be opposed to the time limit for granting independence because of its possible effect on the French colonies, but willing to accept the U.S. proposal as a basis for discussion.

The soviet government favoured individual trusteeship rather than the collective trusteeship envisaged in the U.S. plan, and suggested that the U.S.S.R. was well qualified by reason of its experience in developing the backward people of central Asia to hold the trusteeship of Tripolitania. Vyacheslav Molotov, soviet foreign minister, made it clear that his government was concerned about Eritrea, but did not put forward a request for the trusteeship of this area comparable with his request for the Tripolitania trusteeship.

Egypt, in a note sent to the council, asked for a plebiscite to be taken to ascertain the views of the Libyan people and referred to Egypt's rights in Eritrea. The chiefs of all the tribes in Cyrenaica and Tripolitania also drafted a note to the British and United States governments asking for complete independence, an independent administration for the two territories, and representation at the peace conference. The secretary of state for India stated in a letter to the president of the council that "the sympathy felt inevitably in India and throughout the



Italian Colonial Empire*						
Country and Area square miles (approx.)	Population (000's omitted) (est. Dec. 1939)	Capital, Status, Governors, Premiers, etc.	Principal Products (in short tons)	Imports and Exports 1938 (in \$)	Road, Rail and Shipping 1938	Revenue and Expenditure (in \$)
AFRICA						
Italian provinces of LIBYA 213,821	800†	Tripoli; included in the national ter- ritory of Italy; under British mili- tary occupation	(1939) barley 24,860 wheat 22,770	imp. 46,500,000 exp. 5,730,000	rds. 3,250 mi. rly. 271 mi. shpg.: passengers ar- rived 127,458, de- parted 122,521	(est. 1939-40) rev. and exp. 31,600,000
LIBYAN SAHARA 465,362	49†	Homs; colony; under British military authority				
ERITREA 89,274	1,500	Asmara; colony; under British mili- tary occupation	salt (1937) 171,600 barley (1937) 20,900	No separate figures	rly. 215 mi.	No separate figures
SOMALILAND, ITALIAN 194,000	1,250 (est. 1944)	Mogadiscio; colony; under British military occupation	maize (1938) 27,500	No separate figures	rly. 70 mi.	No separate figures
ASIA						
Italian islands of the Aegean sea 1,035	122	Rhodes; colony; under Greek-Brit- ish occupation	barley (1939) 2,420 olive oil (1940) 440 wine (1939) 871,200 U.S. gal.	imp. 8,250,000 exp. 1,149,000	rds. 382 mi.	(1934-35) rev. and exp. 2,520,000

\*See the first paragraph of the accompanying article.

†Libyan population census 1936, Italians excepted, the latter (approx. 150,000) being included in Italy.

Moslem world for the people of Islamic faith now freed from the Italian yoke in N. Africa, Eritrea and Somaliland, cannot but create close interest on her part in the future welfare of these peoples." He stressed the strategic importance of these territories in linking India with the west.

That Italy should lose the Dodecanese was accepted by everyone, including the Italian government. The Turkish government intimated in August that it would raise no objection to the Dodecanese passing to Greece and the British foreign secretary assured the Greek regent on Sept. 11 that he would watch Greek interests and see that they were looked after.

Italian opinion as reflected in the press seemed to be that Libya would become a trusteeship of the United Nations in which Italy itself would eventually participate and North Africa would thus continue to be an outlet for Italian emigration. There was less optimism about the future of Eritrea, however.

The multiplicity of interest in this area of immense strategic importance presented problems too complex to be solved at the plenary session of the council of foreign ministers. The question of the future of the Italian colonial empire was therefore referred to the deputies for detailed study. Meanwhile the territories continued to be administered by British military government.

Anti-Jewish rioting by Arabs occurred in Tripolitania on Nov. 4 and 5 and there were heavy casualties among Jews and Arabs. Local Arab and Jewish leaders dissociated themselves from the law-breakers.

The attitude of the Italian government on the future of the empire was revealed in official correspondence between the Italian and United States governments published in Washington on Nov. 7. The Italian foreign minister stated that Italy was ready to see Italian Somaliland placed under a system of trusteeship, but that in Eritrea the maintenance of Italian sovereignty was essential. He also stated that Italy gathered that while no objections were raised to Italian sovereignty in Tripolitania, strategic guarantees were being sought in Cyrenaica. (See also ALBANIA; ETHIOPIA; WORLD WAR II; YUGOSLAVIA.)

(J. RA.)

**Italian East Africa:** see ITALIAN COLONIAL EMPIRE.

## Italian Literature.

During 1945 Italy's most flourishing industry, besides the black market, was the publishing business. New dailies and periodicals sprang up like mushrooms. Publishers, despite the paper shortage, put out a considerable number of new books. New writers found immediate outlet in magazines edited by outstanding literary and political figures. Students of Italian affairs wishing to formulate an opinion on the trends of Italian thought must turn

to party and politico-literary reviews. Here the old and the new generation freely discussed: pure versus "social" art, existentialism and idealism, realism and surrealism, the socialist and the communist state, the United States of Europe and world federation. As a reaction to 20 years of enforced intellectual isolationism, ample space was allocated to articles by or on foreign writers.

The experiences undergone by some Italian intellectuals under fascism opened new literary vistas. Typical is the "letteratura castellata," a literary work "day-dreamed" to the last detail in prison where no paper or ink were allowed the political prisoner. Outstanding thus far was *Il diavolo fra i pastori* (Mondadori), a novel by F. Brundu, pseudonym of an intellectual. Other works written in or about confinement were: R. Gualino's *Solitudine* (Darsena), Professor M. Giua's *Ricordi di un ex-detenuato politico* (Chiantore) and C. Levi's *Cristo s'è fermato ad Eboli* (Einaudi). F. Jovine's *L'impero in provincia* (Einaudi) described stultifying provincial life under fascism. Joyce Lussu in *Fronti e frontiere* (Edizioni U) told of her husband's adventurous return from exile to organize the underground forces. Life in prison camps and the return of the prisoners were vividly described by G. Persico in *Quaderno di un detenuto* (Barbera) and S. Terra in *Ritorno di prigioniero* (Edizioni U).

The inside story of political and military events in Rome from Mussolini's fall to the liberation of the city in 1944, was furnished by P. Monelli, a fascist journalist close to government circles, in *Roma 1943* (Migliaresi), while V. Gorresio's *Un anno di libertà* (O.E.T.) covered the liberation of Rome to the end of World War II. Of the many diaries and stories of writers fighting with the partisans or Allied prisoners, those of historical and psychological interest are: A. Benedetti's *Paura all'alba* (Documento), E. Vittorini's *Uomini e no* (Bompiani) and R. Battaglia's *Storia di un uomo e di un partigiano* (Edizioni U). The debasing influence of fascism on the Italians was graphically treated by P. Treves in *Cosa ci ha fatto Mussolini* (Einaudi) and by F. Monicelli in *Vent'anni perduti* (Farò), a powerful indictment of the crimes perpetrated by fascism against the youth of Italy and friendly nations. Of importance, especially to historians, was a series of books which shed new light on fascist domestic and foreign policy: *Posso dire la verità* (Mondadori) by U. Nobile, on his fateful Arctic flight; *Ordini alla stampa* (Polilibraria) by C. Matteini, containing Mussolini's directives to the press; *Il principio della fine* (Farò) by E. Grazzi, former minister to Athens, and *Prologo del conflitto italo-greco* (Treves) by L. Mondini, military attaché to Athens, on the aggression in Greece; *L'armistizio e la difesa di Roma* (De Luigi) by Gen. G. Carboni, and *Come fummo condotti alla catastrofe* (Farò) by F. Giolli.

The existing crisis induced many writers to analyze the his-

tory of the Italian people for a new set of human values: C. Alvaro's *L'Italia rinuncia* (Bompiani), F. Bellonzi's *Ragionamento sulle sventure d'Italia* (O.E.T.), F. Cusin's *L'Italiano: realtà e illusioni* (Atlantica), G. Fenoltea's *Storia Degli Italianeschi* (Barbera), E. Giorgi's *Il dramma del popolo italiano* (Marzocco), G. Pierangeli's *Aspetti della vita italiana dal 1900 al 1945* (Libreria Politica Moderna) and A. De Donno's *L'Italia dal 1870 al 1944* (Critica Politica). Others diagnosed Italian political history in view of a remedy: *Esperienze e soluzioni* (Critica Politica) by O. Zuccarini, *Repubblica e Socialismo* (Edizioni Roma) by G. A. Belloni and G. Renzi, and *I partiti politici nella storia d'Italia* by C. Morandi. A more forward looking group considered the Italian problem as a European and world problem: G. Rulli's *Stati Uniti d'Europa?* (Casella), G. A. Virgilj's *La guerra e la pace* (O.E.T.) and A. Trabalza's *Stati Uniti d'Europa* (Atlantica).

Outstanding in the field of fiction were: *L'acqua* (Darsena), a magic and mythical novel by M. Bontempelli; *I montoni color del Cielo* (Mondadori) by E. Terracini, the tragedy of a man who, having fulfilled his ambitions, finds life empty; *Il vecchio cogli stivali* (L'Acquario) by V. Brancati, lampooning the provincial bourgeoisie, and *La strada che va in città* (Einaudi) by Natalia Ginzburg, a promising new writer.

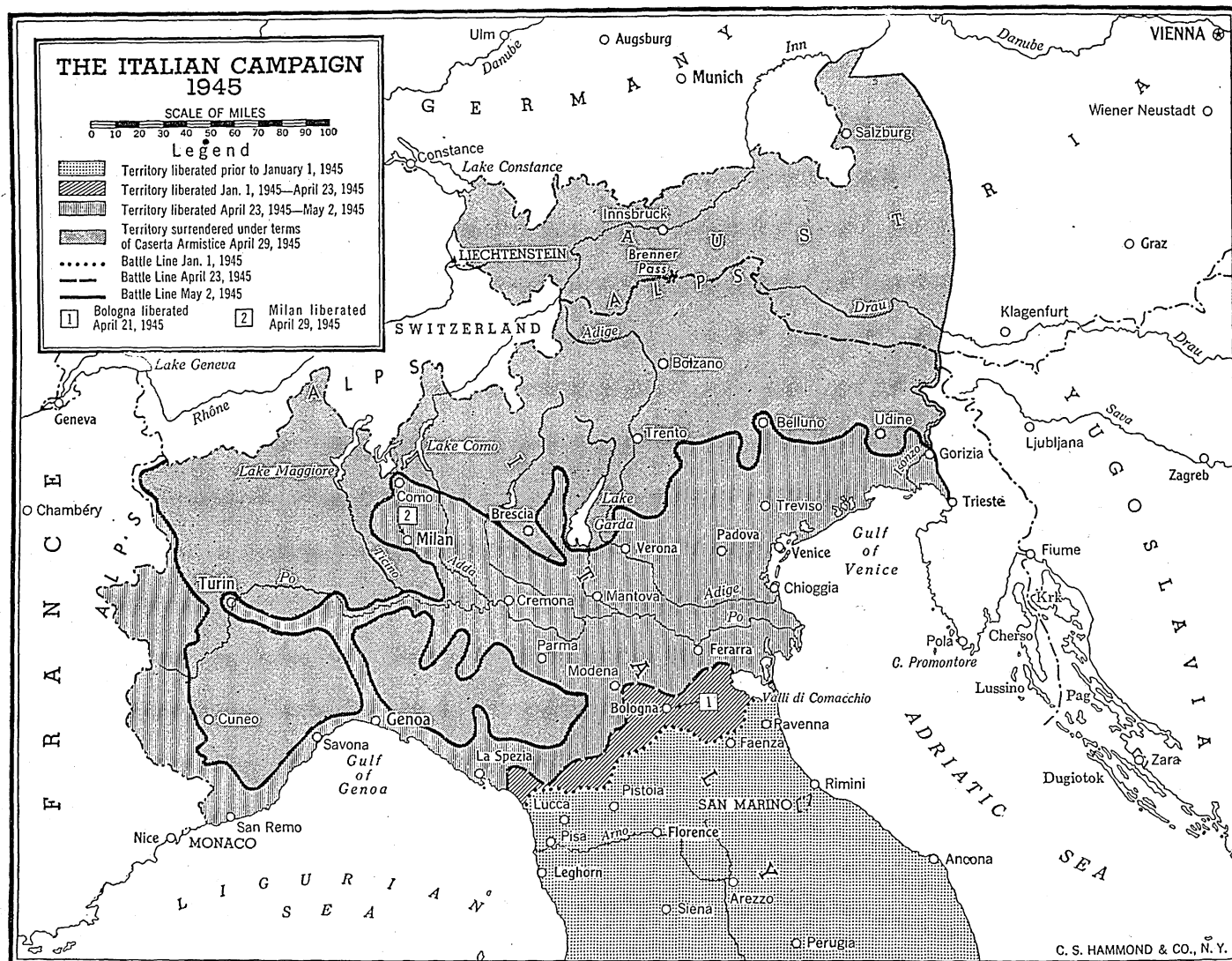
The theatre, though slow in recovering, had to its credit two plays of distinction in 1945: I. Silone's *Ed egli si nascose* (Documento) and L. Trieste's *La frontiera* (Compagnia Landi) both inspired by the existing social and spiritual crisis and both bearing a message of human brotherhood, a theme which figured prominently in the literary productions of the year. (M. F. C.)

**Italian Somaliland:** see ITALIAN COLONIAL EMPIRE.

**Italy.** Legally a constitutional monarchy, in actuality the government of Italy is a provisional regime until the settlement of the "institutional question." Metropolitan Italy consists of the Italian peninsula, Sicily, Sardinia and minor islands of the Tyrrhenian sea, and the Po valley, ringed by the Alps where it borders on France, Switzerland, Austria and Yugoslavia. National flag: the tricolour, green, white and red vertical stripes, with the shield of the House of Savoy in the centre. Capital, Rome.

Area, 119,733 sq.mi.; pop. est. (July 1, 1943), 45,681,000. Chief cities (census 1936): Rome, 1,150,589; Milan, 1,115,848; Naples, 865,913; Turin, 629,115; Genoa, 634,646. Language, Italian. Religion of the state, Roman Catholic. Head of the state, Prince Humbert, lieutenant general of the realm.

**History.**—As the year 1945 opened, Italy was a divided country and a battlefield. North of the German lines, which crossed the peninsula through Tuscany and Emilia, Mussolini's Italian social republic served as a puppet regime for the Germans, useful indeed because it embraced the richest agricultural and industrial part of the country. South of the Allied army zone about half of the provinces of Tuscany, and most of the provinces of the regions of Umbria and Marche were administered by Allied military government (A.M.G.). The rest of the peninsula and the islands of Sardinia and Sicily were under the jurisdiction of the Italian government, but subject to the terms of the Armistice of Sept. 29, 1943, as enforced by the Allied commission (A.C.). The Italian people were heart and soul with



the Allies in the desire to drive the Germans out, but they were seriously divided on almost all other issues. In Sicily there was chronic discontent with the government at Rome and an active movement for separation headed by Andrea Finocchiaro-Parile.

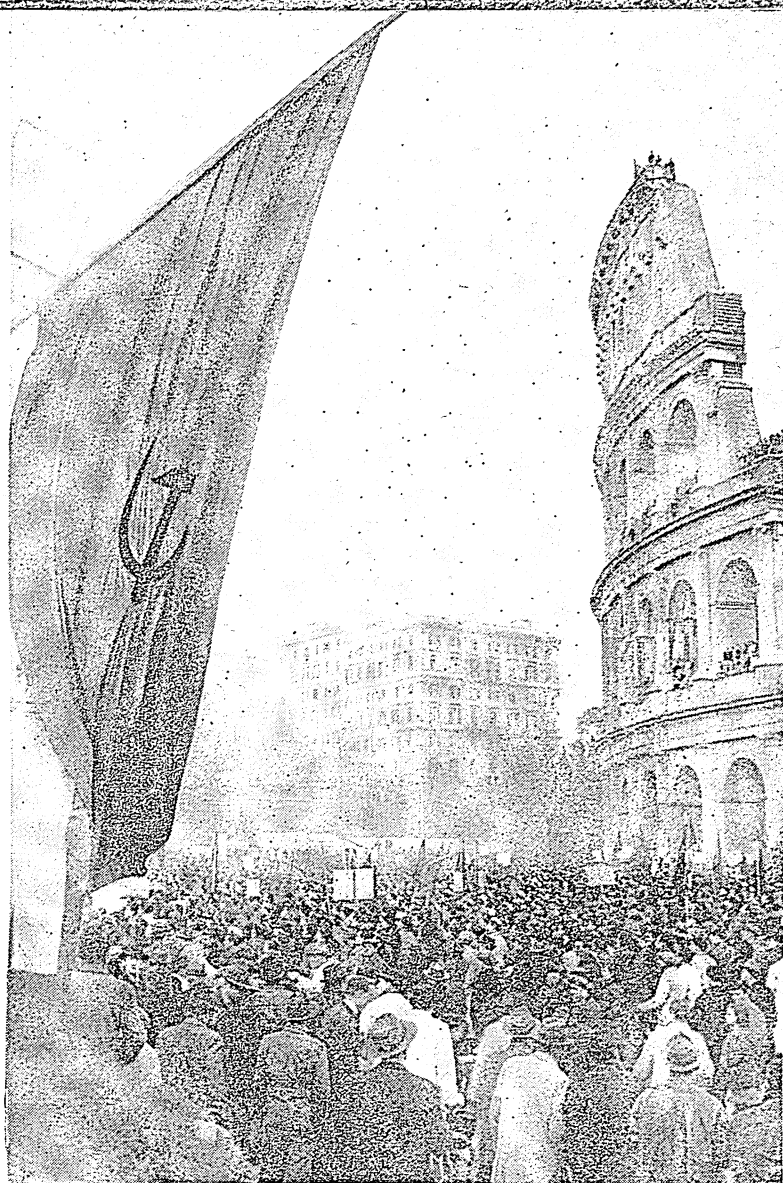
The government, under the lieutenant general, consisted of the council of ministers which by its own decree (June 25, 1944) exercised both the executive and legislative power. Republican opposition had prevented a simple return to the forms prescribed by the *Statuto* of 1848. The permanent form of government, monarchic or republican, and the new constitution were to be determined by a constituent assembly, elected by universal suffrage after World War II. Until convocation of the constituent assembly the ministers were pledged to serve in the supreme interests of the nation and not to commit acts which would prejudice the institutional question. It was an uneasy political truce. Political leaders and editors outside the ministry were free to criticize the lieutenant general and to charge the monarchy with responsibility for its close association with fascism.

Many political parties emerged with the coming of the Allied armies which restored freedom of the press and of association to Italy. Most active were the six anti-fascist parties (reading from left to right): Communist, Socialist, Party of Action, Christian Democrats, Democracy of Labour, Liberals, which were loosely joined in the Roman Committee of National Liberation. The committee claimed to represent the anti-fascist will of the nation and that, lacking an elective assembly, the council of ministers should be responsible to it. The Socialists and Party of Action members had withdrawn from the ministry in Nov. 1944, and Ivanoe Bonomi's second cabinet (announced Dec. 7, 1944) was formed without them. Behind the German lines a separate Committee of National Liberation of North Italy (C.L.N.A.I.) resisted the fascists and, along with the Allies, maintained the partisans in their guerrilla warfare and sabotage against the Germans.

On April 9 General Mark Clark's 15th army group launched the long-awaited final drive and the British 8th army attacked west of Ravenna. After initial stiff opposition the Germans became disorganized and on April 23 the Allies established bridgeheads on the Po. The naval base at La Spezia was captured on April 25. On April 29 Milan, freed by the partisans as were many northern cities, was reached by the liberating Allied armies which were given enthusiastic welcome. Resistance speedily collapsed and more than 160,000 prisoners were taken. On May 1, 8th army troops advancing on Trieste made contact at Monfalcone with Yugoslav partisan forces. On May 2 the German commander capitulated.

The partisans made quick work of the Italian social republic when the German power crumbled. Mussolini, attempting to escape in a column of German trucks, was captured in the disguise of a drunken German soldier near the village of Musso (province of Como) on April 26, and was unceremoniously shot the next day by partisans. Quick action of the partisans disposed of many fascists without the formality of trial, and also saved most of the industrial and hydroelectric plants from destruction by the Germans.

Much had been expected from the "wind from the north" in opposition to the Roman political atmosphere. A.M.G. was extended over the newly liberated provinces and in large measure the nominees of the C.L.N.A.I. were confirmed as city and provincial officials. The committee, however, claimed chief share in the national government. On June 12 Bonomi resigned as president of the council of ministers, and there followed a protracted ministerial crisis, in which the Socialist leader, Pietro Nenni, was deadlocked with Alcide de Gasperi, Christian Democrat. Not until June 21 was Ferruccio Parri ("General Mauri-



ROMANS displaying communist banners demonstrated before the Colosseum on March 6, 1945, protesting the escape of war criminal Gen. Mario Roatta and the conduct of the government in general. A riot ensued at the Quirinale in which demonstrators clashed with armed carabinieri

zio" of the underground) chosen as prime minister with De Gasperi as minister of foreign affairs and Nenni as minister for the constituent assembly. There was renewed popular agitation of the institutional question, and demand for immediate convocation of the constituent assembly. The government, however, had been unable to prepare the voting lists or to hold a municipal election in the smallest commune. It was easier to decree woman suffrage than to proceed with actual elections anywhere. At the close of the year 1945 both local and national elections were still in the future.

Liberation of the north increased the problems of Italian foreign policy. The fate of Italy's colonies had been uncertain after Churchill's declaration that the Italian empire was irretrievably lost. French troops occupied parts of Cuneo province and Frenchmen called for rectification of the frontier with Italy. In Bolzano province the *Südtiroler Volkspartei* asked for return to Austria. Marshal Tito quickly established occupying forces and Yugoslav military government in most of Istria including the city of Trieste early in May. The Italians of Venezia Giulia were cowed, but in the rest of Italy there was an outcry. On June 9 an agreement was signed by the United States, British and Yugoslav governments which provided for Allied military government in Pola and Trieste and the area west of a line from Trieste to the Austrian frontier, thus securing the lines of communication with Austria by way of Gorizia, Capo-



retto and Tarvisio. For the rest of the year the ultimate fate of Trieste was a source of great anxiety for the Italian government and people.

The meeting of the Big Three at Potsdam (Berlin Conference, *q.v.*) encouraged the hopes of Italians for a speedy negotiation of peace, but the meeting of the Council of Foreign Ministers at London (Sept. 11-30) was unable to agree on procedure. Italy continued to have uncertain status, a co-belligerent in the war against Germany but bound by the armistice terms and excluded from the United Nations, although diplomatic relations had been resumed with the United States, Great Britain, France and many other governments. Publication of the armistice terms on Nov. 7 served merely to discredit the extreme rumours about the nature of Italy's surrender to the Allies.

The Consultative National assembly opened its sessions on Sept. 25, elected Carlo Sforza its president, and prepared to give its advice to the ministry pending election of the constituent assembly. Meanwhile discontent increased for the disastrous drought had meant a very poor harvest, and Italy was in great need for food, coal and raw materials from the outside world.

Guglielmo Giannini's newspaper *L'Uomo Qualunque* (The Average Man) won great popularity in appealing to middle-class discontent. The Liberal party withdrew its support from the ministry and was followed by the Christian Democrats and on Nov. 24 Parri resigned, warning his successors of the danger of civil war. After much negotiation De Gasperi formed a cabinet on Dec. 10, not much different in its composition from its predecessor. On Dec. 31 the Allies announced the termination of A.M.G. in all of Italy except Venezia Giulia and the province of Udine. The December meeting of the foreign ministers of the Big Three at Moscow gave promise of a renewed attempt to conclude a definitive peace treaty with Italy. (See WORLD WAR II.)

**Education.**—Governmental and nongovernmental elementary schools (in 1941-42) numbered 139,571, with 5,110,328 pupils. In the 29 liberated provinces A.M.G. reported 18,000 elementary and secondary schools opened, with 1,200,000 students on March 15, 1945. Governmental and nongovernmental secondary schools (1941-42) numbered 5,136, with 556,260 students. In 1942-43 there were 29 royal universities and institutes, 6 free universities and institutes, with a total of 164,863 students. In June 1945, 27 royal universities were operating.

**Defense.**—The Italian army was reorganized and re-equipped by the Allies. The ceiling of the new army was fixed at 300,000. Six combat groups served with the Allies and suffered 11,000 casualties by the end of the war. Service troops numbered 175,000. The Italian navy and mercantile marine were placed at the disposal of the United Nations by the Cunningham-De Courten agreement of Sept. 23, 1943. Establishment of the navy was fixed at 80,000. The air force had about 31,000 officers and men with approximately 200 fighters, bombers and sea planes when the Allies assumed control. The reorganized air force had 5 squadrons of Allied fighter and bomber aircraft.

**Finance.**—The monetary unit is the lira; official rate 100 to the U.S. dollar. Estimated receipts for the fiscal year 1945-46 were 115,000,000,000 lire of \$1,150,000,000. Estimated expenditures were \$1,826,000,000. The national debt had risen from 105,709,000,000 lire in 1935 to 405,823,000,000 lire in 1943, and press statements of Nov. 28, 1945, indicated a national debt of approximately 1,000,000,000,000 lire or \$10,000,000,000. Notes in circulation were 285,000,000,000 lire and 81,000,000,000 A.M. lire. The active gold reserve totalled 2,237,000,000 lire in 1943. The Bank of Italy claimed the gold discovered at Fortezza (province of Bolzano) in May 1945.

**Trade and Communication.**—For Italy under Allied occupation, period until April 1945, exports were more than 163,000,000 tons and more than 1,627,000,000 lire (\$16,270,000), principally to the United States, the United Kingdom, France, North Africa and Malta. Leading items of export: mercury, perfume oils, citrous fruits, pumice, silk, lead, sulphur, block talc, briarwood, tartaric acid and hemp.

Imports came through army channels to meet the military responsibility of preventing disease and unrest. By spring of 1945, imports totalled 2,500,000 tons of supplies worth more than \$300,000,000 in estimated landed cost. By April 1945, 1,496,000 tons of food were imported, mostly wheat and flour.

State and private railway mileage (Dec. 31, 1942) was 14,590. On April 1, 1945, the Allies had in operation on the mainland (excluding the north) 4,772 mi. of Italian state railways. Motor vehicles included 333,900 licensed (Dec. 1942); telephones numbered 835,721 (June 30, 1942); telegraph lines totalled 43,036 mi. (1941-42); government broadcasting stations (1942) 16.

**Agriculture and Industry.**—There were no available data for the year 1945 for the country as a whole because of divided administration. (See also ALBANIA; ANTI-SEMITISM; FASCISM; ITALIAN COLONIAL EMPIRE; NAVIES OF THE WORLD.)

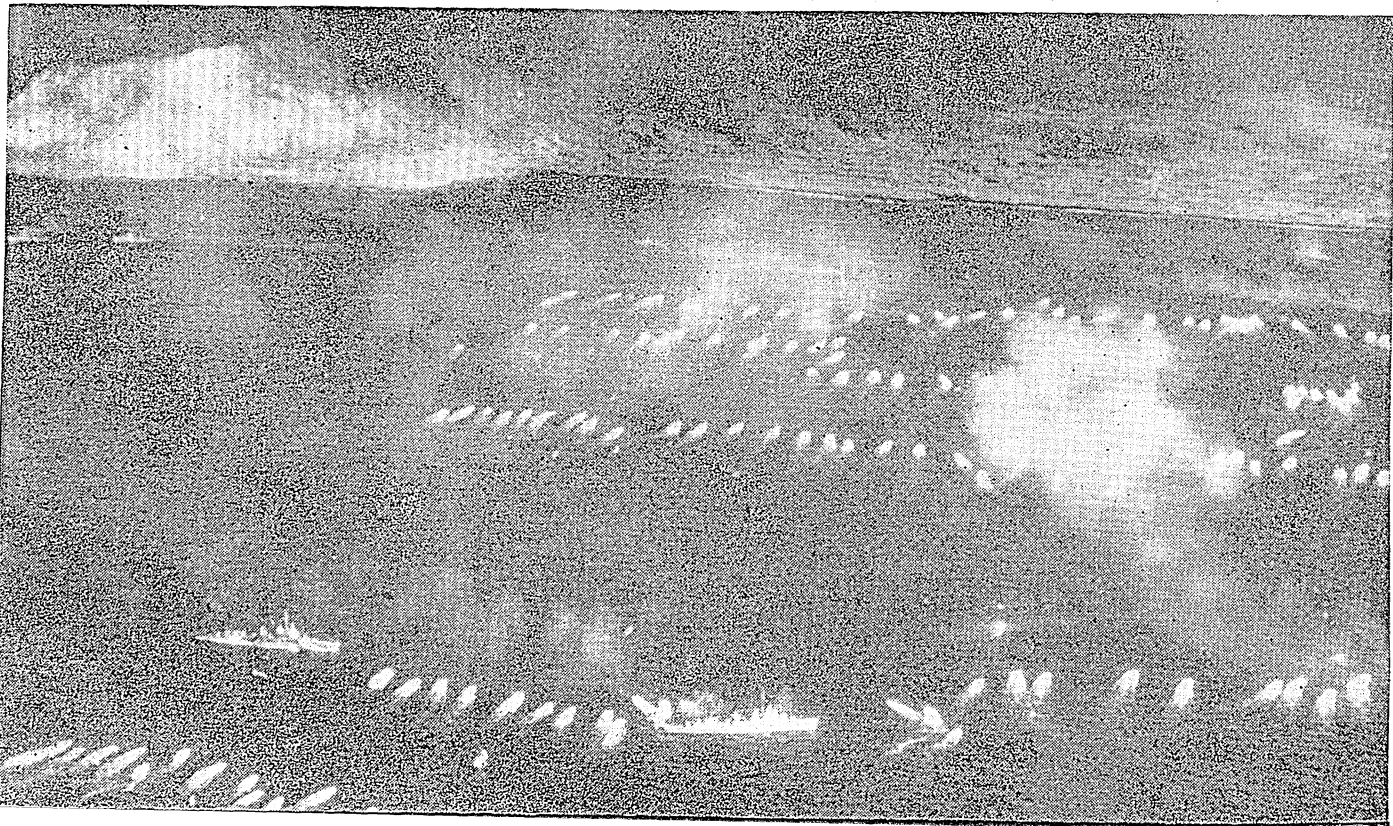
**BIBLIOGRAPHY.**—*Gazzetta Ufficiale del Regno* (texts of laws and decrees); *Annuario Statistico Italiano* (1944 and supplements); Public Relations Branch, Allied Commission, *A Review of Allied Military Government and of the Allied Commission in Italy* (1945).

(H. M. SH.)

**Ivory Coast:** see FRENCH COLONIAL EMPIRE.

**Iwo Jima.** A volcanic island in the North Pacific, a little more than 700 mi. southeast of Tokyo, irregularly shaped, about 5 mi. long, ranging in width from 800 yd. to  $2\frac{1}{2}$  mi., under Japanese sovereignty until 1945. Iwo Jima, a speck of volcanic ash in the huge Pacific ocean, was almost unknown

LANDING FLEET of more than 800 ships moving toward Iwo Jima during the invasion of Feb. 19, 1945. The island was taken in 26 days after a resistance unparalleled in the Pacific war



until it became the scene of one of the fiercest and most costly battles in United States history, measured in terms of the ratio of casualties to the number of men engaged.

The island possessed high strategic importance both for the U.S. and for Japan because it was the best available midway air base between Saipan, some 700 mi. further south, which U.S. forces had captured in 1944, and Tokyo, one of the main objectives of Superfortress raids. It was also used as a radar centre to give warning of approaching U.S. raids. A garrison of some 20,000 of Japan's best troops held the island and made the most of such natural defensive features as the caves with which the volcanic hills are honeycombed. U.S. air reconnaissance uncovered 185 big positions and the Japanese had constructed more than 800 pillboxes. The Japanese had entrenched themselves so effectively in caves with interlocking tunnels that weeks of preliminary bombardment failed to weaken appreciably their ability to offer desperate and tenacious resistance.

Three marine divisions, under command of Gen. Holland M. Smith, landed on Iwo Jima between Feb. 19 and 21, 1945. The Japanese fire directed against the beaches was heavy and accurate. The struggle for the possession of the island continued for almost a month and was necessarily carried on at extremely close quarters. There were no tranquil rear stations to which exhausted units could be sent for recuperation.

The hardest struggles were for the occupation of Meatgrinder hill, in the northern part of the island, and of Mount Suribachi, a sulphurous, steaming volcano which rises 546 ft. above sea level in a southern corner of the island. The former position was taken and lost five times before the marines held it permanently. The raising of the U.S. flag over Mount Suribachi was one of the most dramatic episodes in the Pacific war.

The island was officially pronounced captured on March 16, 1945. Nearly all the 21,000 Japanese defenders were dead. U.S. losses were reported as 4,287 dead and missing and 19,540 wounded. The Japanese commander, Gen. Tadamichi Kurabayashi, declared: "This island is the front line that defends our mainland, and I will die here." He was killed leading a charge. As late as March 26, 1945, some 200 hidden Japanese rushed out and overran the airfield before they were destroyed.

Iwo Jima subsequently served as a useful advance base for B-29 raids against Japan. Unlike neighbouring volcanic islands, one of which emerged from the ocean only to disappear again, Iwo Jima developed a small plateau and a red clay surface which was advantageous for the construction of an air strip. (See also WORLD WAR II.) (W. H. CH.)

**Jackson, Robert Houghwout** (1892— ), U.S. jurist, was born Feb. 13 at Spring Creek, Pa. Following his graduation from Albany Law school, he was admitted to the New York bar in 1913 and practised law in Jamestown, N.Y. As counsel and in official capacities, he served railroad, banking and telephone interests. The year 1934 found him in Washington, D.C., as general counsel for the bureau of internal revenue. By appointment of President Roosevelt, he served as U.S. assistant attorney-general (1936-38) and as solicitor-general of the U.S. (1938-39). In Jan. 1940, President Roosevelt named him U.S. attorney-general, and on June 12, 1941, he was made an associate justice of the U.S. supreme court. On May 2, 1945, President Truman named Justice Jackson as chief U.S. counsel on the international military tribunal to try axis war criminals. Justice Jackson said (July 6) that the four big powers, the U.S., the U.S.S.R., Great Britain and France, had agreed that the accused would be entitled to a fair hearing but warned that the defendants would not be permitted to use obstructionist tactics to defeat the trials. The trials got under way Nov. 20 at Nuernberg, Germany, and, acting as

chief prosecutor for the U.S., Jackson made the initial statement for the prosecution, charging that the 20 nazi defendants on trial were responsible for World War II. On Dec. 4, Justice Jackson, replying to a charge in the *Army and Navy Journal* that he was trying to slur the military profession, said the Allies were prosecuting these militarists "not for fighting a war, but for promoting one."

**Jamaica:** see WEST INDIES, BRITISH.

**Japan.** An empire in the western Pacific, under United States military occupation from Sept. 1945, including the four large islands—Honshu, Hokkaido, Shikoku and Kyushu and many adjacent smaller islands. In conformity with the terms of the Cairo declaration of 1943, and following Japan's surrender in Aug. 1945, all the former overseas possessions of the Japanese empire were removed from Japanese control. Korea (*q.v.*) (Chosen) was supposed to become independent after a period of four-power trusteeship not to exceed five years, according to the agreement reached at the Moscow conference of foreign secretaries of the U.S., the soviet union and Great Britain in Dec. 1945. Formosa (*q.v.*) (Taiwan) was to be returned to Chinese rule; the soviet union had occupied South Sakhalin and the Kurile Islands; Dairen and the Kwantung leased territory were to revert to China, and at the end of 1945 were under soviet occupation. No final disposition had been made in 1945 as to the disposition of the South Pacific island groups—the Marianas, Caroline and Marshall or the Ryukyu Islands.

Population of Japan proper (census of 1935) 69,254,148. As of Oct. 1, 1939, the population was estimated as 72,875,800, and as of Aug. 31, 1945, the population was 77,997,642 according to a survey of the home ministry (based on data from the Cabinet statistics council). The Japanese islands would apparently have to absorb several million Japanese, soldiers and civilian residents of Manchuria, Korea, China and other overseas countries, who were to be repatriated.

Japan's six largest cities with estimated 1939 populations are: Tokyo (capital) (*q.v.*) (6,581,000); Osaka (3,394,200); Nagoya (1,249,100); Kyoto (1,177,200); Kobe (1,006,100); Yokohama (866,200). All these cities except Kyoto suffered heavily in U.S. air raids, and there was probably a considerable flight of people to the country districts. Buddhism is the principal religion, followed by Shintoism, the indigenous faith of Japan. There were 41,127,307 Buddhists in Japan in 1936; 16,525,840 Shintoists, 215,166 Japanese Christians of Protestant denominations, 111,856 Roman Catholics and 41,251 Greek Orthodox believers in 1938. U.S. and British missionary work was, of course, suspended after the outbreak of World War II, but Japanese Christian churches continued to function in an atmosphere of some difficulty and suspicion. Contacts between U.S. and Japanese Christian churches were resumed after the surrender.

The Japanese sovereign is Emperor Hirohito (succeeded to the throne Dec. 25, 1926). Prime minister (after Oct. 1945) Baron Kijuro Shidehara.

**History.**—World War II, in which Japan was increasingly overmatched by the superior air, naval and military power of the United States, roared to its inevitable climax in 1945. Japan surrendered before its home islands were invaded and while large intact Japanese armies were stationed in China, in south-eastern Asia and in some of the Pacific islands.

The year's military operations began when General MacArthur's forces landed in Luzon, on Jan. 9, 1945, and advanced toward Manila, capital of the Philippines. Manila fell on Feb. 23, and subsequent operations in the Philippines were in the nature of "mopping up."

Marines landed on Feb. 19 on volcanic Iwo Jima, an irreg-

ularly shaped island only 700 miles of air line distance from Tokyo. The struggle for this island was one of the bitterest in the far eastern war and cost 20,000 U.S. casualties. After 26 days of fighting Iwo Jima was taken, and the U.S. air force possessed an advanced base from which bombings of Tokyo and other Japanese industrial centres could be intensified.

The next military forward step was the invasion of the Ryukyus, a chain of islands which stretch out in a southwestern direction from Kyushu, southernmost of the four main Japanese islands.

The struggle for Okinawa, one of the larger islands of the Ryukyu group, was longer and more costly in lives than the battle for Iwo Jima. It began on April 1, 1945, and ended on June 21. U.S. casualties were stated as 39,000 and there was a considerable amount of loss and damage to U.S. shipping because of Japanese tactics of suicide crash-diving against the concentrations of shipping which were necessary to support the invasion. Nearly 100 Allied ships were lost or damaged off Okinawa.

The tide was flowing against Japan in other theatres. China, which had taken a severe battering from Japanese armies in 1944, began to strike back at the long Japanese line of communications from Manchuria to Indo-China. British forces completed the reconquest of Burma, taking Mandalay in March 1945 and Rangoon in May. Australian forces had landed at various points in Borneo between May and July.

General MacArthur announced the complete liberation of

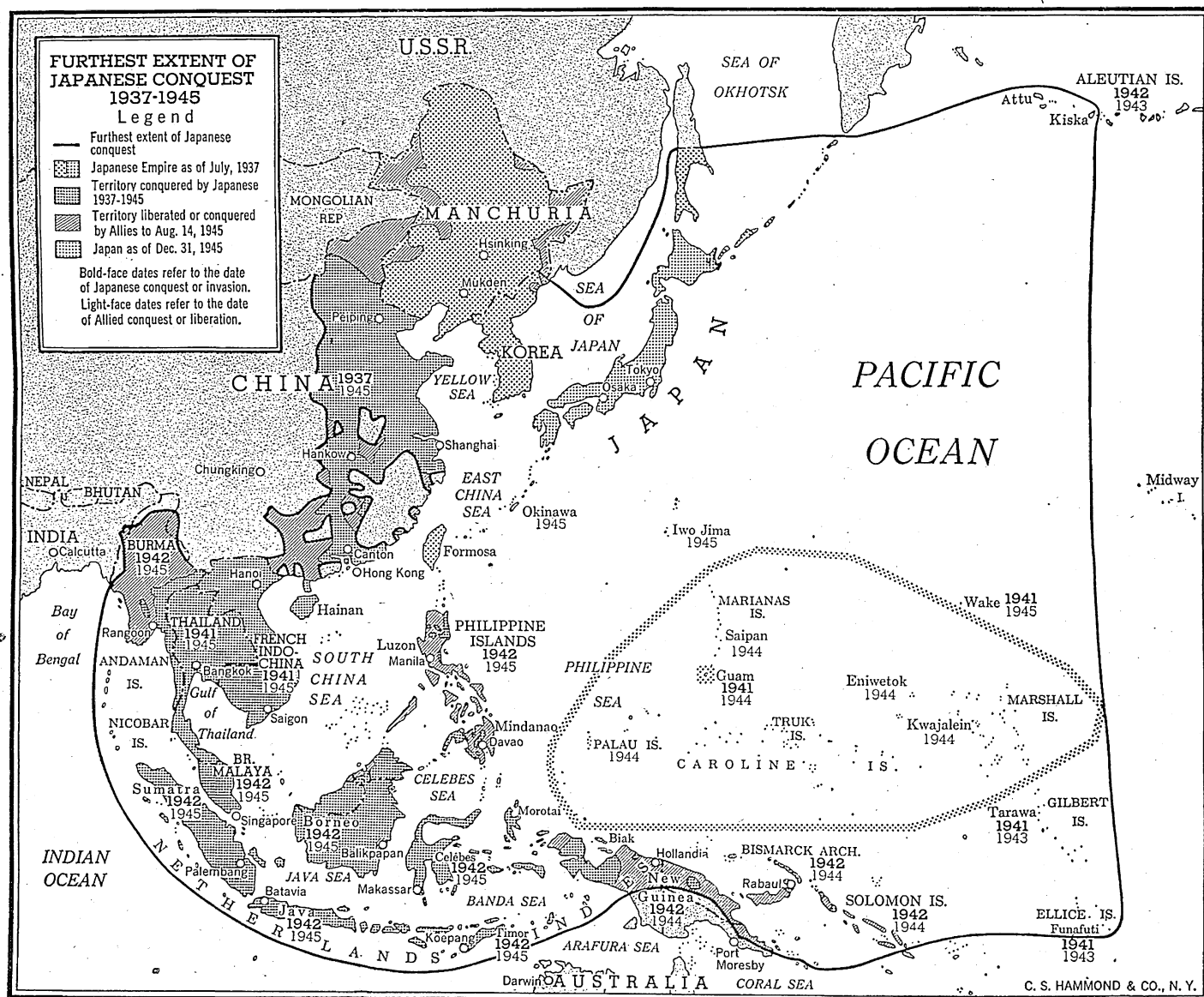
the Philippines on July 5. There was little Japanese resistance to a merciless pounding of Japan's cities and shores by swarms of B-29s and by the 3rd fleet of Admiral William F. Halsey during July.

Toward the end of the Potsdam (Berlin) conference, on July 26, 1945, Japan received a demand from President Truman, Winston Churchill and Generalissimo Chiang Kai-shek to surrender or face destruction. The proclamation warned that the United Nations were "poised to strike the final blow at Japan." The Japanese prime minister, Admiral Kantaro Suzuki, a moderate who had replaced General Kuniaki Koiso in this office earlier in the year, announced that the Potsdam ultimatum would be ignored.

But August proved to be the climacteric month in the far eastern conflict and, consequently, in World War II. A new weapon of unprecedented destructiveness, the atomic bomb, was dropped on the city of Hiroshima on Aug. 6. Hiroshima and its population were largely obliterated by this single terrific missile.

The Soviet Union, which had given notice of intention to terminate its treaty of nonaggression with Japan in April, 1945, declared war on Aug. 8 and launched military operations against Manchuria, Korea, Southern Sakhalin and the Kuriles. A second atomic bomb, of even greater devastating power, was dropped on Nagasaki on Aug. 9.

The impact of this second bomb was apparently decisive. The Japanese government, approaching the U.S. government through







AMONG THE FIRST occupation troops to arrive in Japan were these U.S. marines of the sixth division, landing near Tokyo on Aug. 30, 1945

the Swiss legation, announced its willingness to accept the terms of the Potsdam proclamation "with the understanding that the said declaration does not comprise any demand which prejudices the prerogatives of His Majesty as a sovereign ruler." The salient passages in the reply of Secretary of State James F. Byrnes were as follows:

From the moment of surrender the authority of the Emperor and the Japanese Government to rule the state shall be subject to the Supreme Commander of the Allied Powers, who shall take such steps as he deems proper to effectuate the surrender terms . . .

The ultimate form of government of Japan shall, in accordance with the Potsdam Declaration, be established by the freely expressed will of the Japanese people.

On the evening of Aug. 14, 1945, President Truman announced that Japan had surrendered unconditionally. After preliminary occupation measures were taken the surrender was formally carried out on the U.S. battleship "Missouri" on Sept. 2. Foreign Minister Mamoru Shigemitsu signed on behalf of the emperor. Representatives of the United States, China, the United Kingdom, the Soviet Union, Australia, Canada, New Zealand, the Netherlands and France signed on behalf of the victorious powers.

While the surrender amounted to acceptance of a hopeless military situation in which Japan, without any hope of an ally or a new source of strength, faced destruction at the hands of the world's strongest military powers, it was carried out at the insistence of Emperor Hirohito against the protests of some military die-hards. The war minister, General Korekichō Anami, and Vice-Admiral Takejiro Onishi, originator of the *kamikaze* ("divine wind") suicide airplane tactics, committed *hara-kiri* in ceremonial Japanese fashion after the surrender. A relative of the emperor, Prince Naruhiko Higashi-Kuni, was appointed prime minister, partly in the calculation that his prestige as a member of the imperial family would expedite the surrender of Japanese forces in remote outposts, whose commanders were sometimes imperfectly informed about the desperate situation in the Japanese homeland. Surrenders of the far-flung Japanese armies and garrisons took place without any special incident and the U.S. occupation of Japan until the end of 1945 proceeded

without serious clashes or friction between the troops and the Japanese civilians.

**Casualties and War Damage.**—Official reports of the Japanese government gave the following summary on Aug. 23, 1945: civilians killed, 241,309; injured, 313,041; "war victims" (*i.e.*, dead, injured or homeless), 8,045,094; buildings completely burned out or destroyed, 2,333,388; buildings partly burned out or destroyed, 110,928. An official report to the diet on Sept. 9 stated that bombing destroyed more than 30% of the buildings in 81 of Japan's 206 cities. In 42 cities a majority of the buildings were destroyed. Tokyo prefecture suffered most heavily in life and property loss, with Hiroshima and Nagasaki, respectively, second and third worst hit. An area approximating 1,215 sq.mi. in 95 principal cities was devastated by bombing.

**Occupation Policies.**—Until the end of 1945 the occupation of Japan was a U.S. enterprise. Supreme authority was vested in the hands of General MacArthur. Instead of setting up a system of direct U.S. military government, General MacArthur issued directions to the Japanese government, which continued to function instead of being suspended, as in Germany.

Some hundreds of Japanese, ranging from prominent political and military leaders to prison guards accused of brutality toward prisoners of war, were arrested on the suspicion of being war criminals. General Tomoyuki Yamashita, conqueror of Malaya and subsequently commander of the Japanese forces in the Philippines, was convicted by a U.S. military court in Manila of failing to prevent atrocities by troops under his command and sentenced to be hanged. The former prime minister, Prince Fumimaro Konoye, committed suicide after being placed under house arrest. Another former prime minister, General Hideki Tojo, who headed the cabinet at the time of the attack on Pearl Harbor, unsuccessfully tried to kill himself before he was taken into custody.

Political prisoners were released from the Japanese jails and the special political police was abolished. Freedom of the press was upheld as an ideal, but Japanese newspapers remained subject to U.S. military censorship. Directions issued by General MacArthur to the Japanese authorities called for the breaking



EMPEROR HIROHITO viewing the desolation in Fukugawa Ward, Tokyo, after concentrated bombing by U.S. Superfortresses. Photograph was taken during the war, and obtained from a Japanese source in 1945

up of some of the big interlocking monopolies in business and finance and for agrarian reform looking to the relief of tenant farmers and the discouragement of absentee ownership.

A sweeping revision of Japanese historical books, including the destruction of textbooks containing chauvinistic and mythological statements, was ordered. The government was also instructed to discontinue financial and other aid and encouragement to state Shinto, which was considered a factor in inspiring aggressive tendencies in the Japanese mind. A rather spectacular climax to this hacking away at the roots of the old imperial system was provided when Emperor Hirohito repudiated both his own divinity and any "master race" claims for the Japanese people in a New Year message to his people.

Women's suffrage, a radical innovation in a society so male-centred as the Japanese, was introduced and the Japanese people were to go to the polls early in 1946 to elect a new diet. Four parties, ranging from right to left in the following order—Progressive, Liberal, Social Democratic and Communist—figured most prominently in the pre-election agitation. The traditional parties of Japan, the Seiyukai and the Minseito, were apparently discarded.

A new system for international control of Japan was agreed on at the Moscow conference in Dec. 1945. A far eastern commission, composed of representatives of the United States, the soviet union, the United Kingdom, China, France, the Netherlands, Canada, Australia, New Zealand, India and the Philippine commonwealth, was set up for the purpose of "formulating the policies, principles and standards in conformity with which the fulfilment by Japan of its obligations under the terms of surrender may be accomplished." The United States, the soviet union, Great Britain and China, were to enjoy a veto right in the commission. Headquarters of this commission were to be in Washington, D.C.

At the same time an Allied council for Japan, composed of representatives of the United States, the soviet union, the United Kingdom and China, was to be set up in Tokyo "for the purpose of consulting with and advising the supreme commander in regard to the implementation of the terms of the surrender, the occupation and control of Japan and of directives supplementary thereto; and for the purpose of exercising the control authority herein granted." Chairman of this council was to be the supreme commander for the Allied powers or his deputy.

**Education.**—There were 48,637 schools of all types in Japan in 1938, with 15,638,780 pupils and students. There were 563 middle schools (more or less equivalent to U.S. high schools), with 364,486 students, and 45 universities with 6,385 professors and 72,968 students. Elementary literacy in Japan is more than 99%, because a six-year elementary school course is free and compulsory. Education in Japan suffered considerably during World War II, first because of the mobilization of students for war work, second because of the destructive bombings. More than 4,000 schools of all types, including 20 universities and 80 colleges, were destroyed by bombing according to a statement by Tamon Maeda, minister of education, in Sept. 1945.

**Finance.**—The unit of currency is the yen (officially valued at 23.48 U.S. cents before the beginning of the war in the Pacific). The yen was sliding downward rapidly in terms of purchasing power after the end of the war and Japan evidently faced a serious inflationary situation. The amount of currency in circulation increased from 27,000,000,000 yen to 44,000,000,000 yen between July and Oct. 1945. Currency in circulation on Sept. 30, 1941, was 4,619,000,000 yen.

The Bank of Japan is the central bank of note issue. The Yokohama Specie Bank is in charge of foreign exchange transactions, which were very limited, of course, after the outbreak of World War II. It also finances foreign trade. Commercial banking is largely in the hands of seven large banks—the Mitsui, Mitsubishi, Dai-ichi, Sumitomo, Yasuda, Dai-Hyaku and Sanwa. Two of these, the Dai-ichi and Mitsui, merged in 1944 to form a new institution, the Teikoku Ginko, or Imperial bank.

**Trade and Communication.**—The last published trade figures for Japan, excluding its former colonies, were as follows:

	1939 (yen)	1940 (yen)
Imports	2,917,000,000	3,709,035,000
Exports	3,576,000,000	3,972,400,000

Japanese foreign trade dwindled almost to the vanishing point, apart from countries which were under Japanese military and political control, after the United States, the United Kingdom and the Netherlands virtually broke off trade relations with Japan in July 1941, following the Japanese occupation of southern Indo-China. There was a little irregular trade with China, a trickle of goods exchange with the soviet union and an occasional exchange of blockade-running cargoes with Germany. There was little revival of Japan's foreign trade up to the end of 1945.

At the end of 1939 Japan possessed 4,084 ships of more than 100 tons, with an aggregate of 5,728,779 tons. As of Sept. 30, 1938, there were 17,791 sailing ships with an aggregate of 1,046,476 tons. As a result of war attrition, the Japanese merchant fleet by the end of World War II was reduced to 1,000,000 or 1,500,000 tons, "counting all very small ships and a very few suitable for long voyages," according to a statement after the Japanese surrender by Admiral Forrest P. Sherman, deputy chief of staff for Admiral Chester Nimitz.

Commercial aviation in Japan was in the hands of a semigovernmental monopoly, the Japan Airways company, capitalized at 100,000,000 yen. The length of its routes in 1938-39 was about 10,000 mi. The number of flights was 17,144; the aggregate length of flights 3,788,023 mi.; the number of passengers carried 69,268; the quantity of goods conveyed 328 tons; the amount of mail carried 903 tons. In 1945 it was thought that Japanese commercial aviation, if permitted at all, would in the future be restricted to the Japanese home islands.

There were 13,648 telegraph stations in Japan in 1939, and 75,838,875 domestic and 1,261,295 foreign messages were handled in 1938-39. The length of the inland telegraph lines was 259,709 mi. in 1938. There were 6,197 telephone exchanges in Japan on Sept. 30, 1939, and 1,006,498 subscribers for telephone service.

**Agriculture.**—Because of the pressure of population on the limited amount of arable land (only about 15% of Japan's surface area is suitable for cultivation) Japan is a land of small rice and silk farms and fishing villages. There is almost no large-scale farming with modern machinery and very little animal husbandry except in the northernmost island, Hokkaido. There were 5,519,480 farm households in 1938, and

#### Agricultural Production in Japan, 1940

	Cultivated area (acres)	Yield (in short tons)
Rice	7,837,888	9,999,308
Wheat	2,078,023	1,445,581
Barley	840,941	829,508
Rye	999,599	690,297

the amount of land under cultivation was about 15,000,000 ac., the average size of the holding being less than three acres. Rice has always been Japan's largest crop and represented about half the value of the national agricultural production in 1939. The total reported value, excluding meat, milk and eggs, on which no data were given and which do not figure largely in Japan's farm output, was 5,614,000,000 yen. The value of the rice produced in that year was 2,874,000,000 yen. The value of silk cocoons produced in 1939 was 883,000,000 yen. There was in 1945 a debate as to whether silk should be raised for export or whether the land formerly planted with mulberry trees should be put under cultivation for food crops. The estimated output of silk for 1945 was 120,000 bales as compared with 536,225 bales in 1941. There were 1,894,261 cattle, 1,140,479 swine, 114,000 sheep and 281,741 goats in Japan in 1938, and 1,431,920 horses in 1936.

**Manufacturing.**—There were 112,332 factories employing more than five persons each in Japan in 1938, with a total of 3,604,283 workers and an output of 19,667,219,686 yen. The most important industries and the value of their output in 1938 were as follows: metal (4,687,166,000 yen); spinning and weaving (3,984,829,000 yen); machinery and tools (3,821,881,000 yen); chemicals (3,460,581,000 yen); foodstuffs (1,786,275,000 yen). From 1931 until the terrific destruction by bombing set in there was a considerable expansion of the "heavy" industries—metal, machine-building and chemical, which were adaptable to war purposes. There were 1,442,713 persons engaged in fishing in 1938, and this was an important occupation both for domestic food supply and for export. It was later greatly reduced, because the waters around Japan were strewn with mines by the B-29s and there was a shortage of gasoline for the fishing boats.

**Minerals.**—Japan is poor in natural resources. Its principal minerals and their annual output as of 1936 were: coal 41,803,000 metric tons; gold (784,308 oz.); copper (85,950 metric tons). Publication of these statistics was suspended after 1936. Mineral output was 20% higher on a quantity basis in 1939 than it was in 1936. (See also FASCISM; NAVIES OF THE WORLD; UNITED STATES; WORLD WAR II.)

**BIBLIOGRAPHY.**—Joseph C. Grew, *Report from Tokyo*; Sir George Sansom, *Japan: A Cultural History*; Hugh Byas, *Government by Assassination*; Otto D. Tolischus, *Tokyo Record*; W. H. Chamberlin, *Japan Over Asia*; E. B. Schumpeter and others, *The Industrialization of Japan and Manchoukuo, 1931-1941*; annual issues of *The Japan Year Book* and *The Japan-Manchoukuo Year Book*.

**FILMS.**—*Children of Japan* (Encyclopædia Britannica Films Inc.). (W. H. CH.; X.)

**Japanese-Chinese War:** see WORLD WAR II.

**Japanese Relocation, U.S.:** see WAR RELOCATION AUTHORITY.

**Jarvis Island:** see PACIFIC ISLANDS, U.S.

**Java:** see NETHERLANDS COLONIAL EMPIRE; NETHERLANDS INDIES.

**Javelin Throw:** see TRACK AND FIELD SPORTS.

**Jet Propulsion:** see POWER ENGINEERING.

**Jewish Religious Life.** The end of World War II revealed how disastrous to Judaism had been the atrocities of Hitlerism. In continental Europe, few Jewish children survived, and the exhausted adult survivors in the underground movements or in displaced persons camps were seen to be for the most part without communities, synagogues, religious or Jewish educational institutions or ritual articles. Outside of soviet Russia, only 1,500,000 Jews remained in Europe; 5,000,000 were destroyed. A typical figure is that from Leipzig, Germany, where of 16,000 Jews, 16 survived, and they only because they were married to Christians and were bringing up their children as Christians. Of the 3,500,000 Jews of prewar Poland, there remained but 80,000, scattered, starved and still being pogromized. In western Europe there was some hope of rebuilding Jewish communities; but in central and eastern Europe the shadow of extinction loomed over what were before the war the greatest centres of Jewish learning and of intensely lived Judaism.

There were some encouraging incidents during 1945. Thus, when the first service was held in the reopened Amsterdam synagogue, four-fifths of the congregation was made up of Christians who came to show their sympathy with the Jewish survivors. In Bergen, Oslo and Trondheim, Norway, the surviving Jews were given money seized from German accounts to help them repair their synagogues. But attempts to reorganize Jewish life were generally hampered by the utter poverty that gripped so much of Europe, indoctrinated nazi anti-Semitism, and the unwillingness to give back to Jews seized Jewish property. Thus, at Maastricht, Netherlands, the community planned for U.S. Jewish soldiers a celebration of the Biblical festival of Purim; but it was disapproved of lest it stir up additional anti-Semitism. When at Dachau, Germany, a U.S. Jewish chaplain attempted to hold an open-air religious service, the Jewish displaced persons declared that it would lead to disorders. In the Belsen camp, Polish internees smashed the synagogue set up by the Jewish displaced persons and desecrated the Torahs and prayer books.

This atmosphere in postwar Europe tended to drive the surviving Jews to one of two extremes—either a flight from Judaism, dramatized by the conversion to Catholicism of the chief rabbi of Rome, or an intensification of Jewishness which makes the overwhelming majority of the Jewish displaced persons want to settle down only in Palestine. The failure of the British Labour government to live up to British pledged policy of facilitating the establishment in Palestine of a Jewish national home stirred a reaction of a far more militantly determined Zionism in Palestine, in the Jewish people generally, and in the congress of the United States which by an overwhelming vote called for the fulfilment of the international pledge to make a reality of Zionism.

In the United States, the greatest free Jewish community

in the world, there was a notable growth of orthodox Jewish schools, and overseas rescue work by orthodox groups. All the Jewish theological seminaries launched plans for extension of their work to help take the place of the destroyed centres of Jewish learning in the old world. (See also ANTI-SEMITISM.)

**BIBLIOGRAPHY.**—*The Contemporary Jewish Record* (1945); *American Jewish Year Book* (1944-45); *Reports of the American Jewish Joint Distribution Committee*. (D. DE S. P.)

**Jewish Welfare Board, National.** The National Jewish Welfare board (J.W.B.), organized in 1917 to meet the religious, cultural and welfare needs of Jewish servicemen of the United States, fulfilled that mission through the eventful year which saw the defeat of Germany and Japan. Accredited by military authorities to work with the armed services, J.W.B. represented 38 national Jewish organizations, comprising all groups of the American Jewish community.

A member organization of U.S.O., J.W.B. in 1945 directed and co-operated in the operation of 174 U.S.O. facilities. In the United States, 623 local J.W.B. army and navy committees served men and women in the armed forces, and 58 committees conducted hospitality activities overseas.

More than 300 professional workers supplemented thousands of volunteer workers.

The board enlisted and endorsed rabbis for service as army and navy chaplains—288 saw duty in the services; it recruited civilian rabbis to serve where chaplains were not available; it extended aid in personal and spiritual problems to patients in general hospitals. Accredited by the Veterans' administration of the United States, J.W.B. employed 20 professional workers to assist discharged servicemen in connection with claims for benefits. It provided rabbis for service at Veterans' facilities. The board's Bureau of War Records, engaged in compiling facts on Jewish participation in the war effort, published the second volume of its work, *Fighting for America*, a book listing Jewish casualties, the names of those who had been decorated, and containing stories and pictures of servicemen of Jewish faith in combat.

J.W.B., as parent body for 290 Jewish community centres, Y.M.H.A.'s and Y.W.H.A.'s and similar groups in the United States and Canada, with a total membership of more than 411,000 men and women, young people and children, assisted these local groups to plan programs of recreation, educational activities and Jewish culture for their members. It also gave counsel on administration and personnel problems, building and membership campaigns.

The J.W.B. national council, consisting of delegates of the affiliated and co-operating organizations, constituent local Jewish centres, army and navy and Jewish centre regional groups, and the professional Jewish centre workers' organization represents all phases of J.W.B. activity. The board of directors is similar in pattern, including, in addition to J.W.B. officers, the chairmen of the national divisions and members at large. An executive committee functions between meetings of the board.

Annual national council meetings were suspended for the duration of World War II in April 1942. Authority was delegated to the board of directors and the executive committee. A meeting of the national council was planned for April 1946.

Officers in 1945 were: Frank L. Weil, president; Lloyd W. Dinkelspiel, Irving Edison, Mrs. Walter E. Heller, Carl M. Loeb, Jr., Donald Oberdorfer, Walter Rothschild, Mrs. Felix M. Warburg, vice-presidents; Max Wilner, treasurer; Merwin R. Haskel, assistant-treasurer; Joseph Rosenzweig, secretary; Ralph K. Guinzburg, assistant-secretary; Louis Kraft, executive director. Offices in 1945 were at 145 East 32nd street, New York city. (F. L. W.)



**Jiménez Oreamuno, Ricardo** (1859–1945), Costa Rican statesman, was born Feb. 6 at Cartago, Costa Rica. Jiménez, whose father and grandfather had served as presidents of Costa Rica, turned to politics after graduating from law school in 1884. He served as minister to Mexico, Nicaragua and El Salvador, attended the Central American congress in 1888 as minister plenipotentiary, and was foreign minister of his country in 1889. He also held the portfolios of the interior, public works, public instruction and the treasury, was thrice elected to congress and served as vice president of the republic. He was also president of congress and chief justice. The only president of Costa Rica to serve three full terms, 1910–14, 1924–28 and 1932–36, he was faced with a rebellion shortly after his last election, instigated by one of the two defeated presidential candidates. Some 25 persons were killed in the uprising which subsequently was settled with a peace parley held in the U.S. legation. He died Jan. 4, according to a San Jose report.

**Jodl, Alfred** (? – ), German army officer, served with the Bavarian army during World War I. After the armistice in 1918, he was attached to the ministry of war and later with the German intelligence service. Jodl, who was a colonel in 1935, was advanced to the rank of a major general by 1939 and was a colonel general throughout most of World War II. In late 1940, Franz von Halder strongly opposed a German attack on the soviet union, and as a result Jodl replaced von Halder, first as the fuehrer's chief military adviser (Oct. 1942) and then as chief of staff. Jodl headed the German delegation that signed the German surrender at Gen. Eisenhower's headquarters in Reims, France, May 7, 1945. On June 21, an Allied intelligence officer who had questioned the German general quoted Jodl as saying that German plans to invade Britain in 1940 were cancelled because of hazards and lack of training. He also asserted that Germany's failure to contain the Allied invasion of Normandy was due to the fact that the wehrmacht, expecting a second and stronger thrust, had held the German 15th army in reserve too long and failed to reinforce the German 7th army until too late. Jodl went on trial with a score of other high-ranking Germans at Nuernberg on charges of committing war crimes, in Nov. 1945.

**Johns Hopkins University.** An institution of higher education at Baltimore, Md., president, Isaiah Bowman. Termination of World War II made it possible for the first time to disclose some of the university's wartime activities. More than 100 separate research projects were undertaken from 1941 through 1945. Largest was the proximity fuze project which was carried on by the university at a separate laboratory in Silver Spring, Md. There were 1,200 people employed on the project. Along with several other universities, Hopkins received a special citation from the secretary of war for essential research in the development of the atomic bomb. Many of the projects were in the school of medicine and contributed substantially to the record of the institution's medical services during the war. Termination of the war brought a rapid increase in undergraduate enrolment due to veterans returned from service. Final plans were approved for a revised collegiate curriculum which involves a refinement of the group system which was in use at Hopkins from 1933. The new curriculum would emphasize the importance of each student coming into contact with each of the three major branches of learning—the natural sciences, the social sciences and the humanities. (For statistics of enrolment, endowment, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (I. Bo.)

**Johnson, Hiram Warren** (1866–1945), U.S. politician, was born Sept. 2, at Sacramento, Calif. The one-time lawyer and governor of California, 1911–17, was elected five times to the U.S. senate, serving from 1917 to 1945. See *Encyclopædia Britannica* for his early career. His isolationist views marked his political thinking through two wars, and influenced the United States against entering the League of Nations after World War I. He continued to exhort against U.S. "embroilment" in an international peace organization during World War II. During the debate in the senate's foreign relations committee, of which he was ranking minority member, he cast the lone vote against sending the United Nations Charter to the senate without alteration. When the senate ratified the charter, July 28, 1945, by an 89-to-2 vote, Sen. Johnson was very ill. He declared, however, that if he had been present during the voting he would have cast a dissenting vote. He bolted his party to support Franklin D. Roosevelt for the presidency in 1932, warning that the country would "go to hell economically" unless Roosevelt were elected. But Sen. Johnson opposed the president's candidacy for a third term. He voted against the administration on numerous bills that he thought would entangle the U.S. in foreign affairs. He opposed the reciprocal trade agreements, relaxation of the neutrality act, peacetime selective service and lend-lease. He also objected to any relaxation of the arms embargo that would permit sale of U.S. weapons to Great Britain and France on a cash-and-carry basis. Sen. Johnson died at a naval hospital near Washington, D.C., Aug. 6.

**Johnston, Eric A.** (1896– ), U.S. industrialist, was born Dec. 21 in Washington, D.C. After working his way through the University of Washington, Seattle, Wash., where he received the LL.B. degree in 1917, he served as a captain in the marine corps from 1917 to 1922. On receiving a medical discharge because of an injury suffered in China, he returned to Spokane. After a number of years as a successful business executive, he was elected president of the Chamber of Commerce of the U.S. in 1942. In February and March 1943, in his role as chairman of the U.S. Commission of Inter-American Development, Johnston made a 20,000-mi. aeroplane trip through seven countries of South America, conferring with government leaders and businessmen on plans for postwar economic co-operation. In Aug. 1943, at the invitation of Lord Halifax, he visited England, where he urged that postwar world trade be based to the maximum extent on free competitive enterprise. In the summer of 1944, Johnston spent six weeks in Russia, exploring postwar trade possibilities and wrote a number of articles on his impressions of the soviet union and its future place in world economy. He was a member of the Economic Stabilization board, the Economic Advisory committee of the state department, and was on the board of trustees of the Committee for Economic Development. On March 28, 1945, Johnston, together with A.F. of L. and C.I.O. leaders, signed the business-labour postwar peace charter which outlined principles designed to establish postwar industrial harmony. The charter was acclaimed by Pres. Roosevelt, Henry J. Kaiser and the National War Labor board, but was criticized as "premature" by the National Association of Manufacturers. Johnston resigned his post as president of the Chamber of Commerce to become president of the Motion Picture Producers and Distributors of America, Inc., Sept. 19, succeeding Will H. Hays.

**Johnston Island:** see PACIFIC ISLANDS, U.S.

**Joint War Committees** (U.S. and Canada): see CANADIAN-U.S. WAR COMMITTEES.

**Jones, Jesse Holman** (1874- ), U.S. secretary of commerce, was born in Robertson county, Tenn., on April 5. He engaged in extensive real estate operations in Texas and bought control of the *Houston Chronicle*, of which he was publisher. President Hoover appointed him a director of the Reconstruction Finance corporation in 1932 and he became chairman the following year. In July 1939 Jones was appointed administrator of the Federal Loan agency. On Sept. 13, 1940, President Roosevelt nominated him secretary of commerce. Jones came under fire in 1942 when the Truman committee of the senate blamed him for much of the rubber shortage. On June 29, 1943, Vice-President Henry A. Wallace, chairman of the Board of Economic Warfare, attacked Jones violently for alleged failures to supply funds to acquire critical materials. Jones retaliated forcefully, and the president then eliminated the Board of Economic Warfare and rebuked both Wallace and Jones for their "acrimonious public debate." On Jan. 21, 1945, Jones disclosed that he had been requested by Pres. Roosevelt to give up his government posts in favour of Henry A. Wallace and that he acceded. However, he criticized the choice of Wallace, whom he described as a man "inexperienced in business and finance" and as an unsuitable candidate for the department of commerce. Wallace's candidacy for the RFC post was subsequently rejected, but the senate confirmed him as secretary of commerce.

**Jong, Jan de** (1885- ), cardinal archbishop of Utrecht, was born at Nes, off the shore of the province of Friesland, Holland, on Sept. 10. He was ordained in 1908; made theological studies in Rome; and was professor of history in the major seminary of Ryzenburg. Named auxiliary bishop of Utrecht on Aug. 3, 1935, in 1936 he succeeded Archbishop Janssen as ordinary of that see. Archbishop de Jong took a bold stand against co-operation with the nazis during the occupation of the Netherlands in World War II. He refused to allow church services to be broadcast over German-controlled radio stations. Under his direction the priests of the archdiocese tenaciously refused attendance of young storm troopers at Catholic schools, and he refused the sacraments of the church to any member of a Dutch nazi-controlled party. On Dec. 23, 1945, Archbishop de Jong was nominated to the College of Cardinals by Pope Pius XII. He was created and proclaimed cardinal at consistory on Feb. 18, 1946.

**Judaism:** see JEWISH RELIGIOUS LIFE.

**Jugoslavia:** see YUGOSLAVIA.

**Julius Rosenwald Fund:** see SOCIETIES AND ASSOCIATIONS.

**Julleville, Pietro Petit de:** see PETIT DE JULLEVILLE, PIETRO.

**Jumping:** see TRACK AND FIELD SPORTS.

**Junior Colleges:** see UNIVERSITIES AND COLLEGES.

**Justice, U.S. Department of:** see GOVERNMENT DEPARTMENTS AND BUREAUS.

**Jute.** The supply of jute for bagging and other uses in the United States continued to be restricted in 1945. Of the normal imports more than 80% comes from India. Efforts to develop substitute bag materials were continued and paper bags were used for many products such as seeds and fertilizers that formerly were handled in jute bags. Imports of jute in 1945 increased over the 142,912,000 lb. imported in 1944. The jute crop of India increased in 1945 to 2,408,000 ac. compared with 2,104,000 ac. in 1944 and production was expected to reach a total of 2,866,000,000 lb. compared with 2,480,000,000 lb. in 1944. With restoration of shipping the available supply was expected to meet normal requirements. (J. C. Ms.)

**Juvenile Delinquency:** see CHILD WELFARE; CRIME; FEDERAL BUREAU OF INVESTIGATION.

**Kaiser, Georg** (1878-1945), German playwright, was born Nov. 25, at Magdeburg. His plays, many of which carried a social message, were highly successful, commercially as well as artistically. He enjoyed popularity in Germany for more than a decade, but when Hitler came to power the writer fled to Switzerland. His works, notably *From Morn to Midnight*, *The Phantom Lover* and *Gas*, were produced in England and the United States. His production, *Mississippi*, shown in Berlin in 1931, was a sympathetically conceived drama based on a country-city conflict. Among his later works are *Es ist genug* (1932) and *Vera* (1939). He died in Ascona, Switzerland, June 5. (See *Encyclopædia Britannica*.)

**Kalish, Max** (1891-1945), U.S. sculptor, was born March 1 in Poland, and emigrated to the United States with his family when he was a child. He studied art in Cleveland, Ohio, at the National Academy of Design in New York city and in Paris schools. Kalish drew inspiration from the working men of America, asserting that "not religion or beauty, but engineering and industry are moving the world," and his sculpture frequently reflected this philosophy. Among his notable works are a bronze figure of Christ and a figure of Lincoln which he made for the city of Cleveland in 1927. In later years, Kalish concentrated on "apartment size" bronze statuette portraits, 18 or 20 inches high. His statuettes of "Fifty Great Men of 1944," on exhibition at the Smithsonian institution in Washington, D.C., at the time of his death, included portraits of Franklin D. Roosevelt, Frank Knox, Wendell Willkie, Raymond Clapper, General George C. Marshall and Ernie Pyle. Kalish was an associate of the National academy. He died in New York city on March 18.

**Kameroots:** see BRITISH WEST AFRICA; FRENCH COLONIAL EMPIRE.

**Kansas.** A central state of the United States, admitted Jan. 29, 1861; popularly known as the "Sunflower state." Total area, 82,276 sq.mi., of which 82,113 sq.mi. are land; pop. (1940) 1,801,028 (a decrease of 79,971 or 4.3% from 1930). Capital, Topeka (67,833). The two larger cities in 1940 were Kansas City (121,458) and Wichita (114,966). Of the state's population in 1940, 753,941 were urban, or 41.9%; 96.3% were white, 3.7% Negro and other races, 2.9% foreign born. The Kansas census as of March 1, 1945, reported the total population as 1,793,066, a loss of 10,842 from 1944. Wichita, with a 1945 population of 155,968 was the largest city; Kansas City was second with 134,212, and Topeka third with 76,590. Wichita lost 20,348 from the 1944 figure on account of levelling off of the aircraft industry.

**History.**—The state officers for 1945 were all Republicans: A. F. Schoeppel, governor; J. C. Denious, lieutenant governor; F. J. Ryan, secretary of state; George Robb, auditor; W. E. Wilson, treasurer; A. B. Mitchell, attorney general; L. W. Brooks, superintendent of public instruction.

The legislature of 1945 passed little major legislation except school measures, and in that field made a unique record. The most important measures were the Elementary School Reorganization act, the Uniform High School act, and the Reorganization of the Department of Education act.

**Education.**—Enrolment in the public elementary and secondary schools declined from 365,970 in 1940 to 351,370 in 1942-43. Of this number, 99,441 were enrolled in high schools and 251,929 in elementary schools. The number of teachers

dropped from 19,141 in 1930 to 18,944 in 1940. In 1942-43 there were 62,162 pupils enrolled in one-teacher rural schools, a decline of 7,173 from the 1939 figure. There were 8,575 organized school districts in 1942-43 and 6,748 districts operating. The reorganization required under the new legislation would change the whole setup within three years.

**Communication.**—At the end of 1941 the state had 9,368 mi. of primary rural highways; the steam railroad mileage was 8,567. There were 342,277 telephones in 1937.

**Banking and Finance.**—As of June 30, 1942, there were 640 active banks, 179 of which were national, with total demand deposits of \$583,500,000. Savings banks held \$82,500,000 of deposits. Kansas income tax collections for the year 1944 were \$6,635,576.52, an increase of more than 2% over 1943. The sales and compensating tax collections amounted to \$17,291,811, an increase of more than 9%. The state budget for the biennium 1945-47, as approved by the governor, amounted to \$23,013,155.

**Agriculture.**—The 1945 production of Kansas crops was 14% less than 1944, but was exceeded in only three preceding years—1931, 1942 and 1944. In value it was third only to 1919 and 1944. The 1945 wheat crop was second only to 1931, the average yield being 15.5 bu. compared with 17 bu. in 1944 and 12.8 bu. for the 10-year average, 1934-43. The 1945 corn yield was only about 63% of the 1944 crop, but compared favourably with the 10-year average of 45,090,000 bu.; 63% was hybrid varieties as compared with 47% in 1944.

Table I.—Leading Agricultural Products of Kansas, 1945 and 1944

Crop	1945	1944	Crop	1945	1944
Wheat, bu. . .	207,961,000	191,669,000	Barley, bu. . .	6,702,000	14,144,000
Corn, bu. . .	72,864,000	114,793,000	Soybeans, bu. .	2,740,000	3,315,000
Sorghum, bu. .	16,632,000	49,468,000	Potatoes, bu. .	1,476,000	1,092,000
Oats, bu. . .	17,668,000	27,738,000			

Fall planting of winter wheat for the 1946 crop was estimated at 14,145,000 ac., or the same as 1944, and constituted about 60% of all crops, and 27.2% of U.S. winter wheat acreage. Its condition Dec. 1, 1945, was 78% compared with 92% in 1944 and a 10-year average of 73%. The extreme western counties, the so-called "dust bowl," harvested their fifth successive big wheat crop, a record never before equalled. The preliminary figures for the 1945 federal agricultural census showed that Kansas lost 13,931 farms after 1940, but gained 463,567 ac. in farms. The spring movement of cattle from the southwest into the Bluestem pastures in 1945 was 15% larger than in 1944—320,000 compared with 279,000 in 1944, and a 10-year average of 223,000.

**Manufactures and Mineral Production.**—In 1944 Kansas oil production reached 99,853,000 bbl., a little below 1943, but natural gas output reached an all-time high of 134,000,000,000 cu.ft. There were 53 entirely new oil and gas pools discovered during the year. A report on proved coal reserves

Table II.—Principal Mineral Products of Kansas, 1944 and 1943

Mineral	Value, 1944	Value, 1943
Petroleum . . . . .	\$120,800,000	\$127,410,000
Coal . . . . .	9,350,000	8,606,968
Cement . . . . .	4,454,060	8,035,559
Zinc . . . . .	14,524,284	12,299,904
Lead . . . . .	1,503,040	1,381,950
Salt . . . . .	4,357,217	4,197,507

set the figures at 906,331,175 tons of mineable coal; at the existing rate of consumption, a supply for 243 years.

(J. C. MN.)

**Keitel, Wilhelm** (1882— ), German army officer, was born Sept. 22 at Gandersheim. An artillery commander during World War I, he was promoted to major general on April 1, 1934. The following year, when Germany introduced conscription, he took charge of the personnel

section (*wehrmachtsamt*) in the war ministry and was thus connected, to a certain extent, with the occupation of the Rhineland in 1936 and the dispatch of German troops to Franco Spain. In Feb. 1938, when Hitler purged the conservative members of the high command, Gen. Keitel was appointed supreme commander of the German armed forces. He thus directed operations (1939-40) against Poland, Norway, the Low Countries, France and the aerial blitzkrieg against England. On June 22, 1940, he signed the French-German armistice, and on July 19 he was made field marshal by Adolf Hitler. In Aug. 1944 Keitel visited Baron Carl Gustav von Mannerheim in Helsinki but failed in his efforts to dissuade the Finnish leader from concluding peace with the soviet union. Keitel was head of the German delegation that signed the Allied surrender terms in Berlin May 8, 1945, in the presence of high Allied dignitaries. He was later arrested and was one of the top-ranking nazi war criminals tried at the Nuernberg sessions. On Aug. 14 Keitel was quoted as saying that he was still a faithful follower of Hitler. He professed ignorance of the concentration camp atrocities.

## Kenney, George Churchill

(1889— ), U.S. army officer, was born Aug. 6

in Yarmouth, Nova Scotia, the son of U.S. citizens. He attended the Massachusetts Institute of Technology, Cambridge, Mass., for three years, but left in 1911 and later worked at civil engineering. In June 1917, he enlisted as a flying cadet in the U.S. signal corps reserve's aviation section. He saw active duty in France and was awarded the D.S.C. for extraordinary heroism in action. At the end of the war, he held the rank of captain. Kenney attended the Command and General Staff school, 1927, and the Army War college, 1933. In 1940, he irritated ranking U.S. military officials with the statement that the U.S. air force could be "thrown into the ash can" because it was too antiquated for the kind of war the Germans were planning. However, he was promoted to the rank of brigadier general, Jan. 1941, and became a major general, Feb. 1942 and a lieutenant general, Oct. 1942. Kenney was later transferred, Sept. 1942, to the Southwest Pacific. There, under Gen. Douglas MacArthur, he was placed in command of Allied air forces. Kenney was credited by the war department with the origin of the accurate and deadly skip bombing technique. On June 27, 1944, Kenney was named head of the newly created far eastern air force. His new command combined the 5th air force, which operated in Australia and New Guinea, with the 13th air force, which fought in the Solomon Islands, New Britain and New Ireland. He participated in the Philippines campaign (1944-45) and directed tactical air attacks on Japanese targets in the broad Pacific war theatre. He was named to the temporary rank of a full general, March 13, 1945, and was confirmed in this post on March 28. Allied headquarters in Manila stated Aug. 17 that Kenney's air forces had destroyed 11,900 planes and had sunk more than 1,700,000 tons of Japanese shipping in the long Pacific campaign. Kenney approved (Nov. 2) the proposed war department measure for a merger of the armed services only if the air arm were given equality with other services.

**Kentucky.** An east south central state of the United States, admitted to the union June 1, 1792, popularly known as the "Blue Grass state." Area 40,598 sq.mi. of which 489 sq.mi. constitute water. Population as of July 1, 1944, was 2,630,194 of which 2,443,252 were whites. Negroes constituted 209,721 or 7.5% and 15,631 were foreign-born. Capital, Frankfort (11,492); largest city, Louisville (319,077). Other cities: Covington (62,018); Lexington (49,304); Owensboro (30,245); Paducah (33,765); Ashland (29,537). The war drew from Ken-



tucky 317,925 men who were enlisted and inducted.

**History.**—Chief officers (elected 1943 for a term of four years) were Simeon S. Willis, governor; Kenneth H. Tuggle, lieut. governor; Eldon S. Dummitt, attorney-general; Irvin Ross, auditor; T. W. Vinson, treasurer; John Fred Williams, state superintendent of schools; and Elliott Robertson, commissioner of agriculture. In the election of Nov. 6, 1945, the Democrats carried the general assembly, winning by 71 to 29 over the Republicans in the house and 21 to 17 in the senate. In addition two constitutional amendments were adopted, the first continuing the absentee ballot system first adopted by the general assembly in 1942. The second amendment provided that all funds obtained for the benefit of public roads be devoted exclusively to that purpose. On Nov. 19 Governor Willis appointed William A. Stanfill U.S. senator to fill the vacancy caused by the resignation of Senator Albert B. Chandler.

**Education.**—Elementary schools in 1945 enrolled a total of 445,678 pupils, while the enrolment in high schools was 82,212.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—On June 30, 1945, those drawing old-age assistance were 48,190, a decline of 11% from the 54,159 at the first of the year. State funds available for this purpose exclusive of U.S. aid, were on June 30, 1945, \$4,537,536. The mortality rates remained unchanged despite a great shortage of medical personnel.

**Communication.**—Eight intrastate bridges were declared toll-free Aug. 25. On Oct. 10 Pres. Truman dedicated the Kentucky dam at Gilbertsville. The average road mileage maintained in the state during the fiscal year ending March 31, 1944, was 9,896.124 mi.

**Banking and Finance.**—Expenditures for the fiscal year ended June 30, 1945, in the general fund, amounting to a total of \$32,812,651.67, were as follows: education \$19,640,621.31; welfare \$7,389,911.53; judiciary \$1,407,664.67; general government \$1,412,683.87; new lands and buildings \$890,111.68; health \$773,245.83; Jefferson, Kenton and Harlan counties \$488,937.28; conservation, agriculture and regulations \$546,634.18; confederate pensions \$75,433; military \$137,691.42; legislative session \$49,716.90.

Revenue receipts for the same fiscal year, totalling \$36,741,092.37, were as follows: property and inheritance taxes \$6,929,656.72; income and special corporation taxes \$12,140,644.91; excise taxes, other than alcohol, \$5,526,143.29; alcohol taxes and licenses \$8,559,120.85; licenses and license taxes, other than alcohol, \$1,932,449.49; departmental fees, sales and rentals \$111,340.66; county and court costs \$1,093,046.35; miscellaneous revenue \$448,690.10.

**Agriculture.**—The principal crops of 1945 were as reported in the accompanying table.

Leading Agricultural Products of Kentucky, 1945 and 1944

Crop	1945	1944
Wheat, bu. . . . .	5,278,000	7,902,000
Corn, bu. . . . .	77,824,000	67,080,000
Oats, bu. . . . .	1,925,000	1,538,000
Tobacco (all types), lb. . . . .	469,395,000	398,195,000
Timothy hay, tons . . . . .	2,525,000	1,623,000
Irish potatoes, bu. . . . .	3,999,000	2,494,000

**Mineral Production.**—At the end of 1944 there were 72,406,927 tons of coal mined and 9,502,695 barrels of oil produced. The mining casualties were 157. (E. T.)

**Kenya:** see BRITISH EAST AFRICA.

**Kern, Jerome David** (1885–1945), U.S. composer, was born Jan. 27 in New York city. His mother taught him to play the piano and later sent him to Germany and England to study composition. He returned

to New York where he worked for various music publishers and later became vice-president of a music publishing firm. His first musical comedy produced in the U.S., *Mr. Wix of Wickham*, went scarcely noticed. In 1911, he wrote the music for *The Red Petticoat*, and in a three-year period, 1915–18, he wrote the scores for 19 productions. His name became a byword in show business, though Kern modestly disclaimed any credit as an artist. He described himself as a “musical clothier . . . I write music to both the situations and the lyrics in plays.” Critics, however, praised the finished musicianship, the complex vocal and instrumental ensembles and the elaborate counterpoint effects that marked his operettas. His best known work was *Show Boat*, 1927, with lyrics by Oscar Hammerstein II, based on the novel of Edna Ferber. One song from this show that the composer considered his masterpiece was “Ol’ Man River.” In 1931, Jerome Kern went to Hollywood, Calif., where other of his stage successes were filmed. He wrote additional scores for *Can’t Help Singing* and *Till the Clouds Roll By*, a musical biography which was put into production at the time of his death. Other of Kern’s musicals include *Sally*, *Roberta*, *Music in the Air*, *Cat and the Fiddle*, *Sweet Adeline*, *Sunny* and *The Girl from Utah*. Some of his best known songs were “Look for the Silver Lining,” “They Didn’t Believe Me,” “Smoke Gets in Your Eyes” and “The Last Time I Saw Paris.” Kern, who had gone to New York to sponsor a new production of his *Show Boat* with Hammerstein, died in that city, Nov. 11.

**Kesselring, Albert** (1887– ), German army officer, began his career as an aviator in World War I. His friendship with Reichsmarshal Hermann Goering aided his rise, and in 1936 he was appointed first chief of the luftwaffe’s general staff, but later resigned because his technique of air operations met with disapproval. The shakeup in the German high command in Feb. 1939 brought Kesselring back to favour, and he directed phases of air operations in the Polish campaign (1939) and in operations against the Netherlands, Belgium and France in May 1940. Kesselring was then promoted by Hitler to the rank of general field marshal. He commanded a German aviation unit on the Russian front, 1941–42, and served as chief of the luftwaffe in Italy, Feb. 1942. In Sept. 1943 Kesselring was placed in command of the central Italian front, and he assumed over-all command of the wehrmacht in Italy after Rommel’s departure for the western front. It was stated March 22, 1945, that Kesselring had replaced Field Marshal von Rundstedt as commander of German forces on the western front. Kesselring, however, had no chance to display the skill he had proved in Italy, as the German armies were by then too far disrupted and shattered. Field dispatches of May 9 said that Kesselring was captured by troops of the U.S. 7th army. He was subsequently imprisoned at the Palace hotel in Luxembourg together with high ranking nazi officials who were awaiting trial as war criminals.

**Keyes**, 1ST BARON, OF ZEEBRUGGE AND DOVER (1872–1945), British admiral, was born Oct. 4 and joined the navy in 1885. For earlier career, see *Encyclopædia Britannica*. He was in command of the Dover patrol during World War I and led the attack on Zeebrugge that closed the Bruges canal. He was made an admiral of the fleet in 1930 and was a member of parliament, 1934–43. In 1943 he was made a baron. As director of combined operations (1940–41), he was in charge of developing the famed British commandos. His son, Lt. Col. Geoffrey C. T. Keyes, was killed while leading a commando raid on Gen. Rommel’s headquarters in 1941 and was posthumously awarded the Victoria cross. Lord Keyes was the author

of a number of works including his *Naval Memoirs* in two volumes—vol. I, *The Narrow Seas to the Dardanelles* (1934) and vol. II, *Scapa Flow to the Dover Straits* (1935). Among his other works are: *Adventures Ashore and Afloat* (1939), *The Fight for Gallipoli* (1941) and *Amphibious Warfare and Combined Operations* (1943). Lord Keyes died at his home in Buckingham, Dec. 26.

**Kidnapping.** Wartime influences continued to affect the number and character of kidnappings during 1945, and as a result there was not only a marked reduction in such crimes, but there seemingly were no kidnappings for ransom.

The more striking cases all occurred in the United States and were notably small in number. Most unusual case arose in Jan. 1945 on the Arizona-New Mexico border where an outbreak of Navajo Indians, caused by resistance to the livestock reduction program, was accompanied by three kidnappings. A more familiar pattern was followed in Chicago, where a watchman was kidnapped and forced to aid in opening the vaults of the Rumbold Real Estate company. Still another motivation for this type of crime was involved in the taking from a hospital nursery of week-old J. E. Creviston. Mrs. P. Lanman was held.

The amazing performance of the Federal Bureau of Investigation doubtless had a considerable influence in reducing the number of kidnappings in the United States. During the 10½ years preceding Dec. 31, 1944, there were 273 cases of kidnapping and conspiracy to kidnap in the U.S. which came within the jurisdiction of the FBI. Of this total, only two cases, which continued under active investigation in 1945, were unsolved. Both 10-year-old Fletcher Mattson, kidnapped at Tacoma, Wash., on Dec. 27, 1936, and 12-year-old Peter D. Levine, taken at New Rochelle, N.Y., on Feb. 24, 1938, were later found dead, and the persons responsible were still being sought.

The grand total of 271 kidnappings resulted in 553 convictions, plus 8 kidnappers who were killed while resisting arrest, 2 who were lynched, 7 who were murdered by gangsters and 1 who was declared insane.

Kidnapping convictions during 1944 totalled 27 in number.

Most interesting prosecution for kidnapping during 1945 was in connection with the long-continued Stoll case, in which T. H. Robinson, Jr., convicted of the crime under federal statute, was denied executive clemency by newly inaugurated President Truman, and was transferred to Louisville, Ky., under sentence of death. During the following month, however (June 1945), President Truman commuted the sentence, and charges were made of "political influence" exercised by Senator A. B. Chandler. At this point the U.S. department of justice announced that Attorney General Biddle had recommended commutation because of the severity of the death penalty. At a hearing to determine Robinson's mental responsibility he was found to be sane. (See also FEDERAL BUREAU OF INVESTIGATION.) (Br. S.)

**King, Ernest Joseph** (1878— ), U.S. naval officer, was born Nov. 23 in Lorain, O. He left Annapolis to serve in the Spanish-American War, returning to the naval academy to graduate in 1901. During World War I he was assistant to the chief of staff of the commander in chief of the U.S. fleet. He was promoted to rear admiral in 1933 and to vice-admiral in 1938, in command of the fleet's aircraft battle force. On Feb. 1, 1941, he was made commander of the Atlantic fleet and on Dec. 20, 1941, he was made commander in chief of the U.S. fleet.

Adm. King assumed the additional post of chief of naval operations on March 9, 1942.

In 1943 and 1944, Adm. King participated in several military

and naval conferences dealing with British-U.S. war strategy. His planning was credited with the destruction of Japan's naval power in 1944 and 1945. On Dec. 14, 1944, he was promoted to the newly-created rank of fleet admiral, along with Chester W. Nimitz and William D. Leahy.

Definitely a "big navy man" the admiral asserted April 4, 1945, that the U.S. must maintain a large postwar navy and keep its new Pacific bases as a safeguard against future aggression. He also favoured universal peacetime military training. In the navy report on Pearl Harbor, issued Aug. 29, Adm. King obliquely criticized Adm. Husband E. Kimmel for failing to assess correctly the danger of a possible Japanese attack. On Nov. 20 Adm. King relinquished his post as chief of naval operations and was succeeded by Adm. Nimitz. In his final annual report, Dec. 8, King contended that Japan's defeat was "directly due to our overwhelming power at sea" and asserted that the proposed army-navy merger would destroy the navy's effectiveness.

**King, William Lyon Mackenzie** (1874— ), Canadian politician, was born at Berlin (now Kitchener), Ont., Dec. 17. His grandfather, William Lyon Mackenzie, had been prominent in the struggle for political freedom in 1837. King entered parliament in 1908, became leader of the Federal Liberal party in 1919, and was returned to office as prime minister for the third time on Oct. 23, 1935. Following Canada's entry into World War II, the King government came under attack of his political foes, and there were recurrent charges of incompetence in handling the war effort. However, the country stood firmly behind the prime minister. The growing controversy over the question of conscription for overseas duty reached a crisis in 1944. King's proposal on Nov. 23 to send overseas 16,000 of the 42,000 "home service" draftees, under authority of the National Resources Mobilization act, precipitated a storm of protest, particularly in the French-speaking province of Quebec. However, after several weeks of violent debate, the house on Dec. 8 voted 143 to 70 to "aid the government in maintaining a vigorous war effort." King co-operated with the United States in measures for common defense of the two countries, and he participated in several Churchill-Roosevelt conferences. In the general elections held June 11, 1945, King's Liberal party emerged victorious although it failed by a slim margin to obtain a clear majority. King himself was defeated in his constituency in Prince Albert, Sask., but was re-elected in a parliamentary by-election in Ontario, Aug. 6. He participated with Truman and Atelee in the Washington conference on atomic energy, Nov. 15.

**Kingman Island:** see PACIFIC ISLANDS, U.S.

**Kinkaid, Thomas Cassin** (1888— ), U.S. naval officer, was born April 3 at Hanover, N.H., and was graduated from the U.S. naval academy at Annapolis, Md., in 1911. After serving with the British admiralty in World War I, he became gunnery officer of the U.S.S. "Arizona" in the late months of the war. He played an important part in 1942 in both the battle of the Coral sea and the battle of the Solomon Islands. The following year he was named commander of the naval force in the North Pacific, with direction of joint military operations in that area. In this capacity, Kinkaid engineered the unopposed landing of U.S. forces on Kiska Island in Aug. 1943. He was promoted to the rank of vice-admiral in June 1943 and, in November of the same year, he became commander of the 7th fleet. In April and May of 1944, he supported Allied landings at Biak Island and at Hollandia in New Guinea. In the battle for Leyte gulf, in

October, his fleet delivered a crushing blow to the Japanese navy, knocking out two of its forces converging on the gulf. The 7th fleet covered U.S. ground forces invading Luzon (Jan. 9, 1945) and then roamed deep into enemy waters, persistently battering Japanese shore installations while its carrier aircraft bombed numerous targets. On March 29, Kinkaid was promoted to the rank of a full admiral. The navy department disclosed, Nov. 14, that Adm. Kinkaid was to be succeeded as commander of the 7th fleet by Vice-Adm. Daniel E. Barbey.

**Kiwanis International:** *see* SOCIETIES AND ASSOCIATIONS.  
**Knights of Columbus:** *see* SOCIETIES AND ASSOCIATIONS.

**Koenigsberg.** A city formerly the capital of the German province of East Prussia. Population (1939) 368,433. Koenigsberg is an important port, the protected position of which makes it equally favourable for military and commercial purposes. The university founded in 1544 and where Immanuel Kant taught had, in 1936, 225 teachers and 1,219 students. The Russians bombed and occupied the city in World War II. Though the population of the city and the surrounding district was purely German, it was decided at the Berlin conference by the Big Three in 1945 to incorporate the city and the district into the U.S.S.R. The Polish claims to the northern part of East Prussia and the capital were disregarded. The district became a part of the Russian Socialist Federal Soviet republic from the territory of which it is separated by the Lithuanian Socialist Soviet republic. It was organized as a special *okrug* (circle or district) which contained the important cities of Koenigsberg, Tilsit and Insterburg. (H. Ko.)

**Koiso, Kuniaki** (1880— ), Japanese army officer and statesman, was educated at the Military Staff college where he later served as instructor. In 1932 he served as vice-minister for war and as a member of the staff of the Kwantung army in Manchoukuo. He was minister for overseas affairs, 1939-40, in the Hiranuma cabinet, and became governor general of Chosen in May 1942. In July 1944 he was named premier of Japan, succeeding Gen. Hideki Tojo. Koiso was known as a staunch disciple of Japan's "special mission" in east Asia, namely, aggression and expansion. In October of 1944 he told the Japanese people bluntly that they had been on the defensive since Guadalcanal. He held out hope, however, that Japan could defeat the Allies once the fighting entered Japan's "inner sphere." This hope was dissipated in 1945 by the successful U.S. invasion of Iwo Island and the gradual reduction of the Japanese holdings in the Philippines and Burma. On March 21, Koiso asked for sweeping emergency powers to prepare for an eventual Allied invasion. But on April 5, a Tokyo broadcast disclosed that his cabinet had been ousted to prepare for a more "powerful" regime. His arrest was ordered by Gen. MacArthur on Nov. 19, and he surrendered to Allied occupation forces Nov. 23.

**Konev, Ivan Stepanovich** (1897-? ), Russian army officer, came of peasant stock and was in the Red army virtually from its establishment. At 20, with his wife, he organized guerrillas in the far east and fought against the Kolchak (White Russian) army and subsequently commanded an armoured train against the Japanese. Konev participated in the attack that subdued the Kronstadt rebellion; then, after civil war began, he continued his military training at Frunze academy. He was soviet commander in the west when Germany attacked Russia in 1941, and led the first real counterattack of the war. He was withdrawn to form what became the northwest front army which went into action with

the opening of the Moscow counteroffensive in Dec. 1941. In the critical summer of 1942 he led a six-week operation against Rzhev which tied down a large force that might otherwise have been sent to assist the 6th German army pounding at Stalingrad. Konev was one of the generals under whose direction the Russian armies in 1943 broke Germany's third summer offensive. In Aug. 1944 his army crossed the Vistula river, south of Warsaw, breaking through the last German stronghold before Germany proper. He was awarded the Order of Suvorov in 1943 and in March 1944, he was promoted to marshal of the soviet union. Konev's 1st Ukrainian army was in the forefront of the great Russian drive launched from Poland in mid-January 1945. His army crossed the Vistula river, plunged into Silesia, forced the Oder and together with Marshal Zhukov's forces entered and captured Berlin. After Germany's surrender, Konev was made commander of Russian occupation forces in Austria.

**Konoye, Fumimaro** (1891-1945), Japanese prince and statesman, was born at Kyoto in October, the son of Prince Atsumaro Konoye and descendant of one of Japan's oldest families. He was graduated from Tokyo Imperial university's law college in 1917, and was a member of Prince Saionji's delegation to the Paris peace conference the following year. After serving in the house of peers, he was prime minister, 1937-39, and sanctioned the war on China. He subsequently became minister of state without portfolio and president of the privy council. In July 1940, after the resignation of Adm. Yonai, he again became prime minister. He then organized the Imperial Rule Assistance association and also headed the Great Japan and Asia Development league, whose major goals were conquest of Asia and maintenance of close bonds with the axis. From all appearances, Konoye's ministry was dedicated to "moderation" in foreign affairs. Konoye resigned, July 16, 1941, and formed a new cabinet two days later without his foreign minister, Yosuke Matsuoka. Konoye's new government lasted only three months, and the prince was succeeded in October by sabre-rattling Gen. Hideki Tojo, who was pledged without reservation to fulfilment of Japanese aspirations in east Asia. Konoye's arrest to stand trial as a war criminal was ordered by Gen. MacArthur, Dec. 6, 1945. On the night that he was to give himself up, Dec. 16, Konoye took his life with poison. His son later disclosed political memoranda compiled by Konoye before his death, in which the prince put the burden of the blame for Japan's decision to attack the United States on Tojo and Matsuoka.

**Korea** (CHOSŌN). A part of the Japanese empire from 1910 until the Japanese surrender in 1945, then a theoretically independent state under U.S. and Russian military control, Korea is a peninsula extending southward from the northeastern side of the continent of Asia. It is bounded E. by the Sea of Japan, W. by the Yellow sea and N. by Manchuria and the maritime province of Siberia. Area: 85,225 sq.mi., including 1,018 adjacent islands; pop. (Oct. 1, 1940) 24,326,327. There were 650,100 Japanese in Korea in 1939 and 49,815 non-Japanese foreigners, mostly Chinese, in the country in 1938. The capital is Seoul (Keijo), pop. (1940 census) 935,464. Other large cities: Pyeng-yang (Heijo) (285,965); Fusan (249,734); Seishin (197,918); Taikyu (178,923). Buddhism, Confucianism and Taoism are prevalent forms of religion. There were 494,500 Koreans and 5,800 Japanese Christians in Korea in 1938. The last Japanese governor general, General Nobuyuki Abe, was removed from office after the surrender of Japan in 1945. The head of the Korean provisional government at the end of 1945 was Kim Koo.





FORMAL OCCUPATION of Korea, led by the U.S. 7th infantry division, began early in Sept. 1945. Koreans lined the street to welcome these veterans of bitter fighting in the Southwest Pacific

**History.**—Korea was not directly drawn into World War II until Aug. 1945, when Russian forces overran the northern part of the country. A U.S. occupation force under Brigadier General John R. Hodge took over the southern part and a line of demarcation along the 38th parallel of latitude was established. The section under soviet control was more industrialized, the region under U.S. occupation more agricultural. There had been little experience in self-government under the Japanese rule, and dispatches from Korea reported a multiplicity of parties and a good deal of political and economic confusion. A provisional government was organized under the leadership of Kim Koo, Korean nationalist who had headed a government in exile in Chungking. Information from the soviet zone was almost nonexistent.

Korea figured in the agreement announced after the conference of U.S. Secretary of State Byrnes, soviet Foreign Commissar Molotov and British Foreign Secretary Bevin in Moscow in Dec. 1945. It was agreed that Korea should be placed under a trusteeship of the United States, the soviet union, Great Britain and China for a period not to exceed five years and that representatives of the U.S. and soviet commands should meet within two weeks to discuss administrative and economic matters. There was a good deal of criticism of this arrangement from Korean leaders, who expressed the fear that it would postpone and perhaps imperil independence.

**Education.**—There were 3,372 elementary schools, with 1,311,270 pupils in Korea in 1938. There were 53 high schools, with 27,867 students; 57 girls' high schools, with 22,277 students; 226 technical schools, with 34,060 students; 10 normal schools, with 5,565 students; 18 special colleges (for medicine, dentistry, etc.), with 4,015 students. There were 350 Japanese and 206 Korean students in the single university in Seoul. There were 9,086 Korean students in Japan. Two trends in the Japanese educational system in Korea were to make Japanese the language of instruction and to emphasize vocational rather than cultural training.

**Finance.**—The unit of currency was the Japanese yen (23.48 U.S. cents before World War II). The Korean budget for 1942-43 was balanced at 1,012,577,000 yen. The national debt, as of 1941, was 593,646,215 yen and the amount of currency in circulation was 437,669,000 yen. There was no detailed information about financial arrangements under the new regime in 1945.

**Trade and Communication.**—Korea's imports in 1939 were 1,388,448,284 yen; exports were 1,006,793,785. There were 17,011 mi. of roads in 1939 and 2,619 mi. of government

and 1,107 mi. of privately owned railways in 1940. Korea possessed 738 steamships with a tonnage of 106,712 and 1,125 sailing vessels with a tonnage of 45,431 in Dec. 1939. The length of telegraph and telephone lines in 1941 was respectively 5,406 mi. and 6,780 mi.

**Agriculture, Manufacturing, Mineral Production.**—Korea is predominantly agricultural, although industrial development was speeded up in the last years of Japanese rule. A big hydro-electric power plant was built on the Yalu river. The principal crop is rice, with a production of 106,775,869 bu. in 1940. There were 1,705,000 cattle, 1,400,000 pigs, 51,000 horses and 20,000 sheep in Korea in 1939. Other important crops were barley, millet, rye, soybeans and apples.

There were 6,298 industrial establishments with five or more workers and a total of 166,700 employees in 1937. The value of industrial output in 1938 was 1,140,118,000 yen compared with 273,649,000 yen in 1931. The most important industries, in the order named, were chemicals, foodstuffs, textiles and metals. Gold, iron, coal, wolfram and mica are among the mineral resources of the country.

(W. H. CH.)

**Krueger, Walter** (1881— ), U.S. army officer, was born in Flatow, Germany, Jan. 26. Brought to the U.S. as a child, he attended the Cincinnati Technical school from 1896 to 1898 and left school to enlist as a private at the outbreak of the Spanish-American War. He later saw action during the Philippine insurrection, on the Mexican border, and during World War I. From 1921 to 1938 he filled various posts at army schools and on the general staff. Promoted through the grades, he became a brigadier general in 1936, major general in 1939, and lieutenant general in 1941. When the 6th army in the Southwest Pacific was organized early in 1943 during World War II, Gen. Krueger was sent to Australia to take command. In December the 6th army invaded the island of New Britain. When U.S. troops invaded Hollandia, Netherlands New Guinea, on April 24, 1944, Gen. Krueger supervised the landings. He also led the U.S. ground forces which took part in the invasion of Leyte Island in the Philippines on Oct. 20, 1944, and in the Luzon invasion (Jan. 9, 1945). Krueger was named to the temporary rank of a full general, March 13.

**Kure (Ocean) Island:** see PACIFIC ISLANDS, U.S.

**Kuwait:** see ARABIA.

**Kyanite Minerals.** Closely associated with kyanite are andalusite, dumortierite and sillimanite. Kyanite production in the United States was not reported in 1944, but was 9,561 short tons in 1943. It is used in refractories

and certain types of glass, supplies for the latter having been short. Imports from India usually run about the same as domestic output. Production of andalusite in Mono county, Calif., and of dumortierite in Pershing county, Nev., were not reported, but declined somewhat below the 1943 level. No sillimanite production was made, so far as was known in 1945, but 346 tons were imported in 1944. (G. A. Ro.)

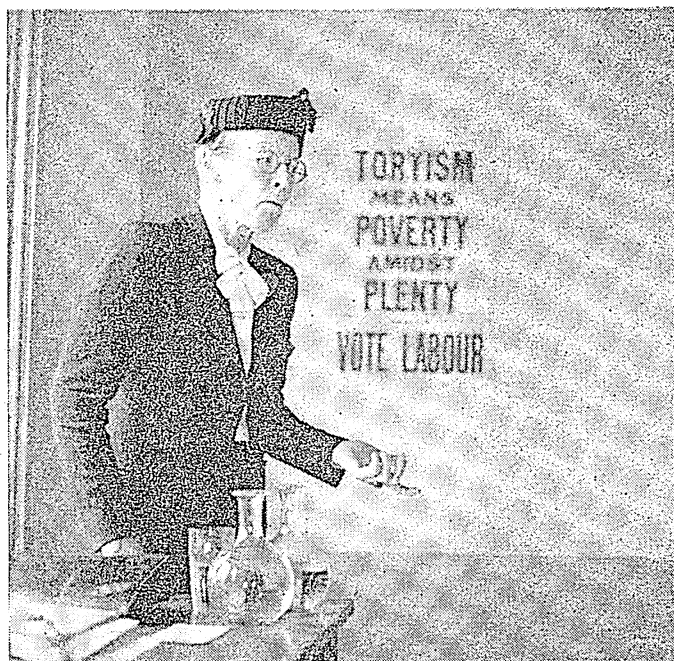
**Labor, U.S. Department of:** see GOVERNMENT DEPARTMENTS AND BUREAUS.

**Labor Relations Board, National:** see NATIONAL LABOR RELATIONS BOARD.

**Labour:** see AGRICULTURE; AMERICAN FEDERATION OF LABOR; CHILD WELFARE; CONGRESS OF INDUSTRIAL ORGANIZATIONS; EMPLOYMENT; INTERNATIONAL LABOUR ORGANIZATION; LABOUR UNIONS; LAW; MOTION PICTURES; NATIONAL LABOR RELATIONS BOARD; NATIONAL MEDIATION BOARD; NEGROES (AMERICAN); RADIO; RELIEF; SHIPBUILDING; STRIKES AND LOCK-OUTS; SUPREME COURT OF THE UNITED STATES; UNITED STATES; WAGES AND HOURS; WAR LABOR BOARD, NATIONAL; WAR PRODUCTION, U.S. See also under various states.

**Labour Party.** In the general election of 1945 the British Labour party won a sweeping victory, raising its representation in the house of commons to 393 (out of 640) as compared with 154 (out of 615) in the election of 1935. In the election itself the party gained 202 seats, and lost only 3. Its gains were most remarkable in Greater London, Birmingham, and other big towns, and were partly due to a great swing-over to its side among the "blackcoated workers" in the residential areas, as well as to the support of the majority of service voters. The Labour party fought the election on a program entitled *Let Us Face the Future*, which included public ownership of the Bank of England, the mines, inland transport, power supply, and steel manufacture, a continuance of essential controls, an active housing and town-and-country planning policy, and a large scheme of social insurance based mainly on the Beveridge report. In general terms the program may be described as one of moderate socialism, with the fullest support for measures of international co-operation

LABOURITE stumping at a pre-election meeting in Great Britain during the campaign of 1945. Final tallies gave the Labour party a clear majority in the house of commons, with 393 seats out of a total of 640



for the economic rebuilding of war-devastated areas, as well as for the prevention of war. In May 1945 the Labour members had withdrawn from the Churchill coalition government after Winston Churchill had rejected an offer from them to remain until the autumn, in order to enable the election to be fought on an improved register, and after the Labour party conference had rejected Mr. Churchill's proposal that coalition should continue until the end of the war against Japan, which was then expected to last for some time. In August, after the election, the Labour leader, Clement R. Attlee, became prime minister, with Ernest Bevin as foreign secretary, Hugh Dalton as chancellor of the exchequer, Sir Stafford Cripps at the board of trade, and Herbert Morrison as lord president of the council. The new Labour M.P.'s included a high proportion of young service men, and there was a much smaller proportion directly representing the trade union element in the party. Of course many of these were members of trade unions, though not sponsored as candidates by their unions. Locally there was during the year a large-scale revival of Labour party activity, and after the general election active preparations were made for fighting the municipal elections—the first after their suspension during World War II—which were held in November. Large Labour gains were achieved on many of the local councils, and the Labour party captured a majority in a large number of towns, including several of the largest. It also further strengthened its position in the London boroughs, of which it now held 22 out of a total of 28. Elections for the London county council, on which Labour held a majority, were not due until the spring.

The most urgent issues facing the Labour government were those connected with demobilization, housing, and the proposed national health service, which involved a controversy with the British Medical association. Aneurin Bevan, the new minister of health, who was regarded as belonging to the extreme left of the party, was dealing with the two latter issues, while demobilization was mainly in the hands of George Isaacs, the minister of labour, who up to his appointment was chairman of the Trades Union congress. By November the government had introduced a bill continuing for five years the power to maintain necessary economic controls. Proposals had been brought forward for the nationalization of civil aviation and of wireless telegraphy services in addition to the industries scheduled for public ownership during the general election. In a number of industries, which it was not designed to nationalize, at any rate immediately, the government set up "working parties" representing the various interests concerned, under impartial chairmen, to report as speedily as possible on the future organization of each industry concerned, and this technique was expected to be extended to further industries. (See also CABINET MEMBERS; GREAT BRITAIN.) (G. D. H. C.)

**Labour Unions.** United States.—The problems arising out of the ending of the war and the re-conversion of industry from war to peace production dominated the activities and policies of organized labour in 1945. The first of these problems was wages. In anticipation of a considerable drop in employment and, hence, in hours of work after the war, all labour unions were prepared to demand prompt and large increases in wages to compensate their members for the decline in their weekly pay. The figure arrived at by the unions was 30%. An increase in this amount would, it was estimated, yield enough to make up the loss of 8 hours of overtime. Hence, when hours in war industries were reduced from 48 to 40, a 30% increase would, according to the unions, maintain the average employee's take-home pay.

Union demands for increases of 30%, or thereabouts, precipitated a great controversy over wage principles and policies.

which was still unsettled at the end of the year. Labour argued that industry was able to pay this amount out of profits, past and future, and out of the increasing efficiency of industry. It was the view of some union leaders that such increases could be paid without raising prices or diminishing profits. The employers argued that lifting wages by any such amounts would raise costs and prices and start the inflation which everyone wished to prevent. They saw also in these union demands efforts by organized labour to assume the responsibilities of management by asserting its right to determine a company's profits and the method of distributing its earnings.

Although some wage demands were settled, the most important were deadlocked and in the fall strikes broke out among the employees of General Motors and other industries. The spread of strikes and the threat of additional ones in steel, meat packing and telephones raised the whole question of public policy toward wages and strikes.

On the matter of wages organized labour seemed to have the support of the president. He favoured substantial advances in wages and believed they could be granted without affecting prices. But as to the means of preventing strikes the president and the unions found themselves far apart. Their differences arose over his proposal to set up fact-finding boards charged with examining the facts and reporting their recommendations. The president's plan provided a cooling-off period of 30 days, during which strikes were forbidden, and empowered the board to subpoena relevant records. The unions—the C.I.O., A.F. of L. and Mine Workers—reacted violently against the whole program, seeing in it compulsory arbitration and restrictions on the right to strike. By the close of the year, congress had failed to act on the president's recommendations. But in order to deal with existing and impending strikes, the president set up by executive order fact-finding boards to handle the auto, steel, oil and meat-packing disputes and these proceeded to act without statutory authority.

Among the devices conceived by the administration for developing labour and strike policies was the labour-management conference. This conference, composed of leaders of industry and labour, met in Washington to consider the means of promoting labour peace. Early in its deliberations, the conference split on the issue of wages, Philip Murray of the C.I.O. contending that the conference should formulate a wage policy and the A.F. of L., miners and employers contending that wages must be settled by individual employers and unions. Though conducted with good will, the conference failed to reach important conclusions.

Because of the liquidation of war industries, such as ship-building and aeroplane manufacturing, the unions lost many members in 1945. But how many they lost was not known at the close of the year. They remained strong in civilian industry and throughout the year they carried on extensive organizing campaigns in nonunion plants, and particularly among white-collar workers.

The feud between the A.F. of L. and the C.I.O. remained unsettled. The C.I.O. reinforced its international position and enhanced its prestige by taking a prominent place in the activities of the new world congress of unions. Abandoned by the British Trades Union congress, the A.F. of L. continued its opposition to any international organization of labour which admitted to membership the Russian unions or any unions controlled by government and, for the moment, stood alone against a strong trend toward international labour organization. In the United States the C.I.O. won further and valuable recognition by the appointment of one of its officers as an assistant secretary of labour. (See also AMERICAN FEDERATION OF LABOR; BUSINESS REVIEW; CONGRESS OF INDUSTRIAL ORGANIZATIONS; LAW; NA-

TIONAL LABOR RELATIONS BOARD; STRIKES AND LOCK-OUTS.)  
(L. Wo.)

**Great Britain.**—Membership of the British Trades Union congress fell, because of call-ups for the services, from 6,642,000 in 1944 to 6,576,000 in 1945. There were 191 affiliated trade unions, but practically 80% of the total membership belonged to only 22 unions, each with more than 50,000 members. By far the largest single union was the Transport and General Workers' union (1,017,000) of which Ernest Bevin ceased to be secretary. Next in order came the Amalgamated Engineering union (811,000); the National Union of General and Municipal Workers (661,000) and the National Union of Mineworkers, now consolidated into a single union in place of the former federation (605,000). Two other societies, the National Union of Railwaymen (404,000) and the National Union of Distributive and Allied Workers (272,000) had more than 250,000 members; and four more—the Amalgamated Society of Woodworkers (170,000), the Electrical Trades union (132,000), the National Union of Tailors and Garment Workers (109,000) and the National Union of Agricultural Workers (104,000)—exceeded 100,000. There were 12 additional unions with more than 50,000 members. Of the total membership 1,341,000, or 20%, were women. The unions with the largest female membership were the Transport and General Workers' (215,000), General and Municipal Workers' (194,000), Amalgamated Engineering (132,000), Distributive and Allied Workers' (113,000). The sharp rise in female membership of the A.E.U. was particularly notable.

The chief groups still outside the Trades Union congress were the civil servants, including the post-office workers, the local government officers and the teachers. Of these, the main civil service unions would presumably rejoin as soon as the new Labour government carried out its declared intention of repealing the Trade Unions and Trade Disputes act of 1927, by which they were forbidden to associate with unions outside the civil service. Total trade union membership in Great Britain in 1945 was probably about 8,000,000.

The annual Trades Union congress was again held in Blackpool in September. The agenda and a number of special reports from the policy committees of the general council had been prepared before the general election, but were not held to need much alteration. In particular, the special reports on fiscal policy and on the public operation of transport, as well as the long section in the general council's report dealing with the regulation of trusts and cartels, went through practically unchallenged. On fiscal policy the congress pressed for a restoration of income tax allowances for dependents to the levels existing before war taxation was stiffened, for the speedy introduction of children's allowances for all families, and for some reduction in the heavy burden of indirect taxation on necessary commodities. It was agreed that there would have to be some reduction of the excess profits tax, but the reforms mentioned were deemed more urgent than a reduction in the standard rate of income tax. On trusts and cartels the general council urged the control and supervision of all restrictive combinations, including control of international trusts and cartels by a special organ of the United Nations organization. It refused to take a line of direct hostility to such bodies, on the ground that while dangerous in capitalist hands, they might be necessary steps toward orderly planning of national and international economic affairs. The report on transport, prepared in conjunction with the Labour party, embodied a draft scheme for the public ownership and operation of the main transport services. A similar report had been prepared on coal mining, but was not published in view of the expected early production of the government's bill for the socialization of the industry.

The two most urgent topical issues discussed at the 1945 con-





FIRST CONGRESS of the World Federation of Trade Unions closed in Paris on Oct. 8, 1945. Delegates of 56 nations representing an estimated 66,759,348 workers passed resolutions favouring labour representation at world peace councils and democratic rights for workers

gress were demobilization and the control of labour. On demobilization, there was a general demand for a great speeding-up of the plans prepared under the Churchill government, and for insistence by the Labour government on the service departments scaling down their demands. On labour controls it was agreed that abolition was desirable as soon as possible, but impracticable immediately in view of the acute shortage of workers and the need to ensure priority for essential industries. It was, however, urged that punitive sanctions should be given up at once and only milder measures of control retained during the transition.

The congress approved the plans made for forming a new world federation of trade unions. The fraternal delegate from the American Federation of Labor (George Meany) delivered a vigorous attack on this policy in the course of his address, which by custom was not subject to debate. He objected both to the association of the trade unions of the soviet union with the new federation and to the participation of the Congress of Industrial Organizations. The soviet fraternal delegate protested against Mr. Meany's speech, but was not allowed to reply. There was, however, no doubt of the congress' overwhelming support for the world federation, despite the attitude of the A.F. of L., which was endorsed by the fraternal delegate from the Trades and Labor Congress of Canada, representing mainly Canadian sections of A.F. of L. unions.

The British trade union movement was in September passing through the first stages of reconversion from war to peace. It was anxious not to embarrass the new government, on which it relied to carry out the policy formulated for the most part in agreement between the Trades Union congress and the Labour party. It stood strongly for the maintenance of price stability, for a policy of full employment based on national planning, and for gradual extension of socialization to key industries and public regulation of the main nonsocialized industries through

industrial boards representing workers, employers and the state. It had declared no general wage policy, but recognized an obligation not to take undue advantage of full employment for pressing wage claims. Its chief immediate demand was for the general enforcement of a maximum working week of 40 hours, without wage reductions, but the government gave no indication of its attitude on this issue.

(G. D. H. C.)

**Labrador:** see NEWFOUNDLAND AND LABRADOR.

**Lacrosse.** The highlight of the 1945 lacrosse season in the United States was the tie for the Wingate trophy between the teams of Army and Navy. The trophy is presented annually to the leading college team in the U.S. The annual William Schmeisser Memorial trophy went to Charles Guy of the Naval academy for being the outstanding defense player.

The United States Intercollegiate Lacrosse association, governing body of the sport in the United States, changed presidents with Carl P. Schott of Penn State replacing John H. Paige of Colgate.

Nick Thiel of Penn State was voted "the man who did most for lacrosse in 1945" by the executive committee of the U.S.I.C.L.A. Although his team won only one game his efforts on behalf of the sport won the acclaim of his fellow coaches.

In Canada, box lacrosse made a strong comeback with the return to action of the New Westminster Adanacs, the team that won the Mann cup in 1939 but had been out of play because of the war.

The Mann cup for 1945, emblematic of Canada's lacrosse supremacy, was won by the Vancouver Burrads who defeated the St. Catherine's Athletics.

(T. J. D.)

**Lalique, René** (1860-1945), French designer of jewellery and glassware, was born April 6, in Ay, Marne. He displayed remarkable talent at designing in school, and by the time he was 30 he was widely renowned among

Parisian jewellers for his skill and originality. Lalique displayed his jewellery at the Paris International exposition in 1900. His numerous examples of brooches, necklaces, combs and other decorative adornments were marked by the employment of novel and richly-coloured materials and were among the sensations of the exposition. Lalique used modern mechanical methods in his work in glassware and he became one of the world's leading craftsmen in the design of decorative glassware. He used human figures as well as animals and flowers in his ornamental glass vases, with subtle and pleasing effect. Lalique also executed large decorative works, such as the fountain in the Esplanade des Invalides during the exposition of 1925 and a fountain-ornamented mural for the ocean liner "Paris." In 1933, Lalique was invited to exhibit his work at the Pavillon de Marsan of the Louvre; he also showed his works in New York on several occasions. He died at his home in Paris, May 9.

**Lamb:** see MEAT.

**Land, Emory S.** (1879- ) U.S. naval officer and government official, was born Jan. 9 in Canon City, Colo. He was graduated from the University of Wyoming, Laramie, Wyo., 1898; Annapolis, 1902; and the Massachusetts Institute of Technology, Cambridge, Mass., 1907. During World War I, he served on the staff of Adm. William Sims in London. Made a rear admiral when he retired from the navy in 1937, he was named commissioner of the U.S. maritime commission in 1937, and succeeded Joseph Kennedy as chairman in 1938. Soon after the U.S. entered World War II, Adm. Land was also made administrator of the War Shipping administration. In Sept. 1944 he reported that the U.S. merchant marine had grown from 1,340 ships totalling 11,850,000 deadweight tons at the start of the war, to a strength of 3,400 ships aggregating more than 35,000,000 deadweight tons. Adm. Land attended the Berlin conference (July-Aug. 1945). On Sept. 8, he declared that a U.S. merchant fleet aggregating 17,000,000 tons was an essential to both U.S. military security and trade prosperity. On Jan. 4, 1946, Pres. Truman accepted Land's resignation from both his government posts, effective Jan. 15.

**Lang, Cosmo Gordon,** 1ST BARON, OF LAMBETH (1864-1945), Anglican divine, was born Oct. 31 in Aberdeen, Scotland. For his earlier career, see *Encyclopædia Britannica*. He became archbishop of Canterbury, Nov. 12, 1928, and retired in March 1942. Upon his resignation, Archbishop Lang became 1st Baron Lang of Lambeth and sat in the house of lords as a temporal peer. During his tenure as archbishop, Lord Lang opposed the plans of King Edward VIII (later known as the Duke of Windsor) to marry Mrs. Wallis Warfield Simpson, and asserted that Edward had "disappointed hopes so high, abandoned a trust so great and sought his happiness in a manner inconsistent with Christian principles." In the years immediately preceding and during World War II, he emerged as a bitter foe of the Nazi racist philosophy. He condemned the Munich agreement, attacked the German persecution of the Jews and had harsh words for Italian and Japanese aggressions in Ethiopia and China respectively. Although he never wavered in his denunciations of Russia's atheism, he expressed admiration for the Red army's stubborn fight against the Germans and called upon his people to pray for the Russians. Lord Lang collapsed while hurrying for a train and died while being taken to the Royal hospital at Richmond, Dec. 5.

**Laos:** see FRENCH COLONIAL EMPIRE.

**Lard.** The production of lard in the United States declined sharply in 1945 from the record of 3,215,000,000 lb. produced in 1944 to 2,230,000,000 lb. in 1945. This was the direct result of the decline in hog slaughter. About 40% of the output of lard from federally inspected pork was required to be set aside for government purchase up to July 29, 1945. On that date the amount was reduced to 25%. Total exports of lard for all purposes amounted to 858,000,000 lb. in 1944 and 650,000,000 lb. in 1945. Stocks were at a record high point of 374,000,000 on Jan. 1, 1945. Consumers were forced to use lard substitutes to an increasing extent in 1945 as the per capita supply of lard dropped to 11.7 lb. from the 13.9 lb. available in 1944. (See also HOGS; MEAT; VEGETABLE OILS AND ANIMAL FATS.) (J. C. Ms.)

**Laski, Harold J.** (1893- ), British socialist and political scientist, was born June 30 in Manchester, England. He studied at New College, Oxford, lectured at McGill University, Montreal, Canada (1914-16), Harvard University, Cambridge, Mass. (1916-20) and was Harvard lecturer at Yale University, New Haven, Conn. (1919-20). He joined the faculty of the London School of Economics (1920). A member of the British Labour party, he was regarded as one of the most lucid expounders of socialist doctrine, and he became chairman of the Labour party executive, 1945. During the British electoral campaign, after the end of World War II in Europe, conservative newspapers painted the socialist leader as a "deep-dyed red" and asserted that he dominated the Labour party as a "one-man brain trust." However, Laski enjoyed no real power in the British Labour party, as the executive committee's authority was restricted to discussion of problems; beyond making recommendations, it had little influence. After the results of the election, posted July 26, 1945, revealed an overwhelming victory for the Labour party, Laski asserted that the party had "won more than a victory. We have sent a message of hope to every democracy in the world." Discussing the social and economic reforms planned by the new Labour government, Laski said (Aug. 1) that the government abhorred exploitation of the many by the few and added that the "masses in any community are entitled to an equal share in the gain as well as in the toil of living." On Sept. 24, Laski called on the U.S. and Great Britain to withdraw recognition from the Franco regime in Spain, which he labelled as a vestigial fascist tyranny that was a product of the "dishonest" prewar policy of non-intervention.

**Latin America:** see ARGENTINA; BOLIVIA; BRAZIL; BRITISH GUIANA; BRITISH HONDURAS; CHILE; COLOMBIA; COSTA RICA; ECUADOR; FRENCH COLONIAL EMPIRE; GUATEMALA; HONDURAS; INTERNATIONAL LAW; NICARAGUA; PANAMÁ; PARAGUAY; PERU; SALVADOR, EL; SURINAM; URUGUAY; VENEZUELA.

**Latter Day Saints:** see MORMONS.

**Latvia.** One of the Baltic states of northeastern Europe, north of Lithuania, south of Estonia, formerly a republic; in 1941 it became part of the German "Ostland"; in 1944-45 it was reconquered by the Soviet forces, and reintegrated into the U.S.S.R. as of the period 1940-41. Area 25,016 sq. mi.; pop. (est. Jan. 1, 1939), 1,994,506. Capital, Riga (385,063 in 1935); the other principal city is Liepaja (57,098). Language, Latvian. Religion, Christian (Protestant 56%; Roman Catholic 24.5%; Greek Catholic 9%; Greek Orthodox 5.5%). Government, according to inadequate reports, was in 1945 largely in the hands of Russian officials.

**History.**—Like its neighbours Estonia and Lithuania, Latvia was forced to bow first to one, then another, of the warring

great powers: from June 1940 to June 1941, it was occupied and largely collectivized by the U.S.S.R.; in July 1941, it was occupied and "new ordered" by the Nazi Reich. Mass deportations were carried through by both the conquerors, and the economy was forced through violent changes. After the soviet reconquest of 1944-45 the constitution of 1940-41 was re-instituted. Many thousands fled to Germany or were transported there as labourers; others risked their lives to evade both Russians and Germans and escaped to Sweden. These refugees told gruesome tales of exploitation and destruction by the Germans and of purges, deportations and forced transformation of the economy by the Russians. The presence of Russians as commissars of the interior (police), and of social welfare, and as directors of the state bank and the railways, chiefs of ports and other high offices, indicated something of the extent of difficulties of the U.S.S.R. in dealing with the nationalistic Letts.

Reports were that in the year after Riga's liberation (Oct. 13, 1944) 3,000 of the city's inhabitants had been liquidated, 8,000 deported to Siberia, and 38,000 skilled labourers taken to Russia for reconstruction work. In the city one bridge over the Dangava was rebuilt as a temporary wooden structure. Fuel was scarce and prices on goods were rising to astronomical figures. Latvian farms were being parcelled into 15-hectare plots, the old owners sent away and Red soldiers established on the land. Churches were forced to disband by various extralegal pressures. The almost complete absence of news about Latvia from Russian sources or from foreign correspondents made it impossible to confirm or to deny the accounts given by those who had fled the country and who were therefore unquestionably opposed to the existing regime.

Britain and the U.S. continued their five-year-old policy of non-recognition of the soviet regime in Latvia (as in the neighbour states of Lithuania and Estonia, *qq.v.*), and the legations lasting over from the epoch of independence continued to function in the western capitals.

**Education.**—In 1938-39 there were 1,987 elementary schools and 122 secondary schools. Enrolment at the University of Riga was 7,281. Total educational enrolment numbered 271,197—one-seventh of the population, with 13,106 teachers, and about 15% of the national budget went to education. There were 912 public libraries.

**Finance.**—The monetary unit was the lat (=19.3 U.S. cents at par, established as equivalent to the Swiss franc in 1921). In 1939 the budget estimates envisaged revenue of 190,878,000 lats and expenditures of 190,481,000 lats.

**Trade and Communication.**—Imports in 1938 were 227,336,000 lats; exports 227,204,000 lats. Chief articles of import were industrial machinery, agricultural machinery, automobiles and accessories, coal, cotton textiles, cotton (raw) and wheat. Chief articles of export were timber, flax, plywood and butter. Exports went chiefly to Great Britain, Germany, the U.S.S.R. and the Netherlands. Imports were primarily from Germany, Great Britain, the U.S.S.R., Sweden and the United States. In 1940 the Latvian state railways operated over 2,200 mi.; bus lines over 2,800 mi. The principal harbours were Riga, Liepaja and Ventspils.

**Agriculture.**—The principal crops with their yields (in short tons) were as follows in 1939: rye, 493,830; barley, 245,041; oats, 534,395; wheat, 233,247; potatoes, 1,807,882; flax, 54,123. Livestock included 414,470 horses, 1,271,730 cattle, 1,469,570 sheep, 891,470 pigs, 4,729,120 poultry, 222,460 beehives. About 66% of the employed were in agriculture, cultivating some 237,000 farms, 80% of which were owner-operated.

**Manufacturing.**—After the decline in 1931 and 1932, Latvia's industrial production rose rapidly to a general index figure of 148 in 1937 (based on 100 in 1930). Strong efforts were made up to 1939 to increase the self-sufficiency of the country.

At the beginning of 1939 some 5,970 industrial establishments employed 98,500 persons, and in 1938 produced a value of 695,000,000 lats. About 15% of the employed were in industry and 5% in commerce. Chief industries were foodstuffs, wood and paper and textiles.

**BIBLIOGRAPHY.**—Alfred Bilmanis, *Baltic Essays* (1945), and *The Church in Latvia* (1945), published by the Latvian Legation, Washington; F. W. Pick, *The Baltic Nations, Estonia, Latvia, Lithuania* (1945). (F. D. S.)

**Laval, Pierre** (1883-1945), French politician, was born on June 28 at Châteldon, Puy-de-Dôme. For his earlier career see *Encyclopædia Britannica*. After the start of World War II, he remained in relative obscurity until Marshal Pétain, following France's collapse in 1940, named Laval his successor as well as vice-premier. Never a staunch believer in

democratic rule, Laval became openly anti-Allied and pro-axis in sentiment and speech and conferred on several occasions with Hitler in 1940. A sudden rift between Pétain and Laval occurred and the latter was dropped from the cabinet, Dec. 13, 1940. He was reinstated with Hitler's help on April 18, 1942, and formed a new cabinet, assuming the title of chief of government. Thereafter, Laval followed an outright pro-Nazi policy. On Nov. 18, 1942, a week after Hitler had occupied all France, Pétain vested in Laval dictatorial powers to make laws and decrees on his own responsibility. Laval instigated the move to send more Frenchmen to work in German factories in 1943, an action which incurred for him the bitter hatred of the majority of his countrymen. In 1944, he warned Frenchmen against co-operating with the Allied armies "when the invasion is launched." After the success of the Allied invasion was assured, he fled to Germany in Aug. 1944. He stayed in the greater Reich until May 2, 1945, five days before Germany's surrender, when he fled to Barcelona in a German plane. He was interned in a fortress prison near Barcelona but was later ordered to leave the country. Laval then flew to Salzburg, Austria, where he surrendered, July 31, to U.S. army forces. He was then transported to Paris for trial. At the trial of Marshal Pétain, Laval admitted, Aug. 3, that he had expressed "hope for a German victory," in a broadcast to the French people in June 1942, but asserted that the broadcast was approved by Pétain himself. Pétain's reply was that he had ordered deletion of this sentiment and assumed that his order had been carried out. At the opening of his own trial, Oct. 4, Laval pleaded his case with skill and cleverness, but five days later, Oct. 9, the Paris high court of justice convicted him on charges of plotting against the state and of intelligence with the enemy and sentenced him to death. On the day he was notified that he was to be shot by a firing squad, Laval swallowed poison in an attempt at suicide. He was resuscitated by physicians, however, and led out to the execution post where he was shot to death, Oct. 15.

**Law.** Dawn of the atomic age stimulated the development of international legal machinery to prevent war. The obliteration of Nagasaki and Hiroshima in World War II added the problem of world control of atomic energy to the already difficult agenda of the newly created United Nations organization. The United States congress also opened hearings on proposed measures for the domestic control of this new source of power.

The prosecution of 20 Nazi leaders before a four-nation tribunal at Nuernberg introduced a new type of court and a new application of existing principles of law. For the first time in history high military and political officials of a defeated nation were brought before the bar of an international court charged with crimes against world peace and against humanity.

Chiefly significant on the U.S. legal scene in 1945 was the waning of war controls and the first functioning of reconversion laws passed by congress in 1944. Administrative agencies and courts were confronted with problems of job reinstatement for veterans, surplus property disposal, tax readjustments and labour disputes. Released from war pressures, C.I.O. leaders initiated a nation-wide program for pay raises involving the demand for a tie-in between wages and profits which was rejected by corporate employers and evoked proposals for statutory machinery to control strikes.

By various executive orders President Truman laid down reconversion policies, abolished certain war agencies, shifted the functions of others to more permanent departments, withdrew from sale all public lands containing radioactive mineral substances and proclaimed the extension of U.S. control to the sea bed and subsoil of the continental shelf contiguous to the shores of the U.S.



The end of the war did not mean the end of war and emergency laws, however. Attorney General Tom C. Clark announced that federal statutes effective only "in time of war," "during the present war" or "for the duration of the war" would remain alive until the signing of a formal peace treaty unless terminated sooner by appropriate government action. Statutes effective until "the end of the emergency" or "the cessation of hostilities" would terminate only upon formal proclamation by the president. The life of the Second War Powers act was extended to June 30, 1946.

Civil suits filed by the U.S. government during the fiscal year ending June 30, 1945, ran to twice the 1944 volume. The increase was due to price and rationing control cases which were generally disposed of by the entry of consent orders. Out of a total of 60,965 civil actions filed, only 17,855 were brought by private litigants.

Federal criminal indictments and informations increased slightly over 1944, especially for violations of the liquor and motor vehicle theft laws. But war prosecutions declined. New espionage cases dropped from 30 to 19, sabotage cases from 56 to 9 and Selective Service act violations from 6,622 to 4,259. There was, however, a substantial increase in the business of the U.S. court of claims consisting mostly of claims arising out of war activities. The filing of bankruptcy petitions fell to a new monthly low with less than 1,000 in June 1945.

Only the more interesting and important legal developments of a less technical nature are reported in this article.

**Administrative Law.**—Annual scrutiny of the budgets and financial operations of nearly 100 government corporations with tens of thousands of employees and expenditures running into billions was provided by congress with the passage of the Government Corporation Control act.

The fight for over-all regulation of the procedure of federal administrative agencies was revived with the approval (Nov. 19) by the senate committee on judiciary of the pending McCarran-Sumners bill. California became the first state to adopt a comprehensive administrative code prescribing uniform procedure for all state agencies except those set up under laws adopted through the initiative process. In several cases the supreme court reiterated its 1943 Dobson case ruling giving finality to the tax court's findings of fact; but in one case Justice Felix Frankfurter, speaking for a minority of three, protested against "sterile attempts at differentiation between 'fact' and 'law' in the abstract," holding out for an application of the Dobson rule that would support conclusions arrived at through the tax court's specialized training and equipment unless there was a "clear-cut mistake of law" (*Bingham's Trust v. Wemyss*, 65 S. Ct. 1232). The same doctrine of judicial noninterference with agency findings of fact was liberally applied by the court in labour cases.

The court, however, refused to give finality to administrative decisions where it appeared that there had not been a fair hearing. The attorney-general's order for deportation of Harry Bridges was set aside because it was based in part on unsworn statements. The supreme court also held that the Federal Communications commission erred in granting a licence to one of two mutually exclusive radio stations without giving the rejected applicant a hearing (*Ashbacher Radio Corp. v. F.C.C.*, 66 S. Ct. 148).

In three opinions the high court approved of the methods used by the Federal Power commission in arriving at rate reduction orders under the Natural Gas act, but it sent a fourth gas rate case back to the commission for clarification. The court also upheld the price administrator's construction of one of his own price regulations on the ground that his views were not clearly inconsistent with the regulation (*Bowles v. Seminole*

*R. and S. Co.*, 65 S. Ct. 1215). So too the court sustained the power of the wage-hour administrator to prohibit homework in the embroideries industry so as to make a minimum wage order more effective (*Gemsco, Inc. v. Walling*, 65 S. Ct. 605). But a statement by the same administrator as to prevailing practices for computing working time in the soft coal mining industry was brushed aside as legally untenable (*Jewell Ridge Coal Corp. v. Local No. 6167*, 65 S. Ct. 1063).

**Aliens and Citizenship.**—In a 5 to 3 decision the supreme court set aside the order of former Attorney General Francis Biddle for the deportation of Harry Bridges. The west coast C.I.O. leader thus won a fight of more than ten years against the unremitting efforts of industrial and farm organizations, veterans' groups and governmental agencies to send him back to Australia. The supreme court ruled that the expulsion order was based upon a misconstruction of federal statutes and incompetent evidence. Utterances and activities amounting to mere co-operation with the Communist party did not constitute such "affiliation with" a subversive organization as to render an alien deportable under the Immigration act as amended by the Alien Registration act of 1940. Freedom of speech and of the press extends to aliens as well as to citizens, the court said, citing its decision in *Bridges v. California*, 62 S. Ct. 190. Moreover, Bridges had been deprived of a fair trial after the finding that he was a member of the Communist party was supported solely by unsworn statements (*Bridges v. Wixon*, 65 S. Ct. 1443).

The property rights of aliens were at issue in several cases. A decision of the supreme court opened the door for the assertion of claims, running to an estimated total of \$100,000,000, against property vested in the alien property custodian. While the Trading with the Enemy act of 1917 became effective again at the outbreak of World War II, a provision that no debt shall be paid by the alien property custodian unless owing to and owned by the creditor before Oct. 6, 1917, does not apply to property seized in World War II (*Markham v. Cabell*, 66 S. Ct. 193).

A district court had no authority to tie up the property of Belgian, South African and British corporations while a suit was pending against them for conspiracy to monopolize the diamond trade, the supreme court ruled, there being neither statutory nor equitable sanction for such action (*DeBeers Mines, Ltd. v. U.S.*, 65 S. Ct. 1130).

The California supreme court held that the state's Alien Land act does not prohibit a Filipino from acquiring real estate since he is not an alien. Persons born in the Philippine Islands are U.S. "nationals" even though they cannot become citizens (*Alfajara v. Fross*, 159 P. 2d. 14).

**Civil Rights.**—The New York Fair Employment Practices act became effective July 1. It declared the opportunity to obtain employment without discrimination to be a civil right and outlawed discrimination by employers and labour unions against any person because of race, colour, creed or national origin. A five-man commission was set up to enforce the new law. Somewhat less drastic F.E.P.C. acts were also adopted in New Jersey, Indiana and Wisconsin, relying for their enforcement more upon educational than penal provisions. Similar measures were introduced in the legislatures of 20 or more states, and bills for a permanent federal F.E.P.C. were presented to congress but met stubborn opposition from southern Democrats.

The rights of minorities in New York were further reinforced by a unanimous decision of the U.S. supreme court upholding provisions of the state's Civil Rights act which make it a penal offense for labour organizations to deny membership to any person by reason of race, colour or creed. The court ruled that an association of railway mail clerks was subject to this law

and rejected their plea that the 14th amendment guaranteed them the right to discriminate in admitting members (*Railway Mail Association v. Corsi*, 65 S. Ct. 1483).

In a decision of outstanding importance the supreme court affirmed the power of the federal government to punish state officers for violating civil liberties. The court approved the indictment of a Georgia sheriff, policeman and special deputy under the federal civil rights law (18 U.S.C. §52) for beating a Negro prisoner to death, thus upholding the constitutionality of the 75-year-old statute. But the conviction of the defendants was reversed and the case sent back for retrial on the ground that the question of the defendants' intent had not been properly submitted to the jury. The decision nevertheless gave authority for the future use of the federal law as an affirmative weapon against abuse by state officials "under color of law" of the rights guaranteed by the 14th amendment. This result was arrived at, however, only as a compromise by a 5 to 4 vote after strong disagreement between the justices expressed in four separate opinions totalling 22,000 words. Justice Frank Murphy approved the majority view that the civil rights law was constitutional but believed that the conviction of the Georgia officers should have been affirmed (*Screws v. U.S.*, 65 S. Ct. 1031).

The plea of a Negro for reversal of his sentence to death by a Texas court on the ground that there was only one Negro on the grand jury that indicted him was rejected by the federal supreme court. While all of the justices agreed that the 14th amendment forbids race discrimination in selecting a grand jury, a majority of six found that there had been no actual discrimination in this case. Due process does not require proportional representation of the races on grand jury panels, they said. Justice Murphy said that the majority opinion "tarnishes the fact we are one people undivided . . . by differences in race, color or creed." (*Akins v. Texas*, 65 S. Ct. 1276.)

Refusal of the Illinois supreme court to license a conscientious objector to practice law was sustained by the U.S. supreme court. The applicant was otherwise qualified but would not take the required oath that he would support the state constitution because it would have pledged him to perform military service. Denial of a bar licence under the circumstances did not violate the constitutional guarantee against state encroachments upon religious freedom, according to the majority opinion. But a minority of four justices protested against the exclusion from the legal profession of a well-qualified applicant merely because he had religious scruples against bearing arms (*In re Summers*, 65 S. Ct. 130).

Two court decisions aroused the greatest furore in literary and publishing circles since Judge John M. Woolsey's classic opinion exonerating James Joyce's *Ulysses* from charges of obscenity. The Massachusetts supreme court affirmed the conviction of a bookseller under the state's obscenity statute for selling a copy of *Strange Fruit*. Justice Stanley E. Qua, speaking for a majority of six of the court's seven judges, approved the doctrine of the *Ulysses* case that the effect of the entire book, not of isolated passages, upon its "probable audience" should be considered in such cases. Nevertheless the court affirmed the conviction on the ground that sex scenes in Lillian Smith's best-selling novel of miscegenation went beyond the bounds of decency. Justice Henry Lummas alone dissented on the ground that the book was not a menace to morals.

Opponents of censorship were cheered, however, by the restoration of second-class mailing privileges to *Esquire* magazine. The District of Columbia court of appeals rejected the postmaster general's view that he could deny such privileges to publications which he deemed were bad for the public even though not technically obscene. Justice Thurman Arnold on behalf of

the court deftly disposed of the proposition that second-class privileges could be used as a special award to give competitive advantages to "good" magazines over those the postmaster considered "bad." Denial of second-class rates to *Esquire* would have increased its mailing costs \$500,000 a year (*Esquire v. Walker*, 151 F. 2d. 49).

**Constitutional Law.**—Provisions of the federal constitution were applied by the supreme court in resolving perennial conflicts over civil rights, the extent of federal and state powers, the nature of due process and equal protection of the laws as related both to state and federal procedures, and the legal relationships of the states to one another and to the federal government.

The supreme court for the first time construed the treason clause of the constitution (see *Criminal Law*, below); and in another decision of utmost importance the court agreed to entertain an original suit brought by the state of Georgia against 20 railroads to enjoin a conspiracy to fix discriminatory rates. The complaint, filed by Governor Ellis Arnall as counsel for his state, charged that redress through the Interstate Commerce commission had been limited and tardy. The court recognized the state's right, as *parens patriae*, to maintain suits on behalf of its people "to restrain violation of the anti-trust laws or to recover damages by reason thereof." (*Georgia v. Pennsylvania R.R. Co. et al.*, 65 S. Ct. 716.)

The high court upheld the power of congress to exempt federal housing projects from local and state taxation and the rights of several states to impose special burdens on out-of-state corporations for the privilege of doing business within their borders. It also held the federal civil rights law to be constitutional, but it invalidated the Arizona train limit law and parts of the Texas and Florida union control laws. Other rulings on points of constitutional law will be found throughout this article.

New constitutions were adopted by the states of Missouri and Georgia.

**Criminal Law.**—For the first time in its history the supreme court rendered a decision on the subject of treason. By a 5 to 4 vote the court reversed the conviction of Anthony Cramer, a naturalized citizen of German birth, charged with giving aid and comfort to the enemy in meeting, drinking and conferring with two of the German saboteurs who were landed from a submarine in 1942. There was evidence that the accused was pronazi, had listened to broadcasts by Lord Haw-Haw and other German propagandists and knew or believed that he was dealing with saboteurs. In fact, he accepted more than \$3,000 in currency to be held for the use of the saboteurs. He was found guilty at his trial and sentenced to a fine of \$10,000 and 45 years imprisonment. But the supreme court held that his conviction did not rest "on the testimony of two witnesses to the same overt act" as required by article III, section 3, of the federal constitution. "Every act, movement, deed and word of the defendant charged to constitute treason must be supported by the testimony of two witnesses," said the court. In this case there had been no two-witness proof of what the saboteurs said or in what language they conversed. Nor was there any proof that the defendant gave them any information or other help, even to the extent of paying for their drinks. The majority opinion was written by Justice Robert Jackson who later was appointed U.S. prosecutor of the defendants in the war guilt trial at Nuernberg (*Cramer v. U.S.*, 65 S. Ct. 918).

In another 5 to 4 decision the supreme court reversed the conviction of 24 members of the German-American bund for violation of the Selective Service act. The defendants had advised members of their society to refuse military duty until congress should repeal a provision of the act prejudicial to bund members seeking employment. This in itself did not constitute

counsel to "evade" service, the court held. Nor was the fact that the accused were pro-German and opposed the entry of the U.S. into the war a violation of the act (*Keegan v. U.S.*, 65 S. Ct. 1203). A federal circuit court, however, was less tender in dealing with another nazi sympathizer. It sustained the sentence for life imprisonment and \$10,000 fine for treason against Hans Max Haupt, father of Herbert Haupt, executed nazi saboteur. The defendant had succeeded in obtaining a reversal of the death sentence imposed after his original conviction, but the evidence at his second trial was held to be sufficient to support conviction.

British courts found ample evidence to warrant the conviction for treason of John Amery and the notorious William Joyce, known as "Lord Haw-Haw." Both were hanged. The U.S. poet, Ezra Pound, however, indicted for treason because of fascist paid broadcasts from Italy, was found mentally ill and committed to an institution.

The supreme court reversed state court convictions in a series of decisions. The admission in evidence of a confession obtained by coercion in order to show the voluntary nature of a later confession was a denial of due process, especially when the prosecutor, judge and witnesses were permitted to refer repeatedly to the forced confession (*Malinski v. New York*, 65 S. Ct. 781). The court also held that the failure of trial judges to appoint counsel for defendants in criminal cases was a denial of due process. Petitions by the defendants for writs of habeas corpus should have been granted on the facts alleged. One defendant, convicted of murder by a Missouri court, claimed that the judge had not told him he had a right to counsel. The supreme court held that this was error even though the defendant had not asked to have counsel appointed (*Tomkins v. Missouri*, 65 S. Ct. 370). Moreover a defendant has a right to the appointment of counsel without proof that he has no funds to pay for such service. If he requests counsel, it will be presumed he has no funds (*Williams v. Kaiser*, 65 S. Ct. 363). Nor does a defendant waive the right to counsel by pleading guilty to a criminal charge. The petition of an Indian for a writ of habeas corpus should have been granted where he was sentenced by a Nebraska court for a crime alleged to have been committed on an Indian reservation. The case involved jurisdictional questions which clearly required legal counsel before a guilty plea could be accepted (*Rice v. Olson*, 65 S. Ct. 989).

Attempts to punish perjury must stay within the bounds laid down by law, the U.S. supreme court ruled. A district court conviction of perjury was reversed because it had not been supported by the testimony of two witnesses or one witness and corroborating evidence (*Weiler v. U.S.*, 65 S. Ct. 548). It is also improper to punish a witness for perjury by holding him in contempt of court. A person so charged is entitled to a trial before a jury and not by the judge alone. The exercise of contempt powers in such cases "would permit too great inroads on the procedural safeguards of the bill of rights," said Justice Hugo Black (*In re Michael*, 65 S. Ct. 78).

**Labour.**—The courts upheld the civil rights of workers, non-union as well as union. The supreme court rebuffed the attempt of an association of postal clerks to bar Negroes from membership. Such discrimination was held to violate the New York civil rights law which forbids labour organizations to withhold membership from any applicant because of his race, colour or creed (*Railway Mail Ass'n v. Corsi*, 65 S. Ct. 1483). The California supreme court also struck at race hatred in two decisions which held that the courts will not enforce closed shop agreements on behalf of unions which deny membership to Negroes.

The U.S. supreme court reversed the conviction by a Texas court of R. J. Thomas, United Automobile Workers union presi-

dent, for addressing a labour rally without first obtaining an organizer's card as provided by the state's union control law. The requirements of the statute that paid labour organizers must obtain state registration cards and carry them while soliciting union membership were held by the supreme court to be invalid as abridging the rights of free speech and assembly. Other provisions of the act, prohibiting aliens and felons from serving as union officers or organizers, barring union contributions to political parties and candidates, and requiring unions to keep financial records open to members and state officials and to report certain information to the state annually, were not disturbed by this decision (*Thomas v. Collins*, 65 S. Ct. 315).

The supreme court also swept aside provisions of the Florida union control law as repugnant to the Wagner act. Sections of the statute limiting unions in the choice of business agents to persons who could show citizenship and ten years U.S. residence and giving courts the power to enjoin unions from all activities in the state for noncompliance with various statutory requirements were held to infringe the freedom to bargain collectively guaranteed by the National Labor Relations act (*Hill v. Watson*, 65 S. Ct. 1373).

A three-judge federal district court in Florida upheld a 1944 amendment to the Florida constitution providing that the right of persons to work may not be denied on account of membership or nonmembership in labour organizations. Labour union contentions that this established an anticlosed shop policy in violation of the 1st and 14th amendments were rejected (*A.F. of L. v. Watson*, 60 F. Supp. 1010).

In contrast to the legislative drive against unions in some southern states, Connecticut adopted an act guaranteeing the right of employees to organize and bargain collectively, defining and penalizing unfair labour practices and creating a board to administer the new law.

The supreme court ruled that a combination of workers acting alone is exempt from the operation of federal antitrust laws even though their action may ruin the business of a particular employer (*Hunt v. Crumboch*, 65 S. Ct. 1545). But their immunity ceases as soon as they combine with others outside their membership. A combination of unions, manufacturers and contractors to create a monopoly in electrical equipment in the New York city area through a boycott of goods produced elsewhere was properly enjoined as a violation of the Sherman act (*Bradley Co. v. Local No. 3*, 65 S. Ct. 1533).

Several new issues involving the application and coverage of the Fair Labor Standards act were settled by the supreme court. The employment of underage messenger boys by the Western Union Telegraph company did not violate the child labour provisions of the wage-hour law, the court said in a 5 to 4 decision. Provisions prohibiting the interstate shipment of goods produced in establishments where oppressive child labour conditions exist did not apply to the telegraph company. While messages might be considered "goods," the defendant did not "produce" or "ship" them in interstate commerce. The demand of the children's bureau of the labour department for an injunction against the use of minors by Western Union was therefore denied (*Western Union v. Lenroot*, 65 S. Ct. 335).

In another 5 to 4 decision the wage-hour ruling in the *Muscoda* case, that underground travel time must be included as part of the compensable work week of iron miners, was extended to bituminous coal miners, although the situation was not identical (*Jewell Ridge Coal Corp. v. Local No. 6167*, 65 S. Ct. 1063).

The high court also approved an order of the wage-hour administration outlawing homework in the embroideries trade on the ground that it was necessary for the enforcement of a minimum wage level. The objection that this ruling would



create hardships for a large group of workers contrary to the objectives of the F.L.S.A. carried little weight with the court (*Gemsco, Inc. v. Walling*, 65 S. Ct. 605).

Other wage-hour rulings approved by the court were that the wage-hour act applies to piece-rate workers (*U.S. v. Rosenwasser*, 65 S. Ct. 295), that extra wages paid on a piece-rate basis as an "incentive bonus" must be included in computing the base rate for overtime work (*Walling v. Harnischfeger Corp.*, 65 S. Ct. 1246) and that hourly rates agreed upon for overtime pay, which do not represent the actual amount received by employees, violate the F.L.S.A. (*Walling v. Youngerman-Reynolds Co.*, 65 S. Ct. 1242).

Employees who had signed releases of their rights to back pay due them under the F.L.S.A. were held not estopped from recovering such wages and liquidated damages since their waiver of claims was not the result of the settlement of a bona fide dispute (*Brooklyn Savings Bank v. O'Neil*, 65 S. Ct. 895).

In determining the extent of the wage-hour act's coverage the court applied a test first used in a 1942 decision. Whether office employees and building service workers are engaged in an occupation "necessary to the production of goods for commerce" so as to be subject to the F.L.S.A. depends on whether their work has a "close and immediate tie with the processes of production." The tie was held to be close enough as to building service workers in the administrative office of an interstate milk distributor (*Borden v. Borella*, 65 S. Ct. 1223). But service workers employed by a New York office building corporation were held not subject to federal wage-hour control. The fact that they were employed in a building where more than one-third of the space was used by concerns engaged in interstate commerce did not seriously involve them in the production of goods for such commerce (*10 East 40th St. Bldg., Inc. v. Callus*, 65 S. Ct. 1227). Employees in the central office and warehouse of a chain grocery store, from which some goods were shipped to out-of-state stores, were connected closely enough with interstate commerce to be subject to the F.L.S.A. Nor could the headquarters office be classed as a "retail establishment" exempt from the operation of the F.L.S.A., since it was used for combined wholesale and retail functions (*Phillips v. Walling*, 65 S. Ct. 807).

Orders of the National Labor Relations board directing two corporations to abandon plant rules forbidding employees to wear union buttons, solicit union membership or distribute handbills on company premises during nonworking time were upheld by the high court. The enforcement of such rules constituted unfair labour practices (*Republic Aviation Co. v. NLRB*, 65 S. Ct. 982). The supreme court also blocked the attempt of a department store to by-pass a union representing only 40 of its 5,000 employees. The store's action in applying to the National War Labor board for approval of a wage increase for all its employees without consulting the small union, which had been certified as bargaining agent by the National Labor Relations board, was held to be an unfair labour practice. Justice Harold Burton, newly appointed member of the court, joined with the majority of five justices in this decision (*May Department Stores Co. v. NLRB*, 66 S. Ct. 203).

The legality of the army's seizure of Montgomery Ward & Co.'s Chicago plant under a presidential directive for failure to obey a WLB award was sustained by a federal circuit court as a proper exercise of executive power under the War Labor Disputes act. But the government's victory was fleeting. In November the supreme court vacated the circuit court decision and ordered the case dismissed as moot.

**Marriage and Divorce.**—Proxy marriages between members of the armed forces overseas and their betrothed in the United States, performed by mail, telephone or cable, were

generally frowned upon by public officials. A study made by the National Association of Legal Aid bureaus indicated that no state except possibly Kansas would hold such marriages legal.

Court officials in many cities reported an increase in divorce cases running from 50% to 60% higher than any previous year.

The celebrated case of *Williams v. North Carolina* made its second appearance in the supreme court. In a decision of far reaching effect the court ruled that a state may inquire into the validity of a divorce decree granted in a sister state. The conviction by a North Carolina court of a man and woman for bigamous cohabitation was affirmed. The defendants, originally residents of North Carolina, had each obtained divorces in Nevada from their respective spouses, then married each other, and returned to North Carolina where they lived together as man and wife. The state found that the divorce decrees granted the defendants in Nevada were invalid because they had not acquired bona fide domicile in that state. The supreme court affirmed this decision on the ground that every state has the right to inquire into jurisdictional facts in connection with divorce decrees granted by other states. Justice Wiley Rutledge, one of three justices dissenting, said that the court in its various divorce rulings had "travelled in a domiciliary wilderness, only to come out with no settled constitutional policy where one is needed most" (*Williams v. North Carolina*, 65 S. Ct. 1092).

**Military Law.**—A federal circuit court approved the convictions of two civilians by military courts in Hawaii. One defendant had been sentenced to six months' imprisonment for assaulting marine sentries. The other was given a five-year sentence for embezzlement. Both defendants sought their freedom on petitions for writs of habeas corpus attacking the jurisdiction of the military tribunals on the ground that necessity for military law no longer existed when they were tried. The district court granted the defendants' petitions, but the appeals court ruled that the writ of habeas corpus had been lawfully suspended in Hawaii under territorial and U.S. laws by the governor's declaration of martial law after the Pearl Harbor attack, nor had civil rule been restored at the time of the trials (*In re White* and *In re Duncan*, 146 F. 2d. 576). The federal supreme court agreed to review both cases.

Public protests against the alleged severity of sentences and abuses of justice by courts-martial brought an announcement by Secretary of War Robert P. Patterson that 27,500 cases tried "under the stress of a war fought around the world" would be reviewed by special clemency boards under the supervision of an Advisory Board of Clemency headed by former Justice Owen J. Roberts. The aim would be to adjust sentences which were unduly severe and to reach the highest measure of justice obtainable.

The Selective Service act was extended for one year with a restriction against the use of 18 year olds in combat duty until they have had six months' training. Congress also passed the Armed Forces Voluntary Retirement act of 1945 intended to stimulate enlistments. It suspended the existing limit of 280,000 on the size of the regular army and allowed the army to accept enlistments from all qualified males not less than 18 years old. It also offered special inducements to those who volunteer.

**Patents.**—Stimulus to the revision of patent laws was given by the supreme court's decision in the *Hartford-Empire* case breaking up the patent pool in the glass container industry. The defendants were found guilty of conspiring to restrain trade through agreements controlling more than 800 patents, but the court refused to declare a forfeiture of patent rights as a punishment for the violation of antitrust laws. Such power had not been granted to the courts by congress. (See *Trade Regulation*, below.)

The doctrine of the "paper bag case," that a patentee's failure

to use his invention does not work a forfeiture of his patent, was applied by the supreme court in a 5 to 4 decision. The patent office was directed to issue a patent on a subcombination even though the applicant's purpose was not to manufacture the patented article but to protect a more important complete invention from appropriation by others (*Special Equipment Co. v. Coe*, 65 S. Ct. 741).

In three cases the supreme court applied familiar tests in rejecting patent claims for lack of originality and patentability. The court also denied relief against infringement in one case because the plaintiff did not come into court "with clean hands." But in another case a majority of six justices was severely criticized by Justice Frankfurter for not applying the principle of fair dealing to business deals under the patent laws.

**Price and Rent Control.**—President Truman's announced policy of holding the line on prices and rents found backing in the extension of controls to June 30, 1946, by amendments to the Emergency Price Control act and the Stabilization act. The supreme court sustained the interpretation by the price administrator of a maximum price regulation with the comment that the "court must necessarily look to the administrative construction of the regulation if the meaning of the words used is in doubt." A contest over the constitutionality or statutory validity of the regulation as so construed should be determined in the first instance by the emergency court of appeals (*Bowles v. Seminole R. & S. Co.*, 65 S. Ct. 1215).

The emergency court of appeals supported the authority of the price administrator to fix maximum prices for intoxicating liquor in the dry state of Mississippi. There was no force to the argument that the 21st amendment bars price control in a dry state. Such control rests on war powers and was not abrogated by the 21st amendment. The price control act does not purport to authorize the sale of intoxicants in a dry state and therefore does not conflict with state laws.

Suits for treble damages for violation of the Emergency Price Control act were held by the Rhode Island supreme court to be penal in nature and therefore not within the jurisdiction of state courts. For the same reason a federal circuit court held that such suits lapse with the death of the alleged violator and cannot be maintained against his estate.

The New York court of appeals approved the state's Emergency Rent Control law, placing a ceiling on rents for certain types of commercial property in New York city.

**Taxation.**—With the passage of the Revenue Act of 1945, congress granted the first tax cut in 16 years, to become effective in 1946. About 12,000,000 persons were removed from the 1946 tax rolls and the tax load of some 36,000,000 other individual taxpayers, as well as that of corporations, was lightened. The consequent total reduction in federal revenues was estimated at \$5,350,000,000. The new law was an interim measure adopted in response to pressure for tax relief pending a thorough revision of the entire tax structure scheduled for 1946. The \$500 income tax exemption for each individual, his spouse and each dependent, previously applicable only to the surtax, was extended to the normal tax. The surtax rate on all brackets was reduced by at least three percentage points. The normal tax and surtax were further reduced by 5%. The active service pay of the noncommissioned personnel of the armed services was exempted from income taxes, effective retroactively to all years beginning after Dec. 31, 1940, to the end of the war as proclaimed by the president. Claims for refunds for years commencing before Jan. 1, 1943, were to be filed before Jan. 1, 1947. Pre-service taxes on earned income for any "war year" were made payable over a three-year period. The capital stock tax and all excess-profits taxes on corporations were repealed as of Jan. 1, 1946. The normal tax on corporation incomes was

retained but surtax rates were decreased from a range of 10%-16% to 6%-14%, depending on the size of net income. Social security taxes were frozen at 1% both for employers and employees during the calendar year 1946. The \$5.00 auto use tax was repealed.

Litigation over taxes, state and federal, poured through administrative tribunals and the courts in steadily increasing volume with rulings continuing heavily in favour of governmental agencies against the contentions of taxpayers.

The supreme court upheld 1942 amendments to the Revenue act subjecting the entire value of "community property," including the proceeds of insurance paid for by the decedent, to the federal estate tax. This ruling affected citizens of Louisiana, Texas, California and seven other states, where one-half of a husband's earnings and property "belong" to his wife. Congress has the constitutional power to include the wife's half of such property in the taxable estate upon her husband's death, the court said (*Fernandez v. Weiner*, 66 S. Ct. 178).

In general, legal devices for the avoidance and reduction of taxes fared badly. In two cases the supreme court held that the entire corpus of trusts established by decedents while living were subject to the federal estate tax. The settlors of both trusts had retained "strings" on the disposition of the trust funds under certain contingencies. This rendered all of the trust property subject to death duties under the *Hallock* case rule. (*Fidelity-Philadelphia Trust Co. v. Rothensies*, 65 S. Ct. 508; and *C. I. R. v. Field's Estate*, 65 S. Ct. 511.) The high court also closed the door on the use of single premium life insurance and annuity contracts as a means of avoiding estate taxes where the insured retains a reversionary interest in case he should survive the beneficiary (*Goldstone v. U.S.* 65 S. Ct. 1323).

Attempts to escape the federal gift tax were blocked by the high court in two cases where it ruled that transfers of property by taxpayers to their intended wives in connection with anti-nuptial agreements were gifts subject to the tax, even though the property conveyed was expressly stated to be part of the consideration for the agreement (*C.I.R. v. Wemyss*, 65 S. Ct. 652 and *Merrill v. Fabs*, 65 S. Ct. 655). In two other cases the supreme court considered property transferred to trustees to provide for beneficiaries after reaching a certain age as outside the statutory exclusion of \$5,000 in computing the federal gift tax under the Revenue Act of 1932 as amended in 1935. Such transfers were gifts of "future interests" and not entitled to the exemption (*Fondren v. C.I.R.*, 65 S. Ct. 499 and *C.I.R. v. Disston*, 65 S. Ct. 1328).

The supreme court passed on various technical phases of income tax law, including rulings that dividends of a corporation payable to stockholders of record on a future date are not taxable as income as of the date when the dividend was declared (*Putnam's Estate v. C.I.R.*, 65 S. Ct. 811), and that a taxpayer's honest belief that securities are worthless is not the sole test of their deductibility as a loss in a particular year (*Boehm v. C.I.R.*, 66 S. Ct. 120).

Following precedent, the supreme court affirmed the rights of states to impose heavier tax burdens on foreign than on domestic corporations. The Oklahoma 4% tax on premiums collected by out-of-state insurance companies from Oklahoma residents was held not to violate the 14th amendment (*Lincoln Nat'l Life Ins. Co. v. Read*, 65 S. Ct. 1220). The court also approved the assessment of social security taxes by the state of Washington on a shoe company whose salesmen solicited orders in the state to be filled through offices outside the state (*International Shoe Co. v. Washington*, 66 S. Ct. 154). On the other hand the supreme court maintained the bars against state taxation of federal property. The power of congress to establish low-cost housing projects exempt from state, county and local

taxation was sustained where title to the real estate remained in a U.S. agency (*Cleveland v. U.S.*, 65 S. Ct. 280).

**Trade Regulation.**—In a 5 to 3 decision the supreme court extended the application of the Sherman act by holding that the collection and distribution of news is interstate commerce subject to federal control. The Associated Press, a co-operative association of more than 1,200 newspaper publishers, was directed to revise certain bylaws which had operated in restraint of trade. The bylaws stricken out by the court had forbidden A.P. members to sell news to nonmembers and enabled any member to make it practically impossible for a nonmember in the same city to obtain an A.P. franchise. The freedom of the press guaranteed by the first amendment, said the court, does not include "freedom to continue to keep others from publishing." (*A.P. v. U.S.*, 65 S. Ct., 1307.)

The high court also in part affirmed a district court decree aimed at a monopoly in the glass container industry. The trial, which lasted 112 days, had resulted in a decree of 46 printed pages in which the lower court made 628 findings of fact and 89 conclusions of law based on a printed record of 16,500 pages. The defendants, including all the major glass companies in the industry, their officers and a trade association, were found to control more than 840 patents in the glassmaking machinery. Provisions of the decree directing them to license all applicants to manufacture and use the patented machinery at uniform reasonable royalty rates were approved by the supreme court, but more drastic provisions, which would in effect have divested them of all benefits from their patents, were set aside (*Hartford-Empire Co. v. U.S.*, 65 S. Ct. 815).

In a third antitrust decision the supreme court held that "fair trade agreements" between distilling companies outside of Colorado and wholesalers and retailers within the state, resulting in price-fixing on retail sales of wines and liquors, violated the conspiracy provisions of the Sherman act. The fact that the price-fixing was wholly intrastate was no defense, since the means used extended into interstate commerce. Nor was the prosecution barred by the 21st amendment although it grants the states broad powers to regulate the liquor traffic within their borders (*U.S. v. Frankfort Distilleries*, 65 S. Ct. 661).

The government won another partial victory in its suit for dissolution of the aluminum trust. After a three-year hearing against 63 defendants for a conspiracy to violate the antitrust laws, resulting in 40,000 pages of testimony, a district court had dismissed the case. On review by a circuit court, acting on behalf of the supreme court which had disqualified itself, it was held that the evidence showed a monopoly by the defendants through their control over 90% of the aluminum ingot market. The court directed the lower court to enter a decree restraining "price-squeeze" practices but declined to order the dissolution of Alcoa because of a possible adverse effect on war production (*U.S. v. Aluminum Co. of America*, 148 F. 2d. 416).

As a sequel to the 1944 decision in the *South-Eastern Underwriters* case, upholding the indictment of 198 fire insurance companies for violating the antitrust laws, congress passed a moratorium act providing that until Jan. 1, 1948, the Sherman and Clayton acts would not be applicable to the insurance business.

In four cases the supreme court affirmed orders of the Federal Power commission reducing natural gas rates. Other important rulings (too specialized to review in this article) were handed down by the court in cases relating to banking, carriers, communications and fair trade practices.

**Veterans.**—Selective Service headquarters issued a handbook on the re-employment rights of veterans, advocating the doctrine of superseniority and interpreting various statutory provisions. By superseniority is meant the absolute right of a veteran

to his old job or one of like seniority, status and pay, even though this may result in displacing an employee with greater seniority who has not seen war service. The only valid ground for denying a veteran re-employment, according to this view, is "that the employer's circumstances have so changed as to make it impossible or unreasonable" to take the veteran back.

The superseniority doctrine was applied by a federal district court in Brooklyn. A veteran "is entitled to come back to his work . . . in preference to anybody else who might be working on any of the days that he applied for work, except a veteran in his own category." Another district judge in Illinois, however, rejected this proposition. Reinstatement of a veteran cannot lawfully be enforced, he ruled, if it means the transfer, demotion or discharge of nonveterans with longer work records.

Congress adopted amendments to the G.I. Bill of Rights, liberalizing provisions for medical care, education and loans to veterans. Another law established a department of medicine and surgery in the Veterans' administration. (See also AGRICULTURE; BANKING; BUSINESS REVIEW; CONSUMER CREDIT; PATENTS; PUBLIC UTILITIES; RELIEF; TAXATION; WAR LABOR BOARD, NATIONAL; WAR PRODUCTION BOARD.) (M. DN.)

**Lawn Tennis:** see TENNIS.

**Lawrence, Ernest Orlando** (1901- ), U.S. physicist, was born Aug. 8 in Canton, S.D. He received his A.B. degree at the University of South Dakota, Vermillion, S.D., 1922. Dr. Lawrence took his Ph.D. at Yale university, New Haven, Conn., 1925, was awarded honorary degrees as a doctor of science by a number of leading universities in the United States, and was a National Research Fellow in Physics at Yale, 1925-27. He was appointed assistant professor of physics at the University of California, Berkeley, Calif., in 1927, becoming a full professor in 1930. An outstanding physicist, Dr. Lawrence was an authority on nuclear, biological and medical physics. He was a pioneer in the development of the cyclotron—his first model weighing 60 tons was built in the late 1920s. Subsequently, he designed a 200-ton mechanism and for this achievement, in addition to his atomic research, he was awarded the Nobel prize for physics in 1939. He became a member of the consulting board of the Institute of Cancer Research at Columbia university, New York city, 1935, and was awarded a number of medals for his work in atomic research and related fields. Dr. Lawrence played a prominent role in the development of the atomic bomb. It was announced (Aug. 6, 1945) that he was a member of a four-man advisory group that assisted a special U.S. government interim committee on direction, control and use of atomic energy in postwar problems. Dr. Lawrence predicted (Dec. 9, 1945), that the new 4,000-ton super cyclotron under construction at the University of California would bring science into a "new realm of the atom." He also said it was possible that the new cyclotron would make possible artificial production of cosmic rays.

**Lead.** With the removal of censorship in 1945, the gaps in the world table of production were gradually being filled in, but many of the figures in Table I are estimates.

Table I.—World Smelter Production of Lead, 1940-44

	(Thousands of short tons)				
	1940	1941	1942	1943	1944
Australia . . . . .	300	350	310	300	?
Belgium . . . . .	61	22	22	22	?
Burma . . . . .	90	100	15	6	?
Canada . . . . .	220.5	222.6	243.3	224.5	143.7
Germany . . . . .	193.2	190.5	161.4	182.8	183.1
Mexico . . . . .	211.6	166.7	212.7	234.2	196.5
U.S.S.R. . . . .	80	100	110	140	?
United States . . . . .	516.6	544.7	548.8	469.5	464.6
Total (est.) . . . . .	1,980	2,040	2,080	1,930	?



Sharp declines in output were found in most countries in 1944; a drop of 14% is noted in countries that in 1943 furnished 65% of the world total.

In 1945 Canada showed some recovery from the 1944 decline, with 123,542 tons in the first three quarters, 15% more than in the same period of 1944.

**United States.**—The salient features of the lead industry in the United States are presented in Table II.

Table II.—Data of Lead Industry in the U.S., 1940-44

	(Thousands of short tons)				
	1940	1941	1942	1943	1944
Mine output . . . . .	457.4	461.4	496.2	453.3	416.9
Refinery output . . . . .	533.2	571.0	566.8	469.6	464.8
Domestic ores . . . . .	433.1	470.5	467.4	406.5	394.4
Foreign ores . . . . .	100.1	100.5	99.5	63.1	70.3
Secondary recovery . . . . .	260.3	397.4	323.0	342.1	331.4
Imports . . . . .	282.5	381.2	492.5	319.1	321.3
Exports . . . . .	49.1	14.4	5.8	13.3	15.5
Consumption . . . . .	782	1,050	1,043	1,113	1,119
Stocks, year-end . . . . .					
Producers . . . . .	143.4	100.1	117.2	129.5	125.1
Consumers . . . . .	78.5	101.0	81.7	115.2	89.7
Government . . . . .	?	?	248.4	173.9	90.5

The decline in domestic production that had been under way after 1942 continued in 1945, the mine output for the first three quarters of the year being 290,942 tons, a decrease of 8% from the same period of 1944. (See also MINERAL AND METAL PRODUCTION AND PRICES.) (G. A. Ro.)

**League of Nations.** Events in 1945 inevitably affected the whole position of the League of Nations. Doubts about its future which had been felt in 1944 became certainties as a result of the San Francisco conference and the sudden collapse of Germany and Japan. It was decided to set up a new world peace organization.

The United Nations charter, which was to take the place of the old covenant, borrowed its key principles straight from the league, as well as most of its main organs, a general assembly, council, secretariat and court of justice. But the emphasis was different. Lessons had been learned during 25 years and additions made. Collective action against aggression still stood in the forefront, but it was to be the sole job of the new security council, and there were restrictions against its use against any of the great powers. International co-operation, the other main plank of league policy, had become more imperative for peace than ever. Thus the social and economic activities of the league, following out suggestions made in the Bruce report of 1939, had been both concentrated for the purpose of more efficient machinery, and expanded to larger fields. The new social and economic council, working under the general assembly, would deal with or supervise the work hitherto done by most of the league's technical organizations, as well as the I.L.O., and with new problems such as the rights and fundamental freedoms of human beings. The league's mandates system, also, was to be taken over by a new body, the trusteeship council, while all the United Nations joined a general declaration on colonial policy, going beyond anything in the covenant.

During the year 1945 the league, therefore, was restricted, on a meagre budget, to short-term activities. The health organization continued working at Geneva, and the drug control committee at Washington. The financial, economic and transport section at Princeton university went on with their research work and published reports on banking, on economic stability and on commercial policy in the postwar world, on the league's reconstruction loans, and on transport restoration plans after World War I. League experts advised the San Francisco conference, and organs like U.N.R.R.A. were set up for immediate international co-operation after the war.

Late in the year it was decided that the league's supervisory commission, which had been acting for the league since war prevented any session of assembly or council, should take in

hand at once provisional terms of transfer—including material and financial assets—to the United Nations organization. These terms were to be laid for approval before the final League of Nations assembly early in 1946 when they would then be referred for authoritative decision to the first general assembly of the United Nations, who already had done preparatory work and reported on the transfer question through a small executive committee in London. Thus, in 1946 the original great experiment of the League of Nations was to make way for the second attempt to set up a world peace organization, the United Nations. (See also DRUGS AND DRUG TRAFFIC; MANDATES; UNITED NATIONS CONFERENCE ON INTERNATIONAL ORGANIZATION.)

(M. Fe.)

**Leahy, William Daniel** (1875- ), U.S. naval officer, was born at Hampton, Ia., on May 6. He was graduated from the U.S. naval academy, Annapolis, Md., in 1897. He was commissioned vice-admiral in 1935 and admiral in 1936.

Upon his retirement from the navy in 1939, he was appointed governor of Puerto Rico. In Nov. 1940, President Roosevelt named him ambassador to the French government at Vichy. In April 1942, Roosevelt summoned Leahy to Washington "for consultations." Though one purpose of this move was to express disapproval of Vichy's policies, his primary purpose was to appoint Leahy chief of staff to the commander in chief. Leahy was named to this newly created post on July 21, 1942. In this capacity he accompanied the president to the international conferences held during 1943 at Quebec, Cairo and Tehran. In Dec. 1944 Admiral Leahy was promoted to the five-star rank of admiral of the fleet. He was one of the party of U.S. diplomats and military chieftains that accompanied President Truman to Berlin for the Potsdam parley (July-Aug. 1945). He opposed the merger of the armed services under a civilian secretary, declaring, Dec. 4, that he could not see "any advantage" in the plan which he said would mean "indefinite disorganization of the military departments."

**"Lend-Lease" Act (H.R. 1776):** see FOREIGN ECONOMIC ADMINISTRATION.

**Leather.** The end of World War II in 1945 removed from the leather industry the strain of military needs which had been its first consideration for four years. However, the industry was left in a weakened condition, with depleted inventories of raw stock and finished leather, and much of its physical structure needing rehabilitation.

Military needs in the United States gave way to civilian requirements officially on Aug. 27, 1945, when an amended and depleted version of conservation order M-310 was issued by the War Production board, removing all restrictions on sale, delivery or use of any type of leather.

At the same time, shoe conservation order M-217 was revised by the WPB and all style restrictions were removed from the shoe industry.

These two actions immediately created an intense demand for more leather for civilian use, a demand which the leather industry could not hope to meet overnight. Civilian pressure was still further intensified when shoes were released from rationing in Oct. 1945, in the face of warnings by leather men that the move might result in overbuying of leather shoes and wiping out of the thin margin of existing stock.

Raw stock problems continued to confront the industry through the year. The U.S. situation was somewhat favourable as to quantity but unfavourable in quality. The world situation was clouded in doubt.

A year-end survey of the U.S. livestock outlook, an important index of tanners' raw stock supplies, was conducted by the department of agriculture. It revealed the probability of a slight increase in total cattle and calf slaughter in 1946. It also showed that by the end of 1945 lamb flocks were substantially reduced.

The wartime reduction of cattle numbers in Europe is shown in Table I:

Table I.—Reduction of Cattle in Europe from Prewar Figures

Austria . . . . .	67%	Greece . . . . .	50%
Belgium . . . . .	15%	Hungary . . . . .	67%
Denmark . . . . .	Slight increase	The Netherlands . . . . .	30%
France . . . . .	35%	Poland . . . . .	67%
East Germany . . . . .	Unknown	Rumania . . . . .	13%
North Germany . . . . .	10%	Russia . . . . .	50%
West Germany . . . . .	40%	Yugoslavia . . . . .	50%

At the close of 1945, the U.S. leather industry estimated that exportable world supplies of cattle hides would be less than 14,000,000 in 1946, compared with a prewar normal of 25,000,000; calfskins 6,000,000, compared with a normal 10,000,000; goat and kidskins 40,000,000, compared with a normal 75,000,000; sheep and lambskins, 85,000,000, compared with a normal 90,000,000.

A further indication of the precarious raw stock outlook at the end of 1945 is shown in Table II of distribution of cattle hides and kips from Argentina, an important source of much of the industry's best raw stock. Table II shows distribution for the first 11 months of 1945 and 1944.

Table II.—Distribution of Cattle Hides and Kips from Argentina, 1945 and 1944

	1945 (11 months)	1944
England . . . . .	2,713,000	2,530,000
U.S. and Canada . . . . .	460,000	1,745,000
Scandinavia . . . . .	240,000	323,000
Mexico . . . . .	172,000	87,000
Spain . . . . .	110,000	196,000
The Netherlands . . . . .	39,000	...
Belgium . . . . .	15,000	...
All other . . . . .	223,000	238,000
Total . . . . .	3,972,000	5,119,000

U.S. cattle and calf slaughter in 1945 was on a par with the preceding year, as is shown in Table III of federal inspected slaughter for the year:

Table III.—U.S. Federal Inspected Slaughter for 1945 and 1944

	1945	1944
Sheep and lambs . . . . .	21,215,000	21,876,000
Cattle . . . . .	14,541,000	13,541,000
Calves . . . . .	7,023,000	7,770,000

The quality of U.S. hides during 1945 was generally unsatisfactory—with the exception of big packer hides. While it was acknowledged that manpower shortages were primarily responsible for inferior take-off and quality, almost no justification was found by tanners for the condition of some lots received.

The tanning material and chemical situation continued acute on some materials during 1945. Chestnut extract was still very scarce, with no appreciable improvement in sight for 1946. Quebracho supplies were lowered by increased costs of production and delivery from Argentina, and the Office of Price Administration approved price increases to stimulate supplies of this important tanning material.

Production of major types of leather in 1945, compared with 1944, 1943 and 1942, is shown in Table IV.

Table IV.—U.S. Production of Major Types of Leather, 1942-45

	1945	1944	1943	1942
Cattle hides (including kips for side leather) . . . . .	27,636,000	26,028,000	25,656,000	30,828,000
Sole (sides) . . . . .	17,100,000	16,836,000	16,584,000	20,868,000
Belting (butts) . . . . .	1,008,000	1,044,000	1,020,000	1,200,000
Side upper and patent (sides) . . . . .	30,936,000	27,540,000	27,348,000	32,712,000
Bag, case, and strap (sides) . . . . .	1,128,000	1,260,000	1,596,000	1,872,000
Calf and whole kip . . . . .	11,664,000	10,932,000	11,112,000	12,264,000
Goat and kid . . . . .	24,396,000	34,656,000	37,416,000	41,124,000
Cabretta . . . . .	4,464,000	3,228,000	3,420,000	3,360,000
All sheep and lamb . . . . .	30,904,000	53,892,000	59,316,000	53,628,000

For more than four years, during a period of unprecedented

demand and sharply rising costs, the basic price level of leather had been held intact. At the same time, average labour costs rose 40%, tanning materials and chemicals were higher, fuel costs went up, and shipping and overhead were increased appreciably.

In all the divisions of the industry, volume was lower at the end of 1945 than in the base period of Nov. 6 to Dec. 6, 1941, when price ceilings were established, and in some divisions a drastic curtailment of raw stock supplies brought about a particularly sharp increase in unit costs.

Inventory replacement was one of the major problems facing the industry at the end of 1945. Prices of leather remained at ceiling levels, but raw stock and production costs rose as much as 50%. Consequently, to replace a foot or pound of leather required assets sufficient to cover currently greater raw stock costs as well as manufacturing expense.

Tanners were also confronted at the end of 1945 by the problem of leather substitutes, the wartime synthetics developed to meet consumer demands which tanners were unable to satisfy.

Foreign trade resumption was another of the aspects being considered carefully at the end of 1945 by the leather industry. Many countries, such as South Africa, India, Argentina and Brazil made strong efforts to build up their tanning industries. Those governments stimulated technical progress in tanning and encouraged an improvement in the product. The U.S. leather industry was studying a wholly new plan of foreign trade for the coming years. (See also SHOE INDUSTRY.) (R. B. B.)

**Lebanon:** see SYRIA AND LEBANON.

**Lee, Willis Augustus, Jr.** (1888-1945), U.S. naval officer, known among his men as "Ching" Lee, was born May 11 at Natlee, Ky. He entered the navy in 1904, was commissioned a captain in 1936 and a rear admiral in 1942. Early in the Pacific war, he was assistant chief of staff to the commander in chief of the U.S. Fleet. In Feb. 1942, he became commander of a task force in the Southwest Pacific. He was credited with having turned the tide of battle at Guadalcanal in Nov. 1942 and of having saved the island for the U.S. forces. In the spring of 1944, Adm. Lee directed the attacks on Truk and other islands in the Carolines group with Adm. Marc A. Mitscher; and in the fall of that year he was second-in-command to Adm. Halsey when the 3rd Fleet was engaged in the Formosa and Ryukyu areas. Shortly before the war ended in the Pacific, Adm. Lee was returned to the U.S. and was assigned to a special top-secret tactical mission in the Atlantic. He died of a heart attack on board ship in Casco bay, Aug. 25.

**Leeward Islands:** see WEST INDIES, BRITISH.

**Legislation:** see BUSINESS REVIEW; LAW.

**Lehman, Herbert H.** (1878- ), U.S. politician, was born March 28. He was graduated from Williams college, Williamstown, Mass., in 1899. He later entered the textile business and in 1908 became a partner in Lehman Brothers banking house, where he remained until World War I. He joined the army in Aug. 1917, was commissioned a captain and assigned to the general staff. He eventually attained the rank of colonel in the quartermaster corps and was awarded the D.S.M. in 1919. After the war Lehman returned to the banking business. In 1932 he was elected to the first of four terms as governor of New York. Lehman declined renomination in 1942 and was appointed director of foreign relief and rehabilitation by President Roosevelt. In Nov. 1943, he assumed office as director general of the United Nations Relief and Re-

habilitation administration. Lehman announced on May 4, 1945, reorganization of U.N.R.R.A. offices to increase the body's efficiency. Criticism of U.N.R.R.A., which mounted during the latter part of 1945, was climaxed by assertions made by several congressmen returning from a European junket that U.N.R.R.A. was poorly administered. Lehman vigorously repudiated these charges before a senate committee, Sept. 20 and also bluntly denied reports of Russian control of U.N.R.R.A. in "any country." On Nov. 16, Lehman warned a house committee that unless \$1,350,000,000 was appropriated for U.N.R.R.A., a "new tide of social disaster would arise in the already complicated international scene." Many prominent personalities, including Gen. Eisenhower, joined Lehman's request for further funds. The house of representatives and the senate approved the fund by mid-December and then submitted a measure for joint senate-house conference.

**Leland Stanford Junior University:** see STANFORD UNIVERSITY.

**Lemons:** see FRUIT.

**"Lend-Lease" Act:** see FOREIGN ECONOMIC ADMINISTRATION.

**Lend-Lease Administration, Office of:** see AGRICULTURE; FOREIGN ECONOMIC ADMINISTRATION.

**Leopold III** (1901— ), King of the Belgians, born Nov. 3, was the son of King Albert I, whom he succeeded Feb. 17, 1934. He was married Nov. 10, 1926, to Princess Astrid of Sweden, who was killed in a motor car accident in 1935. At the start of the German invasion (May 10, 1940) Leopold assumed command of his armies and appealed to France and Britain for aid. His unconditional surrender of May 28 caused a storm of indignation among the Allies and many of his own subjects branded him a traitor. On Sept. 11, 1941, while in captivity, Leopold was permitted to marry Mlle. Mary Lelia Baels, a commoner, who took the name of Princess de Réthy. Several days after the Allied invasion of Normandy in June 1944, the Germans moved Leopold from his palace at Laeken, near Brussels, where he was being held in custody, to a location deeper within the reich. On May 8, 1945, it was disclosed that U.S. 7th army troops had liberated the Belgian king and his wife near Strobl, Austria. The king's desire to resume his throne was opposed by the Belgian government on charges that his surrender in May 1940 was suspect. Leopold answered (July 19, 1945) that he yielded because he felt that he should stay with his people. Although both houses of Belgium's parliament voted to bar his return, Leopold refused to abdicate and was said to be waiting for a shift in Belgium's political balance from left to right before making another request to return to his homeland.

**Leprosy.** The studies on promin, a sulfone derivate, continued at the National Leprosarium, Carville, La. Made skeptical by previous disappointing experiences with many "false treatments" which raised the hopes of lepers and leprologists over the world, the authors were exceedingly cautious in their statements about the effects of this drug. Altogether 137 patients were treated by courses of the drug given intravenously over periods up to four years. There appeared to be a direct relationship between the length of treatment and the improvement noted. In the entire group 58.4% were reported improved but in 42 patients who were treated for a period of two to three years 73.8% were classified as improved. Only two patients became worse while taking the drug.

The authors believed that promin does exert some specific action on the *Mycobacterium leprae* but were hopeful that a better

drug would be developed by the chemists. They stated, "In the meanwhile promin must be considered the best experimental treatment ever tested at the National Leprosarium." In its present form promin is a drug which can be used in treating leprosy in well-staffed hospitals only. It has to be given by repeated intravenous injections over periods of many months. Careful clinical and laboratory observations are needed to prevent serious toxic effects in many patients.

The patients treated at Carville had moderately or far advanced leprosy of the lepromatous or cutaneous type in which hope for permanent improvement is slight. As few cases reach Carville before the disease is moderately advanced it would be necessary to await reports from countries where leprosy is more prevalent to learn its effect in early leprosy.

Also from Carville a preliminary report was made on a trial of penicillin in treating leprosy. Seven cases receiving the drug for periods up to one month and dosages to 3,240,000 units did not show improvement. The patients had been observed repeatedly for six months after treatment was completed.

During the year appeared a note on a new drug for leprosy which was developed and tried by French physicians in Madagascar. It is a glucoside called asiaticocide and obtained from a plant growing in that area. Encouraging results from its use were claimed but detailed results were not available at this time.

**BIBLIOGRAPHY.**—G. H. Faget and R. C. Pogge, "The Therapeutic Effect of Promin in Leprosy," *Pub. Health Rep.*, 60:1165-1171 (Oct. 5, 1945); *idem*, "Penicillin Treatment of Leprosy: Clinical Note," *Pub. Health Rep.*, 60:324-325 (March 23, 1945); "A New Remedy for Leprosy," *Foreign Letters* (London), *J.A.M.A.*, 127:1070 (April 21, 1945). (C. H. Bd.)

**Lettuce.** The total lettuce crop of 1945 in the United States was estimated by the U.S. department of agriculture at 29,648,000 crates compared with 28,690,000 crates produced in 1944 and a ten-year average of 21,572,000 crates, 1934-43. This was a new high record production of the total crop though the winter crop was slightly smaller than in 1944. The acreage was 172,650 in 1945 compared with 167,980 in 1944 and an average of 153,030 for 1934-43. The yield was also high, 172 crates per acre compared with 171 crates in 1944 and 142 average.

Prices started high in the early spring when the winter crop was about 10% smaller than a year earlier and increased as the season advanced making an average for the year of \$2.92 per crate, compared with \$2.60 in 1944 and an average of \$1.78 for 1934-43. The combined high prices and large volume brought values up to a total of \$86,403,000 for 1945 compared with \$74,199,000 in 1944 and an average of \$38,635,000 for 1934-43. Consumer demand continued high due to the scarcity of canned

U.S. Seasonal Acreage and Production of Lettuce, 1945 and 1944

	Acreage		Production (crates)	
	1945	1944	1945	1944
Early winter . . . . .	39,250	39,850	7,208,000	7,243,000
Early spring . . . . .	56,830	51,760	8,558,000	8,045,000
Late spring . . . . .	5,200	5,470	1,012,000	1,067,000
Summer . . . . .	30,300	30,700	6,596,000	6,143,000
Fall . . . . .	41,070	40,200	6,274,000	6,192,000
Total . . . . .	172,650	167,980	29,648,000	28,690,000

vegetables. The consumption of lettuce had been increasing steadily for several years. The largest increases were in the crops of California in the winter and midsummer crops. Experimental shipments by aeroplane were made to the middle west with promising results. When rates became more stabilized important developments were expected. (See also VEGETABLES.)

(J. C. Ms.)

**Lewis, John Llewellyn** (1880— ), U.S. labour leader, was born Feb. 12 in Lucas, Ia., the son of a Welsh coal miner. After seven years of schooling he was compelled, because of his family's financial need, to



desert his studies and enter the mines. His success as legislative agent for the United Mine Workers of Illinois (1908-11) led to his appointment as American Federation of Labor organizer (1911-17). He returned to the U.M.W.A. as vice-president in 1917, became acting president in 1919, and from 1920 on held the post of president. Lewis had long favoured industrial organization of open-shop mass production industries, contrary to traditional A.F. of L. craft unionism. In 1935 he formed the Committee for Industrial Organization. When he refused to heed the A.F. of L. executive council's order to dissolve the committee, the participating unions in the C.I.O. were suspended in 1936 and the following year were expelled from A.F. of L. membership.

Lewis supported Roosevelt in 1936, but in 1940 he switched his support to Wendell Willkie and promised to resign as C.I.O. chief if Willkie lost. He made good his promise but retained the U.M.W.A. presidency. In Oct. 1942 he led the mine workers out of the C.I.O., and in 1943 negotiated unsuccessfully for re-entry into the A.F. of L.

Lewis made another effort to return to the A.F. of L. fold but was rejected by the latter organization, which asserted (Feb. 15, 1945) that it could not accept his request for a seat on the A.F. of L. council. The U.M.W. staged two major strikes in 1945—one in May and the other in the early fall—both of which were settled to the labour leader's apparent satisfaction. Lewis found fault with Pres. Truman's fact-finding boards and he declared (Dec. 10) that they represented the first step toward an "absolutist" state.

**Ley, Robert** (1890-1945), German politician, was born Feb. 15 in Niederbreidenbach, Germany, the son of a small landowner. He studied at the universities of Jena and Bonn, Germany, received a Ph.D. in chemistry and worked for I. G. Farbenindustrie for seven years (1921-28), before he was discharged for "political activity." He was elected as nazi member to the Prussian diet, 1929, and to the reichstag, 1932. Ley was made head of the German workers' front after Hitler's accession to power. To weld German labour into a solid organization backing the fuhrer, Ley abolished the democratic trade unions and built up a powerful labour organization designed to facilitate German militarization and war preparations. He was also head of the Bund der Auslandsdeutsche (Union of Germans Living Abroad). During World War II, he supervised the mobilization of foreign as well as German labour for war work. Although he had been named in April 1945 as head of a special Adolf Hitler volunteer corps, that was to function as guerrilla fighters, he fled to the mountains near Berchtesgaden where he was captured by U.S. troops, May 16. He attempted to take his life but failed and was arraigned as a war criminal. On Oct. 25 he hung himself with a towel in the lavatory in the Nürnberg prison where he and 23 other nazis were awaiting trial as war criminals. A violent anti-Semite during his tenure as a Hitlerite leader, the workers' front chief left a "political testament," which attributed nazidom's downfall to its vicious anti-Semitism and urged Jews and Germans to reach a "complete reconciliation."

**Liberal Party.** In anticipation of the general election in Great Britain, then expected in the autumn, Liberal political activity became intense in the first half of 1945. At a large and enthusiastic assembly held in the first week of February, Lady Violet Bonham Carter was elected president and shortly after Sir William Beveridge became chairman of the election campaign committee. In spite, however, of the very favourable reception given to Liberal candidates, only 12 out of 305 were elected at the general election which events advanced to July. The leaders of the party were defeated, including Sir

Archibald Sinclair and Sir William Beveridge. The parliamentary party elected Clement Davies, K.C., M.P., as their chairman for the ensuing year, and he appointed T. L. Horabin, M.P., as chief whip. Lord Samuel succeeded Lord Crewe as the leader of the Liberal peers.

The Liberal party polled more than 2,250,000 votes, which on a proportional basis would have entitled them to some 50 seats.

In reviewing the results of the election, candidates generally were of opinion that their greatest handicap in the eyes of the electors was the inability of the Liberal party to form an alternative government if elected, and they considered it imperative to meet the next general election with 500 to 600 candidates.

(W. Rs.)

**Liberia.** This Negro republic lying on the west coast of Africa at the lower curve of the continental bulge, bordering the narrowest part of the South Atlantic bottleneck, is the closest area of Africa to South America. The land (area: 40,000 sq.mi.) was bought in 1820 by the American Colonization society for the purpose of repatriating freed slaves from the United States to the state of their forefathers. England had already established a similar colony on land named Sierra Leone which bounds Liberia on the northwest. Except for Liberia's coastline (350 mi.) the rest of the country is surrounded by French territory: French West Africa and Ivory Coast. It is estimated that of the estimated population of 1,000,000 only 12,000 are descendants of the original colonists from the United States. The remaining majority is comprised of the uncivilized aborigines consisting of 28 tribes speaking as many dialects. The descendants of the U.S. Negroes, known as Americo-Liberians, are the intellectual and ruling class and speak English. The colony declared its independence on July 26, 1847, and adopted a form of government patterned after that of the United States. The president in 1945, the Hon. William V. S. Tubman, was inaugurated in Jan. 1944 for a term of eight years. Liberia, although officially Protestant Christian, grants religious freedom to all and welcomes all sects to evangelize its peoples. The Roman Catholic and Mohammedan faiths were in 1945 increasing in numbers of converts. Most of the tribal population, however, remained pagan.

**History.**—As a result of the defense agreement between the United States and Liberia, signed March 31, 1942, providing for the landing of U.S. troops in Liberia to construct airports and other installations which were used by the bomber ferry command, Liberia's strategic importance brought about a new program of assistance and development toward which the United States government agreed to advance \$12,500,000 for the construction at Monrovia of a port and port works which would aid in Liberia's advancement as well as provide an important naval base on the west African coast. The agreement for the port and port works was contracted between the two governments on Dec. 31, 1943, but the work was not yet completed in 1945. At the request of the Liberian government the services of several technical experts were loaned during 1945 to investigate the iron ore deposits near Monrovia, to assist in the development of agriculture, to plan a program of public health and sanitation and to make a study of the country's natural resources. The possibility of preparing a general plan of economic development was contingent on the result of these findings. Grants by the United States government in the realm of cultural relations were made during 1945 to the Booker T. Washington institute. Aid was given also to the training program of the public health mission.

**Education.**—Primary education which is only nominally compulsory was, during 1945, conducted in fewer than 150 government-supported schools. One source states that there were 87 mission schools and 8 high schools. The College of West Africa,

training teachers, Liberia college specializing in law courses, both in Monrovia, and Booker T. Washington Industrial and Agricultural institute for tribal boys were the most important educational institutions.

**Finance.**—The unit of currency is the Liberian dollar which was, during 1945, equal in value to that of the United States. Liberia operates under a balanced budget. Total revenues reached \$1,598,400 in 1944, of which 42% represented internal revenue and 58% revenues of customs. Imports for that year were valued at \$4,103,908 and exports at \$10,495,452.

**Trade and Agriculture.**—Agriculture is the principal source of livelihood of the tribal Liberians. Some others are fishermen, stevedores and seamen. A few engage in trade. The white collar jobs are held mostly by Americo-Liberians. Manufacturing did not exist in 1945. Rubber was the chief export in 1945 and was grown almost entirely by the Firestone Plantations company, the only large-scale enterprise in the country. Thousands of tribal men were employed during the year on the company's 80,000 ac. of rubber trees, 65,000 ac. of which were producing latex for export. Coffee is indigenous and ranks with palm products and gold as the most important exports.

**Transportation and Communication.**—There was in 1945 no telephone system, and there were no railroads. Both the government and the Firestone company owned and operated radio stations during 1945. A French-owned cable station was located in Monrovia, the capital. There was coastwise air service for mail and passengers, but travel and communication to the interior were matters for individual contrivance. Native carriers take the place of pack animals. Liberia's less than 300 mi. of roads were considerably increased by the American expeditionary force which landed there in 1942. The International Postal union regulates handling of mail. (E. D. Fv.)

**Liberty Ships:** see SHIPBUILDING; SHIPPING, MERCHANT MARINE.

**Libraries.** Among the matters that received consideration in the United States in 1945 the following should be mentioned: (1) aid given to veterans returning to civil life; (2) extension of library service; (3) recruiting and training of librarians; (4) co-operation in the acquisition of materials for research; (5) aid to devastated libraries in war areas; (6) buildings.

Many libraries made special efforts to help men and women discharged from the armed forces. To cite but one example, the New York Public library organized a branch library in the veterans' centre established by the City of New York. In general, appropriations for state library extension were increased, but roughly 26% of the people in the U.S. were still without library service. A survey of New York state, directed by Dr. Warren Coxe, head of the research division of the state education department, with Dr. E. W. McDiarmid, librarian of the University of Minnesota, Minneapolis, as consultant, was nearing completion at the end of the year. The recommendations, it was hoped, would result in increased aid from the state.

Libraries were still handicapped by shortage in personnel, a shortage that was serious in the professional group, critical in the clerical. It was thought that the smaller enrolments in library schools after 1940, caused in part by low salaries, in part by the greater attraction of war jobs would be felt for a long time. The total enrolment (March 1, 1945) in the 34 schools of various types accredited by the board of education for librarianship (American Library association) was 1,348, including 115 advanced and 206 special or nonmatriculated students, an increase of 286 as compared with 1944. Of the total number enrolled 468 were part-time.

Appropriations for tax-supported libraries were, however, maintained or increased, and it was encouraging to note that better salary schedules were reported by many libraries, among them the public libraries of Cleveland, Los Angeles and Seattle, the Carnegie library of Pittsburgh, and the Enoch Pratt library of Baltimore. The proposed new classification and pay plans for the Library of Congress were heartening. With rising costs of service and decreasing returns from investments, the situation of libraries supported by endowments was the cause of grave concern.

The problem of obtaining European books was studied. Until normal commercial channels were reopened it was arranged that the Library of Congress, with the help and approval of the state department, would, on behalf of research libraries, purchase books published from 1939 to 1945, mainly in France, Germany and Italy, and would allocate the materials so secured with the aid of a joint committee from groups interested, the expenses to be shared by the participating libraries. A mission sailed for Germany in December.

The International Relations board of the American Library association continued its program of acquisition of books and periodicals (purchased with funds provided by the Rockefeller foundation) for later allocation to libraries in war areas. In April the American Book Centre for War Devastated Libraries, developed from an idea sponsored by the Council of National Library associations, was incorporated as the co-ordinating agency for the collection and distribution of suitable books. Kenneth R. Shaffer was appointed director with headquarters in the Library of Congress.

Building construction was at a standstill. Information about plans for new buildings may be found in the *Library Journal*. Late in the year ground was broken for the new Princeton university library, Princeton, N.J., to cost \$3,500,000 with space for 2,000,000 books. The new building was named the Harvey S. Firestone Memorial library, in recognition of the gift of \$1,000,000 to the building fund from the family of Firestone. Harvard university, Cambridge, Mass., announced the gift of \$1,500,000 from Thomas W. Lamont of the class of 1892 for the construction of an undergraduate library which was to be erected not far from the Widener and Houghton libraries.

**Size of Collections or Statistics of Libraries.**—There were 21 libraries containing more than 1,000,000 volumes each. In the absence in 1945 of the tables usually prepared by the American Library association these statistics were taken from the *American Library Directory, 1945*, compiled by Karl Brown.

The Library of Congress 7,281,681 vols.; Harvard university 4,608,862 vols. (Widener library 2,466,538 vols.); the New York Public library 4,529,001 vols. (comprising reference department 3,000,611 vols., circulation department 1,429,386 vols., municipal reference library 99,004 vols.); Yale university 3,365,400 vols. (Sterling library 2,456,700 vols.); Cleveland Public library 2,424,031 vols.; Chicago Public library 2,005,055 vols.; Columbia university 1,973,000 vols.; University of Illinois 1,881,432 vols. (Urbana and Chicago); Boston Public library 1,732,395 vols.; University of California 1,692,243 vols. (comprising 1,229,916 vols. at Berkeley, and 462,327 vols. at Los Angeles); Los Angeles Public library 1,649,366 vols.; University of Chicago 1,498,889 vols.; Cincinnati Public library 1,383,764 vols.; University of Minnesota 1,345,809 vols.; Brooklyn Public library 1,235,372 vols.; University of Michigan 1,217,665 vols.; Detroit Public library 1,148,217 vols.; Carnegie Library of Pittsburgh 1,145,908 vols.; Cornell university 1,094,117 vols.; Princeton university 1,017,000 vols.; Army Medical library, Washington, more than 1,000,000 vols. Three libraries possessed close to 1,000,000 volumes each: University of Pennsylvania 997,929 vols.; New York State library, Albany, 980,927 vols.; St. Louis Public library 960,866 vols. The Milwaukee Public library reported 907,550 vols.

Obviously these figures were very uncertain standards of comparison, because of differences in methods of counting, and because public libraries with many branches contained many copies of new and standard books. This troublesome question was discussed by R. B. Downs in "Uniform Statistics for Library Holdings," in the *Library Quarterly* for Jan. 1946.

**Librarians.**—The nomination of Luther J. Evans to be li-



LIBRARY aboard a floating repair shop servicing B-29s based in the Marianas during 1945. The slanting shelves conform to the shape of the ship's hull

brarian of congress, in succession to Archibald MacLeish, was confirmed by the senate on June 29. Dr. Evans had been chief assistant librarian from Nov. 1, 1940. Chalmers Hadley, distinguished librarian of the Cincinnati Public library after 1924, became librarian emeritus at the end of the year, and was succeeded by Carl Vitz, librarian of the Minneapolis Public library, and former president of the American Library association. Joseph L. Wheeler, librarian of the Enoch Pratt Free library of Baltimore, Md., after 1926, retired March 31, and was succeeded June 1 by Emerson Greenaway of the Worcester (Mass.) Free Public library. The Enoch Pratt library, planned by Wheeler, has had great influence on the planning of recent public library buildings. Marian McFadden succeeded Luther L. Dickerson, retired, as librarian of the Indianapolis Public library in February.

Charles F. Gosnell became director of the New York State library (Albany) on Sept. 1. Harold L. Leupp retired from the librarianship of the University of California (Berkeley) and was succeeded on Aug. 1 by Donald Coney, librarian of the University of Texas, who in turn was succeeded by Alexander Moffit, associate librarian. Jerome K. Wilcox, associate librarian of the University of California (Berkeley) was appointed to the librarianship of the College of the City of New York upon the retirement of Francis L. D. Goodrich on Sept. 1. Dr. Lyon Norman Richardson succeeded Herbert S. Hirshberg as director of libraries at Western Reserve university (Cleveland). Eileen Mary Thornton became librarian of Vassar college upon the retirement of Fanny Borden. Carleton B. Joeckel, dean of the graduate library school of the University of Chicago, resigned Aug. 31.

Ralph L. Beals, director of libraries at Chicago, assumed the deanship with Prof. Leon Carnovsky as associate dean. Wyllis E. Wright, chief cataloguer of the New York Public library, was appointed librarian of the reorganized Army Medical library at Washington July 1. Col. Leon L. Gardiner succeeded Col. H. W. Jones as director of the library Jan. 1, 1946. L. Q. Mumford, executive assistant, the New York Pub-

lic library, became assistant director of the Cleveland Public library on Oct. 1.

(See also AMERICAN LIBRARY ASSOCIATION; SOCIETIES AND ASSOCIATIONS.)

**BIBLIOGRAPHY.**—For further information about American libraries consult: *Bulletin of the American Library association* (Chicago); *Library Journal* (New York); *College and Research Libraries* (Chicago); *Library Quarterly* (Chicago). Important contributions to library literature were: Pierce Butler, ed., *Books and Libraries in Wartime* (Charles R. Walgreen Foundation Lectures) (1945); *The John Crerar Library, 1895-1944*, an historical report prepared under the authority of the board of directors, by the librarian, J. C. Bay (Chicago, 1945); G. R. Lyle et al., *Administration of the College Library* (1944); C. F. McCombs, comp., *Books Published in the United States, 1939-1943: A Selection for Reference Libraries* (1945); R. J. Schunk, *Pointers for Public Library Building Planners* (1945); L. R. Wilson and M. F. Tauber, *The University Library; its Organization, Administration and Functions* (1945).

(C. F. McC.)

**Great Britain.**—The use made of British libraries, general and research, continued to increase, and 1945 was a very active year, except during the period of V-1 and V-2 attacks on London and southeast England, when the circulation of books in this area dropped slightly. This phase of World War II brought further destruction of libraries and among those which suffered badly in the capital were Bermondsey, Hackney, Bethnal Green, Hampstead and Leyton public libraries and the well-known London library.

With the end of the war plans were put into effect to return to London and other large centres much of the valuable material which had been evacuated to safer places. Much progress was also made in the scheme for restocking war-damaged libraries in Great Britain and on the continent. In the field of international librarianship, overseas contacts were resumed—some, however, had been maintained throughout the war—and were being strengthened and extended.

Reconstruction plans of the Library association included important proposals for future professional training. A new syllabus was projected for 1946 and arrangements were made for the establishment of new library schools. Monthly leave-courses for about 20 U.S. librarians in the U.S. army were arranged under the "training within civilian agencies" scheme.

(D. C. H. J.)



**Libya:** *see* ITALIAN COLONIAL EMPIRE.

**Liechtenstein.** An independent, tiny European state, northeast of Switzerland, to which it is united by a customs union. Area, 65 sq.mi.; pop. (census Dec. 1941) 11,102. Chief town, Vaduz (capital, pop. 2,020). Ruler: Prince Franz Joseph II, b. 1906, was given ruling authority by his 84-year-old uncle, Prince Franz I, on March 30, 1938, and after the latter's death was crowned prince on May 29, 1939. Language, German; religion, mainly Roman Catholic; products, corn, wine, fruit, wood and marble. There is no army. Posts and telegraphs are administered by Switzerland. (S. B. F.)

**Life Insurance:** *see* INSURANCE.

**Life Span:** *see* BIRTH STATISTICS; DEATH STATISTICS; INFANT MORTALITY; SUICIDE STATISTICS.

**Lighting:** *see* ELECTRICAL INDUSTRIES.

**Lime.** Demand for agricultural and refractory lime increased slightly in the United States in 1944, while building and industrial demand decreased. The total output declined from 6,596,615 short tons in 1943 to 6,473,563 tons in 1944. The only appreciable tonnage increase in use was for the production of calcium carbide and cyanamide (34%), while magnesium production accounted for the only large decrease (37%). In some of the smaller industrial uses the percentage changes from 1943 to 1944 were rather large, but the tonnages involved were so small as to have little effect on the total.

Canadian production of lime dropped from 907,768 short tons in 1943 to 885,214 tons in 1944. (G. A. Ro.)

**Limes:** *see* FRUIT.

**Limestone:** *see* STONE.

**Linen and Flax.** As World War II hostilities ceased during 1945, production of flax in areas which had shown rapid development during the war years, 1939-45, decreased where cost of production made it uneconomic to continue in competition with older lower cost areas that found themselves able to pick up old threads. Egypt's production during 1945 dropped to prewar level and export controls were discontinued on Dec. 31. Straw production during 1945 dropped to 12,220.4 metric tons, compared with 53,397 in 1944 and 92,052, the peak year, in 1942. The yearly average in 1936-39 was 13,275. Farmers found the steady prices obtainable for barley and wheat preferable to further possibility of drastic reduction in flax prices. In Kenya Colony, Africa, production dropped to half that of 1943 due to the need of raising additional wheat supplies. New Zealand reduced its acreage in 1945-46 to 8,510 ac., compared with 12,599 ac. sown in 1944-45. Further tapering off was expected because of steadily decreasing demands from the United Kingdom. Latvia, Russia, on the other hand, returned to the productive field. By March 1945, Irish and Scottish flax spinners were already planning to process 7,000 metric tons of Russian flax which had reached the United Kingdom. The grading and quality was said to be well up to prewar standards.

Whether the war-born flax and linen industry in Canada and the United States would survive peacetime conditions was too early to determine in 1945. Canada, conscious of the decreasing demand for its native flax as far as the United Kingdom was concerned, erected a new pilot plant at Portage la Prairie, Manitoba, to investigate possible utilization of prairie flax straw for spinning tow, cigarette paper, writing papers and wallboard. A National Flax council was announced in Montreal in November by the Provincial Flax council. Flax growers in all parts

of Canada would be represented to find new outlets for their products. A flax mill would be erected at an estimated cost of \$300,000 for processing tow in its raw state, hitherto sent to Europe.

Similar difficulties faced the producers and processors in the U.S. where costs were considerably higher than prewar foreign flax products.

In this connection, special interest in the U.S. was shown in the report given in Oct. 1945 by John F. Hagen, who had been sent to Germany by army authorities to investigate developments during World War II in German use of flax and hemp. A large volume of textile fibre was obtained by the Germans by utilizing bast fibres obtained from unretted straw of flax and hemp. Because of the lack of cotton, jute and a limited supply of rayon staple, the German textile men blended rayon staple with cottonized flax and hemp which they called *flockenbast*. Production was 12% of the textile fibre production.

The Northern Ireland linen industry in 1945 continued its campaign to offset the invasion of the rayon fabric and garment industry into the Ulster area. Shortage of operatives in the spinning plants was still evident as former workers preferred the rayon staple yarn spinning plants because of their greater cleanliness. In the flax plants, girls worked barefoot in humid rooms and a good operator needed at least three years training. A new fast retting process was announced in Belfast in June, which if developed was expected to increase the fibre yield to an extent that many more tons of flax could be grown without any increase in the labour of the farmer. The British ministry of supply contracted for the entire supply of Eire's flax crop of about 5,000 long tons of retted fibre, a slight increase over the 1944 figure of 4,470 long tons. Acreage planted was 8% greater than 1944.

During the first nine months of 1945, Eire shipped to the United Kingdom 6,349,952 lb. of flax valued at £617,912 and 6,776,672 lb. of tow valued at £658,137.

Belgium was reported as having lost 50% of its flax spinning equipment during World War II. In prewar days, its weaving establishments turned out 175,000 sq.yd. of linen cloth a day but in July 1945 flax spinning mills were operating at 35% of capacity and weaving mills at 40%. The 60 finishing factories in Ghent, where in normal times 95% of the linen production was centred, were working at an average of 30% of capacity. During the first six months of 1945, Belgium's principal customer, Great Britain, bought only 2,113 bales of flax, about one week's take before the war. An Anglo-France-Belgian agreement in March 1945 provided that the total Belgian production would be divided among the three countries, but Belgium was believed to be in need of a large part of the production for relief and domestic needs. The total amount of flax available in Belgium during the first six months of 1945 was about 1,268,000 metric tons.

This comprised 186,000 officially declared, 230,000 bales hidden during the German occupation and undeclared at the end of 1945 and 852,000 bales from Belgian and Belgian-controlled French straw.

Sweden at the end of 1945 was erecting six flax finishing plants with an estimated capacity of more than 2,000 metric tons of fibre daily. The newest factory was to be in Mellansel in northern Sweden and others were at Laholm, Växjö, Kristinehamn, Hybo and Gimo.

**BIBLIOGRAPHY.**—*Foreign Commerce Weekly*, Dept. of Commerce, Washington, D.C.; Fairchild Publications, New York. (I. L. BL.)

**Lions Clubs, International Association of:** *see* SOCIETIES AND ASSOCIATIONS.

**Liquor Control:** *see* LIQUORS, ALCOHOLIC.

**Liquors, Alcoholic.** The ending of World War II in Aug. 1945, marked the close of the beverage distilling industry's contribution to the war effort in the role of a major producer of industrial alcohol for use in making munitions, synthetic rubber, hospital supplies and essential civilian and industrial products. The production of industrial alcohol for the government began in Nov. 1941. The industry had been 100% converted to industrial alcohol production on Oct. 8, 1942, when the production of whisky, gin and beverage neutral spirits had been entirely halted by government order.

From 1942 through the end of 1944, beverage distillers produced 572,800,000 gal. of industrial alcohol, representing 42.5% of the total amount turned out during these war years by all producing sources. It was estimated that beverage distillers turned out an additional 100,000,000 gal. in 1945 before the war ended.

This war effort of beverage distillers severely depleted their aged whisky inventories, since consumers were being supplied with alcoholic beverages during the war, although the whisky supply thus used was not being replaced by new production. Thus, at the end of Aug. 1945, whisky stocks had dropped to 328,062,936 proof gal. (before allowing for evaporation and leakage), representing a 34.4% decline from the industry's stocks of 500,144,220 gal. at the end of Sept. 1942, just before the industry was converted to war alcohol production.

Evaporation and leakage are also important factors in depleting aging inventories. Each year that whisky stays in charred oak barrels during its aging period, a considerable quantity is lost due to evaporation and leakage. For example, at the end of four years, about 22% of the whisky originally stored for aging is lost due to these factors, for which official allowance for tax purposes is made by the U.S. bureau of internal revenue. Thus, the 328,062,936 gal. of original entry gauge in warehouses at the end of Aug. 1945 actually amounted to 256,500,000 gal. after allowing for evaporation and leakage losses.

The industry was given three one-month furloughs from its war job: Aug. 1944, Jan. 1945 and July 1945. Limited beverage production was also permitted in Aug. 1945. However, total production of whisky during these war furlough periods amounted only to 74,001,783 gal., whereas withdrawals from Oct. 1942 through Aug. 1945 totalled 191,053,267 gal.

In order to restore the whisky stocks to the normal levels of about 500,000,000 gal., distillers would have to produce 175,000,000 gal. of new whisky, plus additional production to offset current usage (running around 65,000,000 gal. annually). This would mean sustained production of 240,000,000 gal. over a 12-month interval. But to do this, distillers would require 48,000,000 bu. of grain, about 25,000,000 of which would have to be corn.

However, the industry was restricted on its use of grain from July 1945 through December of that year, thus deferring any attempts toward normalizing stocks. Prior to the industry's conversion to war production, the normal yearly production of whisky was around 120,000,000 gal. Production volume of other beverage spirits was much lower, approximating about 30,000,000 gal. of brandy, 5,500,000 gal. of gin, 3,000,000 gal. of rum and about 20,000,000 gal. of various other spirits including cordials (liqueurs). The relatively low production for rum was chiefly due to restrictions in the quantity of molasses which could be used for distillation by the imposition of quotas.

While no whisky or gin was distilled in the U.S. from Oct. 8, 1942, to July 31, 1944, when grain distilleries were engaged solely in war alcohol manufacture, the distillation of rum (a molasses-base product) and brandy (a wine-base product) was continued.

Distilled spirits production in the fiscal year ended June 30, 1945, amounted to: whisky 41,562,303 gal., gin 2,038,984 gal., rum 2,887,794 gal. and brandy 26,584,256 gal.; total 73,093,337 gal. Production of whisky and gin during this interval only represents the total turned out in the two one-month furloughs (Aug. 1944 and Jan. 1945) granted to distillers during that fiscal period.

The limited resumption of beverage spirits production permitted in 1944 and 1945, enabled distillers to increase withdrawals of whisky from stocks; fiscal year 1945 withdrawals totalled 63,900,310 proof gal. as against 58,832,992 proof gal. in the 1944 fiscal year. This increased amount of whisky was blended with larger amounts of newly produced grain spirits used to make the popular whisky spirit blends. Thus, blending spirits used total 66,271,889 gal. in the 1945 fiscal year as against only 27,492,692 gal. in the 1944 fiscal year.

As a result of more generous withdrawals by distillers, the whisky shortage of 1943 and early 1944 was greatly eased. Total consumption of all distilled spirits in 1944 recovered to 166,382,804 wine gal. from 1943's low level of 145,515,666 gal. In the first half of 1945, rising national income and easier supplies sent consumption up to 88,746,442 gal., a 20.2% gain from the 73,840,736 gal. consumed in the first half of 1944. Full year 1945 consumption was expected to exceed 1944 levels, despite declining national income in the late months of the year.

The interruption of Scotch whisky production in Great Britain (partially resumed early in 1945) resulted in material reduction of imports to the United States, which totalled about 8,000,000 gal. yearly before the war. In 1944, only 5,121,759 gal. of Scotch were imported into the U.S. However, the increased availability of domestic spirits in late 1944 and early 1945 reduced over-all imports, chiefly from Latin-American nations, to 26,264,671 gal. for the fiscal year ended June 30, 1945, from the high level of 51,613,593 gal. for the 1944 fiscal year.

For public revenues in alcoholic liquors see table below.

(A. J. LI.)

**Liquor Control.**—Features of liquor control during 1945 were the easing, though by no means complete removal of production and price regulation, the enormous revenues collected from alcoholic beverages by governmental agencies, particularly the federal, and efforts of state legislatures, by the enactment of new statutes, to make control more effective. These included, among many others, fair trade practise systems, strengthening and enlarging provisions against sales to minors, requirement for a minimum of whisky in bottles labelled whisky, jurisdiction over liquor warehouse receipts, limitation on the number of licences issued, discrimination between on and off premises sale, encouragement of research on liquor problems and establishment of facilities for the care and cure of alcoholism. In many cases these merely enlarged the scope of laws already on the books.

Revenues from alcoholic beverages were the greatest in history. Federal totalled about \$2,500,000,000, state more than \$500,000,000, and local (mainly from licence fees) about \$40,000,000. The rise in the federal rate of taxation in 1944 from \$6 to \$9 a proof gallon did not cut down the demand for liquor. The Distilled Spirits institute summarized the figures for the writer in the accompanying table.

After the end of hostilities, an attempt was made to set a definite date for the reduction of federal taxes to \$6 a gallon as previously provided

Estimate\* of 1945 Revenues from Alcoholic Beverages

Federal		
Distilled spirits . . . . .	\$1,722,000,000	
Wines, cordials, etc. . . . .	47,000,000	
Beer . . . . .	676,000,000	
Import duties . . . . .	55,000,000	
Total estimated federal revenues 1945. . . . .		\$2,500,000,000
State		
State A B C taxes . . . . .	\$ 330,000,000	
State licence fees . . . . .	60,000,000	
Income from state store operation . . . . .	120,000,000	
State sales tax . . . . .	45,000,000	
Miscellaneous . . . . .	5,000,000	
Total estimated state revenues 1945. . . . .		560,000,000
Local		
Estimated local revenues 1945 . . . . .		40,000,000
Total		
Total estimated revenues 1945 . . . . .		\$3,100,000,000

\*Basis of estimate:

Federal—Actual collections first ten months 1945 plus estimated collections for November and December.

State and local—Estimated on increased; apparent consumption plus increased tax rates in six states.

by law. This was not successful. Congress decided that the tax reduction would take place six months after the official termination of World War II and that a tax refund would be given on stocks on hand provided that adequate records had been submitted to the alcohol tax unit and that sale prices reflected the reduction in tax.

A handful of states increased their tax rates. Most remained unchanged. The state tax rate on a proof gallon ranged from 60 cents in Nevada and 80 cents in Arizona and California to \$2.08 in Indiana and \$2.72 in North Carolina.

Federal label regulations were tightened up. Among the changes were rules designed to prevent the use of immature spirits, with concealment of the fact, in rye, bourbon and malt liquors. In some cases the overlapping of federal and state authority caused argument, but no serious controversies arose.

In the states and in local communities many laws and ordinances were passed more effectively locking the doors against sales to minors. Some make the minor equally liable with the purveyor to prosecution and penalty; some forbid the presence in taverns of minors, even when accompanied by parent or guardian; others set up a system of registration and require exhibition of photographs to make deception more difficult.

Fair trade price systems made gains. This plan puts floors under prices, requires that sales may be made only under minimum price resale contracts, and requires price posting with the state authority. This should reduce the possibility of ruinous price wars. Increasingly the states are taking jurisdiction of the sale and transfer of liquor warehouse receipts. A number of states require a licence, or permit, or certificate of approval before an out-of-state supplier can do business within their borders. Trade barriers between states, such as ports of entry, discrimination as to taxes, exemptions to home-grown products were in disfavour and were passing out of the picture. State governors, as a rule, took a strong stand against such practices.

Some states, particularly New Jersey, made appropriations for institutions for the care and cure of alcoholics. Clinics were established in five major cities under medical auspices.

In California and Minnesota minimum ages are required before a product can be sold as whisky. There appeared to be little inclination to follow this lead on the part of other states. Distinction between on and off premises sales and refusal to issue both to one operator was gaining ground.

The control of federal agencies over moonshining and bootlegging continued to be effective. In spite of high prices, arrests and seizures of illicit stills did not show any alarming rise. Sales at over ceiling prices, dilution, mislabelling, etc., were widespread, but did not constitute a major problem.

The attractiveness of the retail liquor business for returned veterans presented some control difficulties. Of those who planned to go into business for themselves the proportion desirous of entering the alcoholic beverage field was remarkably large. Some of the large companies started classes for instruction and many of the trade associations launched similar programs. Some pressure for lower fees and preferential licensing, especially in communities where the number of licences is limited, manifested itself. On the whole the adjustment of the returned soldier to control in the liquor field was most successful.

Self-regulation made some progress. The industry interested itself in the study of alcoholism, and sponsored some research projects. In some cases suppliers refused to sell merchandise to retailers of bad repute. This was effective. The industry, through its public relations organizations, chief of which is the C.A.B.I. (Conference of Alcoholic Beverage Industries) carried on an extensive advertising campaign enjoining the retailer not to sell to minors or intoxicated persons, to close at the required hour and to obey all federal and state laws and local ordinances. (See also BREWING AND BEER; INTOXICATION, ALCOHOLIC; WINES.)

(M. LB.)

**Literature:** see AMERICAN LITERATURE; BOOK PUBLISHING; CANADIAN LITERATURE; ENGLISH LITERATURE; FRENCH LITERATURE; GERMAN LITERATURE; ITALIAN LITERATURE; PRIZES OF 1945; RUSSIAN LITERATURE; SPANISH-AMERICAN LITERATURE; SPANISH LITERATURE.

**Lithium Minerals.** The production of lithium ores and compounds in the United States reached a new record high in 1944; in spite of decreased outputs of amblygonite and lepidolite, gains in spodumene and dilithium sodium phosphate gave a total of 13,319 short tons shipped in 1944, against 8,155 tons in 1943, with lithium oxide contents of 848 tons and 463 tons respectively. With the exception of lepidolite, used in the glass industry, the supply was adequate, and regulations covering allocation of spodumene were revoked in Sept. 1944. Army contracts expiring Dec. 31, 1944, were not renewed, and the largest producer closed down in Feb. 1945.

(G. A. Ro.)

**Lithuania.** A Baltic country of northeastern Europe, N. of Poland; in 1941 it became a part of Germany's "Ostland," and in 1944 was reconquered by the Red armies and re-established as a republic of the U.S.S.R. Area, 22,959 sq.mi.

(1940); pop. (Jan. 1, 1940) 2,879,070. Chief cities of Lithuania are: Vilnius (Vilna, capital, 207,750); Kaunas (152,365). Premier in 1945: Justas Paleckis.

**History.**—The kaleidoscopic changes of centuries of Lithuanian political history were epitomized in 1940–45. Under the control of the U.S.S.R. from June 15, 1940, to June 23, 1941, the Lithuanians then staged a revolution and declared independence; the German armies reached Kaunas on June 24, 1941, but allowed the independent Lithuanian government to function for only about seven weeks; on Aug. 5 this government resigned and the nazi control was complete. During the latter half of 1944 the Russians gradually reconquered the country, and in the early weeks of 1945 drove on into East Prussia.

As in the case of Estonia and Latvia (*qq.v.*) news from Lithuania was scarce and contradictory. Clearly the country was in the throes of serious social, political and economic upheaval. Devastation during the German regime was widespread: The large Jewish population was, according to one report, 70% liquidated, and ghetto atrocity stories were numerous. Patriot underground and guerrilla forces under the guidance of the Supreme Lithuanian Committee of Liberation continually plagued the nazi occupiers and brought on themselves retaliation—the village of Pirciupis was wiped out like Lidice after Lithuanian partisans had killed some German officers on the highway nearby. Eight underground papers were published, and a secret radio station maintained. On their retreat the Germans dynamited or otherwise destroyed both public buildings and small farms. Scores of thousands of Lithuanians were in Germany as prisoners, labourers or political refugees, some 300 had fled to Switzerland and other hundreds to Sweden. During the late fall the U.S.S.R. was attempting to take these people back to Lithuania. Many of the civilian refugees refused to return, and the military personnel staged hunger strikes and tried to delay the evil day. For these groups had fled from the Russians, and feared execution or deportation.

Little was known of the soviet reorganization of Lithuania beyond the obvious efforts toward collectivization and reconstruction of agriculture and industry. Some shifts of population seemed to be taking place, with immigration of Russians and transportation of Lithuanians (83,000 were said to have been sent into Russia as labourers). Food and transportation conditions were almost desperate, and underground opposition evidently continued.

Neither Britain nor the U.S. recognized the legality of the soviet control in Lithuania (*cf.* article on ESTONIA), but nothing was being done to overthrow the *de facto* situation in which Lithuania was the 14th republic of the U.S.S.R. Lithuanian individuals and societies, and the legation in Washington were active in keeping the demand for independence before the public.

**Education.**—In 1938–39 there were 2,335 private schools with 298,429 scholars, and 83 secondary schools and gymnasias with 19,539 scholars. Part of the university at Kaunas was moved back to Vilnius Jan. 15, 1940.

**Finance.**—The monetary unit was the lita (=16.1 U.S. cents at par, established in 1922 as one-tenth the U.S. gold dollar). At the end of 1939 the foreign debt was 68,915,300 litas, and the domestic debt of the government was 65,231,200 litas. In 1939 the budget estimate of the government balanced at 341,785,274 litas.

**Trade and Communication.**—In 1938 imports amounted to 223,686,000 litas, and exports to 233,200,000 litas. Chief articles of import were cotton yarn and thread, woollen yarn and thread, cotton fabrics, woollen fabrics, coal and fertilizers. Chief articles of export were meat, butter, flax fibre, pigs and eggs. Almost 40% of the exports went to Great Britain, 27% to Germany, 5.7% to the U.S.S.R. Imports came 31% from Britain, 24.5% from Germany, 6.7% from the U.S.S.R. In 1938 telephones numbered 26,591; radio sets 53,667; broadcasting stations 2.

**Agriculture.**—Almost 77% of the population was engaged in agriculture, and 49% of the land was arable. Chief products in 1939 and their output in short tons were as follows: rye 726,636; wheat 282,850; barley 282,740; oats 450,841; potatoes 2,290,469; flax fibre 31,416; butter 21,890. The 1939 estimate of livestock was: horses 521,000; cattle 1,004,900.



000; sheep 1,224,000; pigs 1,224,000; poultry 5,130,920.

**Manufacturing.**—In 1938 some 1,441 industrial establishments employed 40,818 people. Meat and fish products were valued at 44,919,000 litas; manufactured timber 12,532,000 litas; tissues and yarns 28,131,000 litas; machines, etc. 13,215,000 litas; leather goods 14,374,000 litas. Lithuania increased industrial production from an index of 100 in 1929 to 354 in 1939. Total industrial production of 1939 was 405,749,000 litas.

**BIBLIOGRAPHY.**—F. W. Pick, *The Baltic Nations—Estonia, Latvia, Lithuania* (London, 1945); C. R. Jurgela, K. Grečys, S. Sužiedėlis, *Lithuania in a Twin Teutonic Clutch* (New York, 1945); *Lithuanian Bulletin* (New York); *Current News on the Lithuanian Situation* (Washington). (F. D. S.)

**Livestock.** The total number of livestock on United States farms passed its high peak in 1944 and began a decline that continued through 1945. On Jan. 1, 1945, the total was less than Jan. 1, 1944, in all species except milk cows as shown in the accompanying table. The most marked decreases were in the numbers of hogs, sheep and poultry. In terms of animal units, which allows for the differences in size and feed requirements of the different species, the number on Jan. 1, 1945, was 6% below 1944 and 2% below 1943 but larger than any other year in 20 years. In terms of grain-consuming units the decline was 14% and in hay and pasture units 2%.

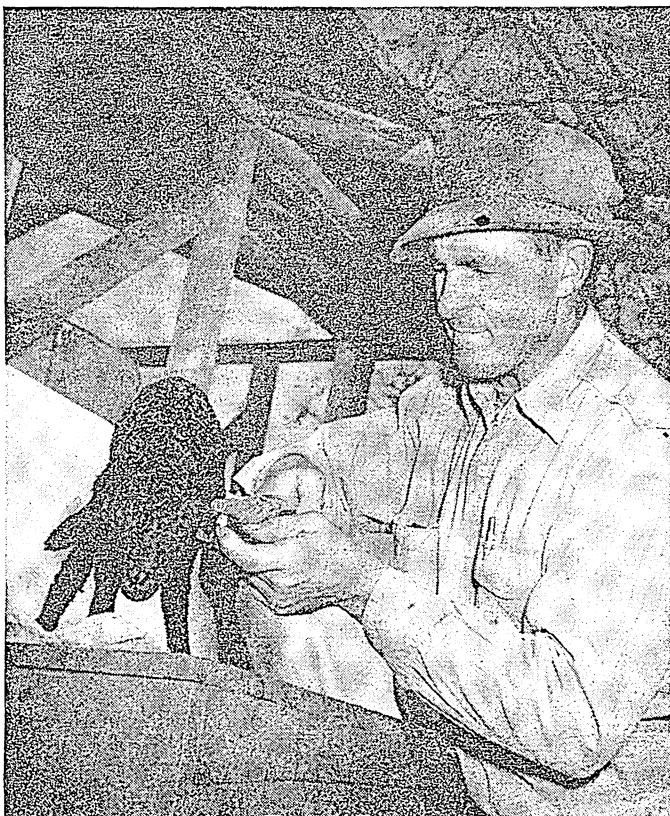
The total value at \$8,400,000,000 on Jan. 1, 1945, was 7% below Jan. 1, 1944, and 8% below the year of top value, 1943. The value per head was lower at the beginning of 1945 as well as numbers.

Numbers of Livestock on U.S. Farms on Jan. 1, 1945, 1944 and 10-Year Average

	1945	1944	1934-43 av.
Horses . . . . .	8,897,000	9,302,000	10,872,000
Mules . . . . .	3,408,000	3,531,000	4,275,000
Cattle . . . . .	81,760,000	82,364,000	70,237,000
Milk cows . . . . .	27,785,000	27,656,000	25,583,000
Sheep . . . . .	47,945,000	51,769,000	52,941,000
Hogs . . . . .	60,660,000	83,852,000	52,777,000
Chickens . . . . .	511,130,000	576,441,000	433,638,000
Turkeys . . . . .	7,491,000	7,572,000	6,663,000

The changes involved a decline of hogs to 60,660,000 head on Jan. 1, 1945, from 83,852,000 on Jan. 1, 1944, and 28% from the high record of 1943. This was the result of a 27% decrease in the 1944 pig crop and the record slaughter of hogs in

**TAGGING** a new-born ewe at the Uplands stock farm near Los Angeles, Calif., in 1945. The farm sells breeding ewes and raises black sheep for Persian lamb, Karakul and broadtail skins



1944. The number of sheep declined 7%, cattle 1% and poultry 11%. These changes were generally attributed to the scarcity of feeds in 1944 and to the less favourable relationship of livestock prices to feed prices. At the beginning of 1945 and during the year the feed situation improved rapidly and the supply of feed grains in relation to the number of animals was 27% larger than a year earlier. Hay supplies were about 1% lower however.

The total sales of meat animals in 1945 was about the same as in 1944 at about \$5,700,000,000 compared with the high total of \$5,900,000,000 in 1943. Higher prices mostly offset the reduced marketings. With the end of World War II the uncertainties of the future markets were expected to be reflected in further reductions in total livestock numbers unless very favourable crop yields greatly increased the supply of feeds. (See also AGRICULTURE; CATTLE; HOGS; HORSES; MEAT; POULTRY; SHEEP.) (J. C. Ms.)

**Livestock Shows:** see SHOWS.

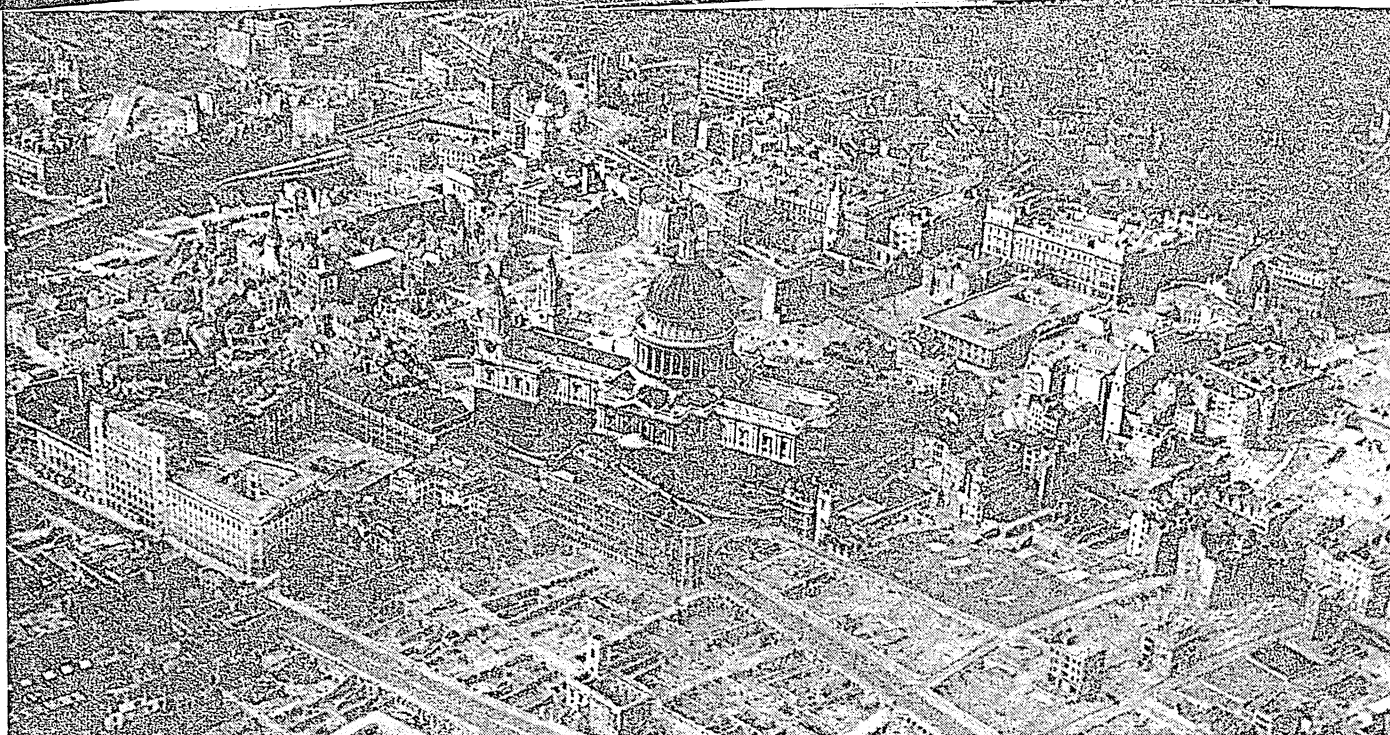
**Lloyd George, David Lloyd George,** EARL (1863-1945), British statesman, was born in Manchester, England on Jan. 17. His father was a school teacher. He was trained to be a solicitor but, on unexpectedly becoming a member of Parliament for Caernarvon boroughs in 1890, he adopted a political career. He was prime minister 1916-1922.

In his last years he lived quietly on his 800-ac. fruit farm at Churt, Surrey, where he wrote his memoirs. *War Memories* (6 vol.) were published during 1933-36 and *The Truth about the Peace Treaties* (2 vol.) in 1938. He continued to sit regularly in the house of commons as a member of Parliament for Caernarvon boroughs and was "father of the house." He eyed politics critically to the end. When Neville Chamberlain went to Munich, Lloyd George commented, "In my day, they used to come to see me."

Dame Margaret Lloyd George, his wife, died in 1941. In Oct. 1943 he married Frances Stevenson, for 30 years his secretary. In 1944 he retired permanently to Ty Newydd, a small estate in the village of Llanystumdwy, near Criccieth, Wales, where he had spent his boyhood. In the New Year honours of 1945 he received an earldom and took the title Earl Lloyd George of Dwyfor, adopting the name from a turbulent stream that runs through Llanystumdwy. He died at Ty Newydd on March 26. By his own wish he was buried in a spinney on his estate, his remains being carried to the grave on a farm wagon drawn by his favourite farm horse. (See also the *Encyclopædia Britannica*.) (P. Bn.)

**Local Government:** see MUNICIPAL GOVERNMENT.

**London.** In 1945 the last available official figure for the population of London remained that of the 1938 official estimate—8,700,000. The population by 1945 was estimated to be nearing 10,000,000. Population experts anticipated that this figure would be the highest to be reached: declining population would later cause it to taper off. The end of World War II found larger transfers of people within the London region than in previous years, principally from the centre to the outer suburbs. No over-all official figures were available but local town statistics suggested that the 28 central boroughs comprising London county had fallen in population from roughly 4,062,800 in 1938 to less than 3,000,000 in 1945. Migration within London occurred chiefly from those boroughs which suffered heavily from air raids—Stepney, population 200,500 in 1938 declined to 73,030 in 1945; Poplar 134,400 to 54,030; Battersea 141,700 to



ST. PAUL'S CATHEDRAL and adjacent bomb-damaged areas in London, photographed in April 1945

85,380; Bermondsey 97,420 to 44,800 and Fulham 137,700 to 95,090.

The 1945 general election results disclosed a big swing-over in the political allegiance of London. In the 28 boroughs Labour held 49 seats and the Conservatives 12. There was one Independent M.P. Of 2,004,874 registered electors, 68% polled. The total Labour vote was 770,122; the Conservative vote, 472,175. The same tendency was registered in greater London, many well-to-do suburban constituencies returning Labour M.P.'s. They included East Harrow, North Hendon, Wimbledon, South Croydon, Chislehurst, Bexley and Epping.

The municipal elections of November confirmed the tendency. London's 28 inner boroughs elected 22 Labour councils and many of greater London's suburban boroughs went Labour.

"An unhappy and serious deterioration generally in London education" was reported by the London county council during the year. Though the school population of the county area decreased from 450,000 in 1939 to 300,000 in 1945, loss of school premises through air raids and shortage of teachers through war-time enlistment in the armed services produced a crisis in primary education. Classes up to 44 pupils were permitted and, as evacuated children returned to London, classes temporarily rose to 50 pupils in some parts. A class of 56 pupils was reported by a primary school in Croydon. Though independent public schools in London generally raised their day-pupil fees to £17 a term and secondary education was free from April under the new education act, there were unprecedented numbers seeking admission to the public schools.

Shortage of houses was another severe problem in London. In the autumn of 1945 there were still 700,000 houses in the London region that needed further repair of damage done by flying bombs and rockets which fell in 1944. Another 42,000 houses remained too badly damaged to be inhabitable. A labour force of 136,000 men was exclusively employed on bomb-damage repair. Prefabricated houses began to appear in London, mostly on cleared bombed-sites. They included bungalows from the United States. Of 31,800 prefabricated dwellings allocated to the London region, 2,802 had been erected and occupied by the end of September, but the speed of occupation increased toward the end of the year.

During 1945 the London county council started work on the replanning of London. Building of new apartment houses in

Stepney and Poplar began and the reconstruction of the heavily bomb-damaged 1,500 ac. of Stepney was put in hand. Other immediate constructional work announced was that on new roads, to cost £7,000,000; the buying and laying out of 3,000 ac. of land as open spaces on the basis, with existing spaces, of 2½ ac. for each 1,000 population; and the building of houses and flats to densities of 200, 136 and 70 persons an acre according to district. The principle of developing "neighbourhoods" of a self-contained civic kind was followed in accordance with the London county plan.

The plan for rebuilding the City of London—the "square mile" with its own local government—was being reconsidered after government criticism that it was inadequate and did not show St. Paul's cathedral and the Tower of London to sufficient advantage.

The outstanding days of London's social life were those of victory celebration—first of victory in Europe and, later, victory in Japan. The latter festivities were marked by floodlighting parliament and famous public buildings. In June General Eisenhower paid a visit to Guildhall to receive the freedom of the city of London from Sir Frank Alexander, lord mayor. In November the lord mayor's show was revived but the city fathers rode entirely in motor-cars. At previous shows the lord mayor used his gilded coach. The new lord mayor was Sir Charles Davis.

During the autumn London became once again the rendezvous of international conference. The council of foreign ministers was followed by conferences of World Youth, the world Cultural and Educational organization and, late in the year, by the assembly of the United Nations organization.

London was twice visited by notable industrial trouble. Practically all Thames-side dockers were unofficially on strike in sympathy with a Merseyside dispute in the autumn. In November bus crews took the unusual course of preventing passengers standing in buses at the less busy times of the day.

Theatres were crowded during the year, though no notable new play was produced. Music and ballet continued to attract great audiences.

As soon as the war was over river steamers again plied on the Thames. Food shortages and limited labour gave rise to longer queues outside London shops than during any part of the war. Fuel shortage also affected London, street lighting being restricted and normal households limited to two tons of coal or coke over the year. Resumption of the basic gasoline ration in June gave each car owner sufficient gasoline to travel 125 mi. a

month, but the great majority of London car owners did not consider this worth taking out new insurance on their cars. War-time services of trains and road passenger transport continued. (See also CIVILIAN DEFENSE; POWER ENGINEERING.) (P. B.N.)

**London Conference of Foreign Ministers:** see MOSCOW CONFERENCE OF FOREIGN MINISTERS.

**London University.** The revival of university activities made steady progress during 1945. In spite of damage caused to university and college buildings by flying bombs and rockets, work continued without interruption. Because of the serious building situation in London little or no progress could be made in the repair and restoration of damage caused in earlier raids. With the return of peace, applications for admission to the various colleges far exceeded the available places, and the problem of hostel and lodging accommodation in central London was very acute. The number of internal students was 11,182 and the number of external students about 16,000, including members of the forces and prisoners of war. Several notable benefactions were received, including the transfer of the Warburg institute and library for the study of the classical tradition in European culture, the valuable library belonging to Sir Louis Sterling, and Sir Robert Witt's collection of photographs and drawings of works of art. The Nuffield trustees made a grant for the establishment of a chair of child health, Messrs. Courtaulds for a chair of chemical engineering; the Cement Makers' federation for a chair of concrete technology and Imperial Chemical Industries for research fellowships in science. Numerous appointments were made to fill the large number of chairs and readerships which had fallen vacant during the war. The students' union resumed its activities on a limited scale and the university athletic ground was reopened. All but one of the evacuated colleges had been able to return to their London buildings and the university headquarters returned at the end of the year to the senate house. (K. M. E.)

**Loran Navigation:** see RADAR.

**Los Angeles.** Fifth largest United States city in the 1940 census of population, Los Angeles ended 1945 with an estimated population of 1,855,000, a growth of more than 350,000 from the 1940 figure of 1,504,277. In area, Los Angeles led all U.S. cities with 452.2 sq.mi. Mayor (Dec. 31, 1945) Fletcher Bowron. Los Angeles county, which contributes most of the area to metropolitan Los Angeles (population 3,675,000) had an estimated population of 3,435,000 in 1945 compared with 2,785,643 in 1940.

Again during 1945 Los Angeles continued to hold second place among the war production centres of the U.S. with a cumulative total of more than \$10,370,000,000. Industrial growth, looking toward postwar conditions, continued at an ever-increasing pace, reaching a climax in the month of October when the investment in new and expanded industries equalled the whole year's growth of any year from 1931 to 1940. With increased money in circulation and available to the people, bank debits, post office receipts and agricultural values reached new heights, while the building and construction fields continued their upward trend, already re-established in 1944. Freight car loadings and air mail poundage continued to rise as did department store sales. The closing of World War II opened the way for the restoration of foreign trade.

The retrenchments anticipated by many with the loss of war business did not seriously disturb the situation. A survey conducted with those terminating employment just after V-E day brought out the fact that more than 86% of the men intended

to remain in Los Angeles. A study by a Citizens Reconversion committee revealed that several thousand jobs were available, and that workers had not been too anxious to take up new employment. The return of men from the armed forces, together with the influx of new war workers over a period of three years had created a critical housing shortage.

Assessed valuation for Los Angeles in the fiscal year 1945-46 was \$1,488,773,355. The city tax rate was \$5.6995 per \$100 with the assessment at 50% of fair market value on real estate. The budget for 1945-46 was \$53,640,585 exclusive of the water, power and harbour departments. (L. M. Ebs.)

**Louisiana.** One of the west south central states of the United States, admitted to the union in 1812 as the 18th state, Louisiana is popularly known as the "Pelican state," "Creole state" or "Bayou state." Area 48,523 sq.mi., of which 45,177 sq.mi. are land. Pop. (1940) 2,363,880, of which 1,383,441 or 58.5% were rural and 980,439 or 41.5% urban; 64% native whites, 34.3% Negroes and 1.7% foreign born. On July 1, 1944, the bureau of the census estimated the civilian population of the state at 2,535,385. Capital, Baton Rouge (34,719). Other important cities: New Orleans (494,537), Shreveport (98,167), Monroe (28,309), Alexandria (27,066), Lake Charles (21,207), Lafayette (19,210).

**History.**—The general assembly did not meet in regular session in 1945, but a special session was held, Oct. 11-21, to consider postwar problems. This politically harmonious session appropriated \$16,500,000 from the surplus fund to match anticipated federal grants for highway and drainage projects. At the close of the year the chief event of political interest was the New Orleans mayoralty campaign, in which several candidates were entered.

During the spring of 1945 flood waters in the Mississippi and other rivers of the state tested the efficacy of the federal flood control works which had been enlarged and strengthened during the preceding 15 years. After some weeks of feverish activity and anxiety, the engineers in charge of flood control succeeded in holding the levees and minimizing the threatened damage. However, 8,000 families were evacuated from threatened areas and an estimated \$9,000,000 damage was sustained by the agricultural interests in nine parishes, caused chiefly by backwater.

Other important events during the year were: the contest between the state board of education and the state superintendent over the control of departmental personnel, in which the superintendent was successful after the case was carried to the state supreme court; labour difficulties in the Higgins industries at New Orleans, which caused the management to close the plants; the fight of state authorities to prevent the construction of new pipe lines to carry natural gas out of the state; the problem of unemployment following the curtailing of production in defense industries after V-J day; the mounting state income from taxes of all kinds, which reached a new high because of wartime prosperity; state leases of its coastal waters for petroleum exploration.

State officers in 1945 were James Houston Davis, governor; J. Emile Verret, lieutenant governor; Wade O. Martin, Jr., secretary of state; A. P. Tugwell, treasurer; L. B. Baynard, auditor; Fred S. LeBlanc, attorney general; John E. Cox, state superintendent of education; Lucile May Grace, register of land office; Harry D. Wilson, commissioner of agriculture and immigration.

**Education.**—In 1945 the 839 public schools for whites enrolled 196,135 elementary and 69,059 high school pupils and employed 9,819 teachers; the 112 public schools for Negroes enrolled 27,747 elementary and 15,455 high school pupils and employed 1,249 teachers. The 167 private schools for whites enrolled 43,789 elementary and 10,257 high school pupils and employed 1,653 teachers; the 16 private schools for Negroes enrolled 3,381 elementary and 2,812 high school pupils and employed 172 teachers.



Vocational training was stressed and the state maintained ten public trade schools.

State expenditures were \$22,500,000 (exclusive of local funds) for public elementary, secondary and trade schools and \$7,000,000 for state-supported colleges and universities. Most high schools and colleges had increased enrolments due to the close of World War II.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—Louisiana expended \$18,775,000 on public welfare work in 1945. Approximately 91,000 individuals were aided, including 36,200 aged persons, 23,620 dependent children, 1,370 needy blind, 500 foster children and 5,760 special cases. The labour shortage and high wages prevailing in industry and agriculture greatly reduced the expenditures for general relief and unemployment insurance as compared with the prewar years, but after the cessation of hostilities unemployment insurance payments mounted steadily during the last half of the year.

The state maintained the following institutions in 1945: charity hospitals at New Orleans, Shreveport, Lafayette, Monroe, Pineville, Independence and Bogalusa; insane hospitals at Jackson and Pineville; a tuberculosis sanitarium at Greenwell Springs; schools for the blind and the deaf at Baton Rouge (for whites) and Scotlandville (for Negroes); training school for the feeble-minded at Alexandria; and soldiers' home at New Orleans.

There were also numerous private and endowed hospitals and orphanages in operation.

The state maintained two prison farms for its 3,500 adult offenders and separate training institutes for about 350 juvenile delinquents.

State expenditures for charitable and correctional institutions exceeded \$10,000,000 in 1945.

**Communication.**—In 1945 Louisiana had 18,200 mi. of public highways, 14,800 mi. of which were state-maintained, 10,500 being gravelled and 4,300 paved; the expenditure for highways was only \$17,500,000, because of shortage of labour and materials for new construction. There were 4,400 mi. of railways and 4,800 mi. of navigable waterways. New Orleans, Baton Rouge and Lake Charles are ports for ocean-going commerce, with combined tonnages of 7,515,000 foreign and 11,556,000 coastwise in 1940. Heavy tonnages of bulky commodities, chiefly military supplies, were carried on the Intracoastal canal which crosses the lower section of the state. There were 26 airports for land planes and 11 seaplane bases and anchorages in 1945. Nearly 275,000 telephones were in service in 1945.

**Banking and Finance.**—Louisiana had 31 national banks in 1945, with deposits of \$1,030,000,000 and resources of \$1,080,000,000; and 118 state banks, with deposits of \$440,000,000 and resources of \$465,000,000. There were 67 savings and loan associations, with total resources of about \$85,000,000. State budget for the 1944-45 fiscal year: receipts \$115,000,000; expenditures \$107,000,000. State bonded debt approximately \$150,000,000.

**Agriculture.**—Total value of principal agricultural crops in 1945 was \$217,000,000, compared with \$215,000,000 in 1944; total acreage harvested was 3,624,000, compared with 3,810,000 in 1944. Cash income from crops and livestock was \$270,000,000 in 1945, compared with \$265,000,000 in 1944; from government payments, \$19,500,000, compared with \$15,600,000 in 1944.

Table I.—Leading Agricultural Products of Louisiana, 1945 and 1944

Crop	1945	1944
Cotton, bales . . . . .	395,000	620,000
Corn, bu. . . . .	23,140,000	18,870,000
Rice, bu. . . . .	23,028,000	21,318,000
Sugar cane, tons . . . . .	6,044,000	5,349,000
Sweet potatoes, bu. . . . .	10,724,000	8,100,000
Irish potatoes, bu. . . . .	2,520,000	3,498,000
Oats, bu. . . . .	5,600,000	4,880,000
Hay, tons . . . . .	400,000	388,000
Pecans, lb. . . . .	9,200,000	14,400,000
Peanuts, lb. . . . .	1,785,000	2,480,000
Peaches, bu. . . . .	212,000	216,000
Pears, bu. . . . .	240,000	245,000
Citrus fruits, boxes . . . . .	290,000	360,000

Unfavourable weather during the planting season and shortage of labour and machinery caused a reduction in the acreage of some of the principal crops in 1945, but yields of most crops were larger than anticipated and prevailing prices for crops and livestock were slightly higher than in 1944.

**Manufacturing.**—Wartime demand stimulated the production of refined petroleum, chemicals, synthetic rubber, lumber, cottonseed derivatives and other Louisiana products in 1945, until after V-J day. Nearly 2,000 industrial establishments, employing 150,000 workers and paying \$200,000,000 in wages, produced finished products worth \$1,100,000,000 in 1945, as compared with \$1,200,000,000 in 1944.

**Mineral Production.**—War demands stimulated mineral production in Louisiana during most of 1945, and the total value of minerals produced was estimated at \$275,000,000, compared with \$270,000,000 in 1944. Six new petroleum fields were discovered during the year.

Table II.—Principal Mineral Products of Louisiana, 1945 and 1944

Mineral	1945	1944
Petroleum, bbl. . . . .	132,830,000	131,900,000
Natural gas, M. cu.ft. . . . .	550,000,000	500,000,000
Natural gasoline, bbl. . . . .	2,500,000	2,255,000
Sulphur, tons . . . . .	745,000	712,000
Salt, tons . . . . .	1,500,000	835,000
Shell, tons . . . . .	1,500,000	1,594,000
Sand, tons . . . . .	1,290,000	1,259,000
Gravel, tons . . . . .	2,600,000	2,365,000

**Forest Products, Furs, Fisheries.**—Louisiana forests produced 900,000,000 bd.ft. of lumber and 640,000 cords of pulpwood in 1945, compared with 1,000,000,000 bd.ft. and 664,000 cords in 1944. The 1944-45 trapping season yielded 6,521,767 pelts valued at \$7,898,104, compared with 5,230,480 pelts valued at \$7,364,313 for the 1943-44 season. Louisiana fisheries produced catches valued at \$9,603,210 in 1944, \$3,561,022 represent-

ing fresh-water and \$6,042,188 salt-water varieties, the total value being more than double that of the preceding year. (W. Pr.)

**Luce, Clare Boothe** (1903— ), U.S. playwright and member of congress, was born in New York city April 10. Graduated in 1917 from St. Mary's school at Garden City, Long Island, N.Y., and in 1919 from Miss Mason's Castle school at Tarrytown-on-the-Hudson, she later received an honorary degree from Colby college. She was associate editor of *Vogue* in 1930, and associate editor and managing editor of *Vanity Fair* from 1930 to 1934. In 1935 she married Henry R. Luce, magazine publisher. As Republican nominee for congress from the 4th district of Connecticut (Greenwich) in 1942, she conducted a colourful campaign, and was elected Nov. 3. Mrs. Luce again made headlines at the Republican national convention in June 1944, with a speech about G.I. Jim, dead U.S. buddy of G.I. Joe, "heroic heir of the un-heroic Roosevelt decade." Before the November elections, the president himself called for her defeat, but she was re-elected to congress by a close margin. On Feb. 18, 1945, she assailed the Yalta decisions on Poland, and after a visit to the Buchenwald concentration camp on April 21, she said the atrocities "certainly raise the question of what we should do with Germany after the war." She denounced soviet Russia, declaring that the Russians had instituted a policy of terrorism as a political weapon. She further asserted that 300,000 Russian soldiers in the Balkans had deserted to the nazis. These anti-soviet statements led a Pravda commentator to describe Mrs. Luce as "Goebbels' disconsolate political widow." Mrs. Luce deserted her political role temporarily to play the leading part in G. B. Shaw's *Candida* in a Stamford (Conn.) theatre, Aug. 6. On Sept. 20, she recommended that the U.S. "go underground" to protect itself against possible surprise atomic raids in the future.

**Lumber.** In the United States lumber continued as one of the most critical materials in the conduct of World War II until the Japanese surrender in Aug. 1945. Throughout 1945 demand exceeded the available supply. The demand for lumber during the reconversion period continued in spite of the end of the war. Lumber had not been available for civilian use in any large quantities for several years. The pent-up demand, therefore, was generally regarded as exceedingly high.

This condition was not due to lack of sawmill capacity or available standing timber, but was directly attributed to shortage of labour.

Although a large portion of the lumber demand during the first eight months of 1945 was for war housing and for shipyards, aeroplane factories, box boards and other war industries, the labour situation continued to be very critical. Many sawmills, particularly of smaller capacities, were forced to shut down because of the shortage in man power. Difficulties of securing sufficient logging equipment, trucks and tires also impeded the output of lumber in all parts of the country.

Lumber production during 1945 was about 29,500,000,000 bd.ft. This was divided into about 23,000,000,000 ft. of softwoods or conifers and 6,500,000,000 ft. of hardwoods. The proportion of hardwoods as compared with softwoods increased during the war years. This was true because many materials for the war effort formerly made of metals or other materials were manufactured from wood and especially hardwoods.

Southern pine continued as the leading species produced for lumber closely followed by Douglas fir. Ponderosa pine, produced entirely in the west, principally in Oregon and California, was the third most important species. Other softwoods, such as northern white pine, western white pine and sugar pine, hemlock, spruce, redwood, cypress and cedar were the other important

species produced. The principal hardwoods produced were oak, red gum and hard maple. Other important hardwoods were birch, ash, basswood, beech, hickory, black cherry, tupelo, cottonwood and black walnut.

In several sections of the northeast and the south, both Italian and German prisoners of war were used in the woods to produce saw logs for the lumber industry, as well as pulpwood for the paper industry. In several woods operations both materials were produced from the same forests.

Although large quantities of lumber were shipped abroad to assist in the war effort, practically no lumber moved in the normal export channels for several years. Some effort was made to engage in this export movement during the last three months of 1945 but the total volume was far below normal.

The demand for lumber products increased more for boxes, shooks, crating and other forms of packaging than for any other war use. The repair of damage done to various European and Pacific ports and the construction work incident to war required enormous quantities of lumber. The shipment of foods, munitions, and other war materials required especially large quantities of dunnage, *i.e.*, lumber used in the storing, stowing, and separating different parts of cargo shipments.

Both the lumber industry and many building organizations made plans during the last three months of 1945 to meet the heavy demand for lumber for housing, construction and other projects throughout the United States. Normally about 700,000 dwellings are erected each year in the United States. Preparations were made in many parts of the country to meet the civilian demand for lumber which it was estimated would last for several years.

As soon as labour became available, many mills which were partly shut down during 1945, began to resume operation. The amount produced depended more upon available labour rather than the demand for housing and general construction. Strikes, particularly in the northwest logging operations and sawmills sharply curtailed lumber production of Douglas fir and other west coast woods during the late summer and fall months.

(N. C. B.)

**British Empire.**—The war and its aftermath heavily affected Great Britain's timber trade throughout 1945. In the early months the possibilities of drawing supplies once more from the north European exporting countries began to be explored; but for all immediate needs Britain still had to rely on her own grievously diminished woodland resources, and for imports, mainly on Canada and the United States. Home timber producers in Great Britain were urged to maintain production in 1945 at not less than the 1944 levels (which had shown some reduction from the peak year of 1943). More of the dominion's military forestry units which had been serving in England and Scotland were withdrawn and the *bona fide* home-grown trade was sadly harassed by inadequate labour.

The home-grown trade, however, responded magnificently, as in the earlier war years. Production figures for the United Kingdom home-grown trade were not yet available for the whole war period, but the following table indicates the output in England and Wales, Scotland and Ireland from the outbreak of war in 1939 to December 1943:

	Total (in cu.ft.)
Sawn Hardwoods . . . . .	158,900,000
Sawn Softwoods . . . . .	187,900,000
Sawn Mining Timber . . . . .	72,000,000
Round Mining Timber . . . . .	210,400,000
	629,200,000

The foregoing figures do not include production of large quantities of telegraph and obstruction poles, pickets, timber for wood wool or any of the by-products, nor 4,360,000 railway sleepers.

How home production expanded during the war years may be judged from the figures following. Taking totals of production for Sept. 1939 as 100, the peak year (1943) figures were:

	England and Wales	Scotland
Sawn Hardwoods . . . . .	420	510
Sawn Softwoods . . . . .	570	900
Sawn Mining Timber . . . . .	270	230
Round Mining Timber . . . . .	430	180

Canada continued to be by far the greatest of Great Britain's overseas suppliers. The Canadian timber controller's target for the dominion's lumber production in 1945 was 4,850,000,000 bd.feet measure, as compared with an estimated production of 4,700,000,000 bd.feet in 1944. With an eye to immediate postwar demands a Canada-United Kingdom pact was made, beginning June 1945, providing for the purchase by Great Britain of up to 1,200,000,000 bd.feet per annum for two years.

In the autumn of 1945 Great Britain lifted the statistical "black-out," and initial detailed official trade returns showed that in the first half of 1945 wood and timber imports into the United Kingdom were of the value of £15,192,918 compared with £15,791,384 in the corresponding half of 1944. Of these totals Canada supplied timber of the value of £11,916,132 from January to June 1945, against £9,831,899 in the first half of 1944. By contrast, Canadian supplies in one half of the prewar year of 1938 were valued at only £3,548,686. Supplies to Great Britain from the U.S.A. were £1,662,944 in the first half of 1945 and £4,491,974 in the same period of 1944. (£1 = 403.5 cents U.S.)

**Europe.**—With the end of hostilities in Europe Sweden's export prospects became brighter than for some years. This great producing and exporting country in 1944 had a total export of 135,000 standards, the lowest quantitatively recorded after the establishment of the first steam saw mills in the middle of the 19th century. The total exports planned in 1945 were 750,000 standards. Great Britain, Sweden's leading market, undertook purchases up to April 1946 of 400,000 standards. Finnish shippers also opened negotiations with overseas buyers. Finland, however, had lost important producing areas and, in addition, had to find large timber supplies by way of indemnities to U.S.S.R. The domestic timber needs of the U.S.S.R. were enormous and, although there had been some export of soviet timber, there was no sign as yet of large-scale exporting on prewar lines. Elsewhere in Europe there was a ravenous market. In various countries surveys were still going on in the autumn of 1945 of forest resources, forest losses and timber needs. Germany would probably have to draw from her own forest riches to meet some of her reparations payments. In September a British mission was in Germany for consultations with a view to drawing some million cube of timber in log form to Great Britain for conversion in British saw mills to help the home-grown trade, the activities of which in war time had used up native woodland supplies that, but for the war, would have provided them with raw material for many years. (See also FORESTS.)

FILMS.—*Conservation of Resources* (Encyclopædia Britannica Films Inc.). (N. F.)

**Lutherans.** Notable advances were made in 1945 in the re-establishment of organizational relationships, which were disturbed by World War II, and in the extension of world service, in and through the Lutheran World convention.

The recognition by other Protestant churches of the responsibilities of Lutherans for the churches in Europe, and their disposition to co-operate in the reorganization and re-establishment of Lutheran churches in the prostrated countries, was a big factor in the consideration of the relationship of Lutherans to the World Council of Churches, in process of formation. The participation of all Lutherans in the organization of the World Council of Churches would constitute not less than one-third of the membership of that body.

In 1945 the world Lutheran membership was estimated at 65,000,000. The general statistics for the United States and Canada show 5,561,270 baptized and 3,796,160 confirmed members. Because of war conditions it was impossible to secure accurate European figures—those of Norway, Denmark, Finland, the Baltic states, Germany, U.S.S.R., France and the Balkan states where the Lutheran population was considerable.

Conscious responsibility by Lutherans in America, whose organized life had not been deeply disturbed, and whose material resources had been undiminished, produced a unity in spirit and a co-operation in action never before experienced by the separate bodies in which Lutherans in America have existed. For world relief and for world emergency services Lutherans in America contributed approximately \$5,000,000 in 1945.

Particular activities of Lutherans in America during 1945 may be summarized as follows:

Notable increase of attendance at worship services; almost phenomenal increases in contributions; adequate provision for colleges in transition from war conditions; effective programs for reaching the unchurched and recruiting Sunday-school attendance; collection of funds and approval of plans for new church buildings; and the incorporation and registration of

a special agency for an international relief program, the Lutheran World Relief, Inc. This relief program carried a budget of \$10,000,000. No general conventions were held in 1945. (See also CHURCH MEMBERSHIP.) (W. H. G.)

**Luxembourg.** A grand duchy situated between France, Germany and Belgium. Area, 999 sq.mi.; pop. (est. 1942) 301,000; chief city, Luxembourg (cap. 59,000); language, Luxembourgian (idiomatic) and (officially) French and German; religion, 98% Roman Catholic. Ruler from 1919: Grand Duchess Charlotte. The constitution of 1868, with some important changes in 1919, provides for democratic government through a popularly elected chamber of deputies of 55 members.

The grand duchess, who was forced to flee on May 10, 1940, to escape the invading German armies, returned to her country on April 14, 1945. Economic reconstruction to repair the damages of war began at once. Luxembourg was to receive 0.15% of reparations available from Germany. Luxembourg's chief products, with figures for 1938 in metric tons, were: iron ore (5,140,632), pig iron (1,550,703) and steel (1,436,506). The labour unions were strongly organized in one large federation of labour. (S. B. F.)

**Lynching.** The department of records and research of Tuskegee institute, the recognized authority on this subject, reported only one known lynching in the United States during 1945. This was the lowest annual toll of mob murder reported in the 64 years during which the records had been kept, just as the two lynchings of 1944 marked the lowest record up to that time. The significance of these figures will be best realized by contrasting them with those of previous years, as seen in the accompanying graph. That they are distinctly encouraging to those who believe in law and order is obvious. They can hardly be taken, however, to indicate that crimes of this character would automatically cease and that there would be no further need for vigilance in their prevention. Following are the circumstances of the one reported lynching of 1945, so far as the facts were available:

During the night of Oct. 10-11, Jesse James Payne, 20-year-old Negro awaiting trial on the charge of assault with intent to rape, was taken by unknown persons from the unguarded county jail at Madison, Fla., carried seven miles into the country, and shot to death. A special grand jury was immediately constituted

to investigate the affair and a special agent was put on the case by Governor Millard Caldwell, but no evidence was found as to the identity of Payne's murderers. The manner of their entrance to the jail also remained a mystery. No violence had been used to force an entrance, and Sheriff Lonnie Davis stated that he had the only known key and that he knew nothing whatever about the occurrence till next morning, though he lived adjacent to the jail. Both the grand jury and the governor's investigator absolved the sheriff of participation in the crime or complicity with it. Governor Caldwell, however, issued a statement holding that the sheriff had been guilty of "stupid inefficiency" in connection with the case and that he had demonstrated his "unfitness for the office." "Nevertheless," said the governor, "he was the choice of the people of Madison county (and) stupidity and ineptitude are not sufficient grounds for removal of an elected official by the governor." (R. B. E.)

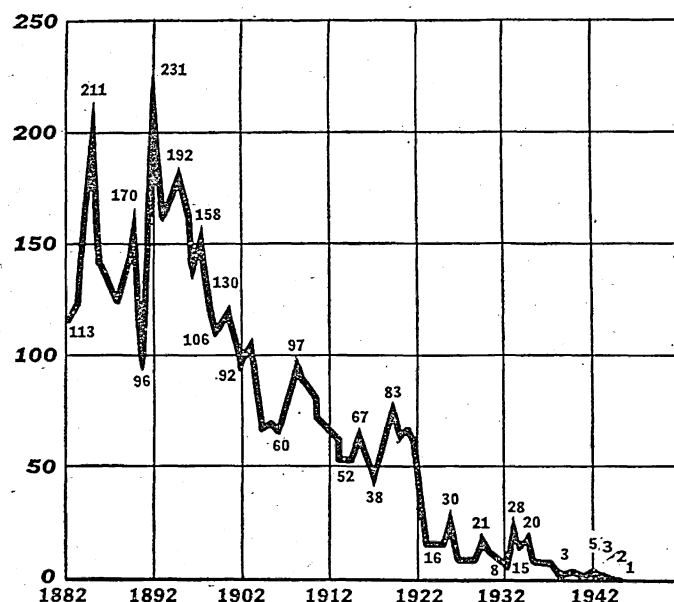
**Macao:** see PORTUGUESE COLONIAL EMPIRE.

**MacArthur, Douglas** (1880- ), U.S. army officer, was born Jan. 26 in Little Rock barracks, Ark., the son of Lt. Gen. Arthur MacArthur. Graduated from West Point in 1903, he was commissioned in the engineer corps. (See *Encyclopædia Britannica*.)

Following Japan's attack on the Philippines he was renamed a full general by President Roosevelt, Dec. 19, 1941, and led Filipino and U.S. forces in the defense of the islands. Although heavily outnumbered in men and material, MacArthur slowed the Japanese advance and retired to the Bataan peninsula. He left the Philippines on Roosevelt's orders and reached Australia on March 17, 1942, to assume command of the United Nations' armies in the Southwest Pacific. In the fall of 1942, MacArthur opened a campaign on New Guinea that was destined to bring that island under his control and pave the way for the successful Philippines campaign. After the conquest of Leyte (1944) and Luzon (June 28, 1945), he announced July 5, 1945, that the entire Philippines had been liberated. MacArthur was appointed commander of U.S. army forces in the Pacific, April 5, 1945, and his command was extended to include Okinawa and the Ryukyus, Aug. 4.

After Japan's surrender (Aug. 14, United States time), Pres. Truman appointed MacArthur supreme commander of Allied occupation forces for Japan. The general headed the Allied delegation that signed the Japanese surrender terms, Sept. 2, aboard the battleship, U.S.S. "Missouri," in Tokyo bay. On Sept. 17, he declared that the occupation was proceeding so smoothly that he would need only 200,000 U.S. troops for occupation purposes within the next six months. This figure was rejected by Pres. Truman, and the state department, Sept. 19, said that MacArthur was the instrument, not the maker, of U.S. foreign policy. MacArthur criticized obliquely (Dec. 30) the Big Three agreement to establish an Allied Control Council for Japan, but asserted that he would try to make the plan work, regardless of its "merits or demerits."

**McCain, John Sidney** (1884-1945), U.S. naval officer, was born Aug. 9 in Carroll county, Miss. He was educated at the University of Mississippi, University, Miss., and was graduated from the U.S. naval academy at Annapolis, 1906. He served in World War I with a cruiser on escort duty and later was assigned to an executive post in the navy's bureau of navigation. Intensely interested in naval aviation, he became a navy pilot in 1936 and was made commander of the fleet air base in the Canal Zone. In 1941 he was designated commander of the aircraft scouting force, and after the outbreak of World War II he commanded, during



LYNCHINGS in the U.S. from 1882 to 1945, based on figures of the department of records and research, Tuskegee institute



## McCORMACK, JOHN—MACHINERY AND MACHINE TOOLS 451

early 1942, all naval aircraft in the South Pacific area. He was returned to a desk job in Sept. 1942 as chief of the bureau of aeronautics, and was made vice admiral and deputy chief of naval operations in July 1943. Later, he was returned to active duty, and in Oct. 1944 he succeeded Adm. Marc A. Mitscher as commander of the huge navy task force 58. His carrier force participated in the battle for Leyte gulf in October of 1944 and later attacked Japanese targets along the China coast. After that campaign, McCain was given a brief rest before resuming his command in the spring of 1945. He directed the beginning of the powerful carrier plane strikes on Tokyo in July 1945, sending aloft as many as 2,000 aircraft in a single day. From the spring of 1945 until the truce of Aug. 14, McCain's task force was credited with having destroyed or damaged 6,000 Japanese planes and with having sunk or damaged 2,000,000 tons of Japanese shipping. The tension and strain of the last four months of the war told on McCain who died of a heart attack at his home in Coronado, Calif., Sept. 6.

**McCormack, John** (1884-1945), U. S. tenor, was born June 14 at Athlone, Ireland, and became a naturalized U.S. citizen in 1919. For his early career see *Encyclopædia Britannica*. World famous for his triumphs in opera, on the concert stage and in recordings, McCormack modestly refuted the praise of his admirers who called him the greatest tenor, saying that that honour belonged to the late Enrico Caruso. He was undisputably one of the wealthiest singers in history (his income from stage appearances and recordings was put at \$300,000 in 1918). Of his vast repertory, "Mother Machree" and "I Hear You Calling Me" were the favourites of his audiences. On his 25th anniversary as a concert singer, a London audience mobbed him into singing 27 selections and encores. At his farewell concert appearance at Albert hall in London in 1938, a huge audience of 9,000 gave him a rousing ovation. He later retired, living in the United States and England. He did, however, return to London during World War II to sing for the Red Cross, but was obliged to quit when his health began to suffer. He died at his home in Booterstown, near Dublin, Sept. 16.

**McGuigan, James Charles** (1894- ), cardinal archbishop of Toronto, Canada, was born at Hunter River, Prince Edward Island, on

Nov. 26. He was ordained May 26, 1918, named chancellor of Edmonton diocese in 1922, and vicar general of the see the following year. In 1927 he was named prothonotary apostolic and rector and president of the newly established St. Joseph's seminary. He later received a doctorate in canon law at Catholic University of America, Washington, D.C.

Consecrated archbishop of Regina May 15, 1930, he served for four years, during which period he gained nation-wide renown for his guidance in relieving distress among all classes and creeds when Saskatchewan suffered one of its most severe droughts. He was named archbishop of Toronto Dec. 22, 1934, elevated to Assistant at the pontifical throne and named a Roman count by Pope Pius XII in 1943.

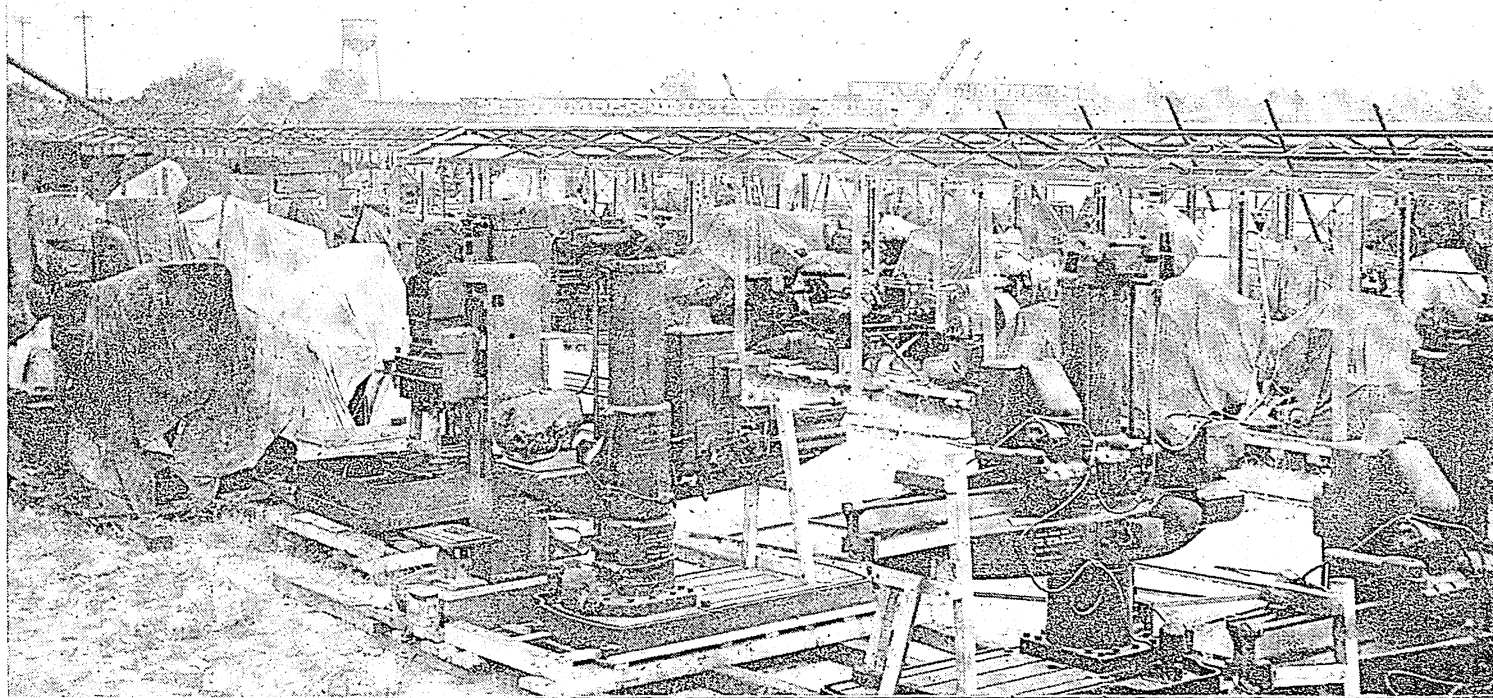
He was included in the list of newly appointed cardinals published on Dec. 23, 1945, and was created and proclaimed cardinal at consistory on Feb. 18, 1946, the first native-born, English-speaking Canadian to be appointed a member of the Sacred college.

**Machinery, Farm:** see AGRICULTURE.

**Machinery and Machine Tools.** Machine tool shipments from builders' plants in the United States for the year 1945 totalled a little more than \$400,000,000 compared with approximately \$500,000,000 in 1944. These totals can be compared with the wartime peak of \$1,321,748,000 for 1942 and the peak of about \$220,600,000 for 1918. These totals are for nonportable power operated machine tools, valued at \$350 or more each, which shape metal products by progressively removing metal in the form of chips. Machines for drilling, turning, boring, grinding, milling, threading, broaching and similar operations are included. Not included are the other metal forming machines, such as presses, forging machines and hammers, extruding machines, brakes and shears, for which comparable totals were not available.

The machine tool industry of the U.S. during the five war-time years of 1941 through 1945, inclusive, made and shipped a total of approximately \$4,193,000,000 worth of products. This is about 12% greater than the \$3,649,100,000 estimated total for the preceding 40 years, from 1901 to 1940, inclusive. This five-year total also can be compared with a total of about

WAR MACHINERY and tools, in one of the huge yards at Detroit, Mich., where such equipment was stored in 1945, pending disposal



\$1,113,000,000 for the five years from 1936 through 1940, and with a total of \$233,000,000 for the five depression years of 1931 through 1935.

Machine tool shipments reached a monthly average of \$110,146,000 in 1942. This was almost seven times the 1939 monthly average and about three times the 1940 rate. Monthly average shipments declined to \$98,351,000 in 1943, to \$41,455,000 in 1944 and to \$38,127,000 during the first seven months of 1945. By the end of 1945, monthly shipments had declined to a rate of only \$25,000,000. Sales for 1946 were conservatively estimated at about \$250,000,000 as against \$195,000,000 in 1937, the best prewar year. They might go higher. Backlog for the industry at the end of 1945 stood at about \$170,000,000 of unfilled orders. Some companies had nine to ten months' orders on their books, but others could promise delivery in two to three months' time. As the year closed, production of machine tools in most plants was hampered by (1) a shortage of skilled help, particularly in engineering departments and drafting rooms, (2) an inadequate supply of castings, electric motors and ball and roller bearings, (3) shutdowns of industrial plants because of the prevailing labour situation, particularly in the Detroit, Mich., area, and (4) delays in financial arrangements to enable foreign customers to place orders for machine tools in the U.S.

The end of World War II with Japan brought a flood of cancellations of munitions contracts. In Aug. 1945, these cancellations in the U.S. totalled about \$23,000,000,000. This freed the metal-working industry for reconversion to the manufacture of goods for civilian consumption. Reconversion was rapid during the last quarter of 1945, it was not delayed materially by inability to secure needed production equipment as had been feared in some quarters. The worst bottlenecks were hard-to-obtain mechanical presses, conveying equipment, heating and drying ovens and plating equipment. Some builders of mechanical presses had, at the close of 1945, 15 months or more production booked, with about 40% of the press business coming from the automobile industry. Balance of the demand for presses came largely from canners, and from makers of stoves, washing machines and similar domestic appliances. Press brakes and shears were almost as hard to obtain as were mechanical presses. Backlogs of some press brake and shear manufacturers extended approximately eight months.

As had been expected, reconversion of many metal-working plants from war to civilian production brought immediate orders for large numbers of special-purpose machine tools. At the same time, there was a surprisingly large demand for standard general-purpose machines, such as lathes, milling machines, drill presses and planers. It had been expected that requirements for such standard units would, for some time, be met largely from stocks of such machines declared surplus by various agencies of the U.S. government. However, by the end of 1945 only about 60,000 of the approximately 650,000 tools owned by government agencies had been declared surplus. As 1945 ended, arrangements were being made to make it easier for industrial plants to acquire such machines and it was expected that during 1946 these surplus units would be an increasing threat to new machine tool sales. However, development of more efficient units by builders of machine tools would tend to make these general-purpose machines expensive to operate in a highly competitive economy and prospects for the machine tool industry might be brighter than many had forecast.

As was the case during each of the preceding war years, improvements in metal-working tools and processes received considerable attention throughout the year 1945. The milling of steel with carbide-tipped milling cutters having negative rake angles on the cutting edges continued to be a subject of intensive study by production executives in metal-working

plants, as well as by engineers employed by the manufacturers of milling machines and milling cutters. Several improved designs of such cutters were announced. Two of these new cutters employ solid blades of cemented carbide locked into place in slots in the body with wedge clamps. These blades are set at a positive radial rake angle, suitable for milling cast and malleable irons, aluminum, brass and other relatively easy to cut metals, and the cutting edges are ground off to provide narrow negative-rake lands when the cutters are to be used for milling steel. Cutting speeds and feeds are high when these cutters are used in suitable milling machines.

A new field of application for cemented carbides was announced during 1945. One supplier of these materials announced that conical sleeve bearings in which the mating surfaces were made of different grades of carbide had been installed successfully in the spindle of a high-speed tool post grinder where difficulties had been experienced with rapid wear of ball bearings. Because of an overload condition the ball bearings had been wearing out after a week or two of service; a set of the carbide-to-carbide conical bearings had been used for more than a year with only 0.000004 in. wear in that time. These bearings operate at 10,000 r.p.m. and are lubricated with a mixture of kerosene and colloidal graphite.

A centreless thread grinder, announced early in 1945, opened a new field of application for the high-production centreless grinding process. This machine uses a grinding wheel carrying multiple thread profiles formed by a cylindrical crusher with grooves in its periphery. The crusher is rolled against the grinding wheel with sufficient pressure to break down the bond of the abrasive, leaving the desired profile on the peripheral surface of the grinding wheel. This machine grinds accurate, smooth threads in hardened steel setscrew blanks in a single operation. Workpieces are fed between the grinding wheel and the regulating wheel one after another as in a cylindrical centreless grinder. Feed can be by hand or by means of an automatic loader.

The crusher method of dressing wheels for thread and form grinders received considerable attention during 1945. One manufacturer of precision grinding equipment announced an electrically powered crush dressing device suitable for application to new or old machines. These power crushing devices have advantages over manual crushing, including reduction of wheel dressing time by as much as 50% and increased life of the crusher roll due to the uniformity of crushing and smoothness of infeed. More parts are claimed per dressing because the wheel is always formed under identical conditions of infeed and pressure.

Of especial interest to production executives in mass-production plants, particularly in the automotive field, was the announcement early in 1945 of the development of a new method for rough and semifinish cutting the teeth in spur and helical gears up to 4-in. diameter and 2-in. face width. This machine operates on the gear shaper principle, but employs a cutter head in which individual blades simultaneously cut each tooth of the gear. After each vertical stroke of the cutter an internal cone is adjusted to move the blades inward a predetermined distance for the next cut. As many as 60 to 100 or more gears are cut per hour. These machines can be used in conjunction with high-production gear shaving machines for the manufacture of automotive transmission gears required in large quantities. (See also AUTOMOBILE INDUSTRY IN RECONVERSION.)

FILMS.—*Machine Maker; Simple Machines* (Encyclopædia Britannica Films Inc.). (B. C. B.)

**Mackensen, August von** (1849–1945), German field marshal, was born Dec. 6, in Haus Leiptnitz, Saxony. For his earlier career, see *Encyclo-*

*pædia Britannica*. Von Mackensen was one of the leading German generals of World War I and had to his credit victories over the Allies in battles in Russia, Central Europe and the Balkans. Although he had gone into retirement after the armistice, Hitler persuaded him to don again his famous death's head Hussar uniform and paraded him at nazi demonstrations as an historic "showpiece" symbolizing the fusion of the old and new Germany. Von Mackensen under the fuehrer's rule accepted the post of state counsellor in 1933. Also joining the ranks of the nazis were his two sons, Eberhard, who became a *wehrmacht* general, and Hans-Georg Viktor, a member of the diplomatic corps. Field Marshal von Mackensen, still in his faded old uniform, was captured in mid-April 1945 by U.S. troops. He died at Celle, Germany, in the British occupation zone, Nov. 8.

**Mackenzie King, William Lyon:** *see* KING, WILLIAM LYON MACKENZIE.

**McNarney, Joseph Taggart** (1893- ), U.S. army officer, was born Aug. 28 in Emporium, Pa. He was graduated from the U.S. Military academy, West Point, N.Y. (1915), and served with the U.S. air forces in France, 1917-18. He was graduated in 1926 from the Command and General Staff school at Fort Leavenworth. In March 1939 he was with the war plans division of the war department general staff; in Aug. 1940, McNarney was made a member of the Joint Defense board for Canada and the United States; and he served as a member of the special observers group in London, May-Dec. 1941. He was a member of the Roberts commission that investigated the Pearl Harbor attack (Dec. 1941-Jan. 1942), and in March 1942 he was appointed deputy chief of staff, the youngest officer ever to hold that position; in May of the same year he was made a lieutenant general. McNarney left his desk job in Oct. 1944 to become deputy supreme Allied commander in the Mediterranean. Pres. Roosevelt named McNarney (March 13, 1945) for promotion to the temporary rank of a full general. When Gen. Eisenhower was elevated to the post of chief of staff, McNarney succeeded him as commander of U.S. forces in Europe (Nov. 20) and concurrently of German occupation forces and U.S. representative on the control council. He said (Nov. 27) that he would adhere to a strict de-nazification policy, and predicted that the occupation of Germany would last 10 years or more.

**McNutt, Paul Vories** (1891- ), U.S. politician and government official, was born July 19 in Franklin, Ind. Educated at Indiana university, Bloomington, Ind. (A.B., 1913), and at Harvard, Cambridge, Mass. (LL.B., 1916), he served on the faculty at Indiana university law school, 1917-25, and was dean of the law school, 1925-33. He became governor of Indiana in 1933. He was U.S. high commissioner to the Philippines, 1937-39, and was named first administrator of the Federal Security administration in 1939. On April 18, 1942, President Roosevelt made McNutt head of the War Manpower commission. In an effort to correct "wastage" of federal manpower and the pirating or hoarding of workers, Pres. Roosevelt on Dec. 5, 1942, vested in McNutt full authority to hire and distribute workers for civilian war industries and full control of the Selective Service system. In Dec. 1943 a new draft bill was enacted which deprived McNutt of his power over selective service. On March 23, 1945, McNutt suggested that independence for the Philippines be deferred until the commonwealth recovered from the dislocation caused by the war. President Truman appointed him high commissioner to the Philippines on Sept. 6.

**Madagascar:** *see* FRENCH COLONIAL EMPIRE.

**Magazines and Periodicals:** *see* NEWSPAPERS AND MAGAZINES.

**Magnesia.** Formerly produced from crude magnesite, *magnesia* is now derived from a variety of raw materials—magnesite, bruceite, dolomite, sea-water bitterns, raw sea water, dry-lake brines and well brines. Productions in the United States of 191,792 short tons of caustic-calcined *magnesia* and 301,382 tons of refractory *magnesia* in 1943 (total 493,174 tons) dropped to 139,243 tons of caustic-calcined and 278,490 tons of refractory in 1944 (total 417,733 tons). Most of the decrease in caustic-calcined *magnesia* followed the cutback in *magnesia* production, while demand for the refractory grades suffered less.

The production of other *magnesia* compounds, mostly the chloride, sulphate and precipitated carbonate, derived in general from the same sources as the *magnesia* output, dropped from 726,513 tons in 1943 to 608,151 tons in 1944. Practically all of the decrease was in chloride, which is used for the production of the metal. (G. A. Ro.)

**Magnesium.** Under pressure of extraordinary World War II demand, *magnesium* production made a record that is an outstanding example of what can be accomplished when necessity drives. The progress of the industry in the United States is shown in the table.

Data of Magnesium Industry in the U.S., 1940-44  
(In thousands of short tons)

	1940	1941	1942	1943	1944
Primary output . . . . .	6.3	16.3	49.0	183.6	157.1
Secondary recovery . . . . .	?	?	6.3	11.4	14.2
Sales, primary . . . . .	6.4	15.5	47.4	170.3	146.6
Exports . . . . .	0.8	1.5	4.0	35.6	21.0
World output (est.) . . . . .	49.5	85.5	141.6	297.4	259.7

In the course of only three years *magnesium* shifted from a minor metal to a major one, with a plant capacity in the United States alone that totalled 293,000 tons. In 1940 the metal had been developed little beyond the experimental stage. Some of the war uses were expected to be made the basis of future civilian uses, but the problem of disposal of plant capacity of this magnitude appeared to be a difficult one.

Canada built up a small war production, amounting to 3,577 short tons in 1943 and increasing to 5,290 tons in 1944.

(G. A. Ro.)

**Maher Pasha, Ahmed** (1888-1945), Egyptian jurist and politician, was educated at the Khedivial Law school and Montpellier university, France. A brother of Aly Maher, who had been premier of Egypt, Ahmed Maher occupied a number of important government positions from the early 1920s. Early in his career, Ahmed Maher was strongly nationalistic but subsequently tempered his politics. His advocacy of moderation brought down upon him the wrath of the Wafd, the major Egyptian political party, and he was expelled from the party in 1938. After his expulsion, he became leader of the Saadists, a new political group composed of dissident Wafdists, and was minister of finance in the Egyptian government, 1938-40. At the outbreak of World War II, Ahmed Maher advocated Egypt's entry into the war on Britain's side, a course of action violently opposed by the Wafd. On Oct. 9, 1944, he became premier, succeeding Mustafa Nahas Pasha, and initiated a program calling for restoration of free elections, furtherance of plans for an Arab union and collaboration with Great Britain. On Feb. 24, a few minutes after he had read to the chamber of deputies a royal decree declaring



war on Germany and Japan, Ahmed Maher was shot and killed by a young Egyptian extremist.

**Mail-Order Business:** see BUSINESS REVIEW.

**Maine.** The extreme northeastern state of the United States, admitted as the 23rd state in 1820, and popularly known as the "Pine Tree state." Land area 31,040 sq.mi.; water area 2,175 sq.mi.; pop. (1940) 847,226; rural 504,169; urban 343,057. Capital, Augusta (19,360). Other cities: Portland (73,643); Lewiston (38,598); Bangor (29,822). The U.S. bureau of the census officially estimated the population of the state at 793,600 on July 1, 1944.

**History.**—The state legislature met in regular session (Jan.—April, 1945), with George Barnes of Houlton as speaker of the house and George D. Varney of Kittery as president of the senate. Veterans' preference legislation and postwar public works plans were enacted. Horace A. Hildreth (R) took office as governor (1945-46 term). Five Republicans served in congress: Robert Hale, Margaret Chase Smith, Frank Fellows in the house; Wallace H. White, Jr. and Owen Brewster in the senate.

**Education.**—Teacher shortages continued to be serious during 1945. By closing nonessential units and issuing permits to partially qualified teachers, most of the essential units were kept open. The net enrollment in the public schools for the year 1943-44 was 152,788 compared with 156,591 for 1942-43. There were 5,703 teaching positions (1943-44) compared with 5,817 for the year 1942-43. Harry V. Gilson was commissioner of education in 1945.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—As of Sept. 30, 1945, there was a balance in the unemployment compensation fund of \$36,257,306, compared with \$29,501,394 a year previous. Net benefit payments (year ending Sept. 30, 1945) were \$805,391 compared with \$320,601 for the preceding year. Public assistance funds expended during the fiscal year ending June 30, 1945, totalled \$7,308,769, divided as follows: general relief \$725,332; old-age assistance \$5,134,189; aid to dependent children \$952,799; aid to blind \$293,772; miscellaneous \$202,677. The number of persons being assisted in Dec. 1945, was about the same as 1944.

Thirteen state institutions (correctional, insane hospitals, sanatoria) with their inmate populations as of Oct. 31, 1945, and appropriations for the 1945-46 fiscal year, were as follows: Augusta state hospital, Augusta, 1,516 inmates, \$663,000; Bangor state hospital, Bangor, 1,105 inmates, \$556,000; Pownal state school, Pownal, 1,085 inmates, \$465,000; Central Maine sanatorium, Fairfield, 160 inmates, \$275,000; Northern Maine sanatorium, Presque Isle, 83 inmates, \$145,000; Western Maine sanatorium, Hebron, 98 inmates, \$180,000; Maine state prison, Thomaston, 355 inmates, \$200,000; State Reformatory for Men, South Windham, 94 inmates, \$120,000; State Reformatory for Women, Skowhegan, 134 inmates, \$127,000; State School for Boys, South Portland, 152 inmates, \$140,000; State School for Girls, Hallowell, 139 inmates, \$140,000; Maine School for the Deaf, Portland, 104 inmates, \$61,425; State Military and Naval Children's home, Bath, 37 inmates, \$27,500. The total inmate population was 5,062; the total appropriation was \$3,099,925.

**Communications.**—The total mileage of the state's highways at the end of the year 1944 was 21,923. Total state highway department expenditures for the fiscal year ending June 30, 1945 (including bond interest of \$552,723 and bond retirement of \$1,774,000), were \$8,936,803.99. Steam railroad mileage in the state (1945) was 2,778 mi. During 1944 there were 198,717 registered motor vehicles in Maine, with 198,185 as of Nov. 1, 1945.

**Banking and Finance.**—During 1945 the Maine banking department (Homer E. Robinson, commissioner) supervised 32 savings banks with 2 branches, 30 trust companies with 61 branches and agencies, 32 loan and building associations. The assets of savings banks and trust companies as of Sept. 29, 1945, were \$457,589,646.43 with total deposits of \$413,652,428.08. Assets on Sept. 30, 1944, were \$389,272,920.23. The 32 loan and building associations had resources of \$25,954,647 as of Sept. 29, 1945. The 34 national banks in Maine reported to the comptroller of the currency total deposits of \$242,067,000 and total assets of \$262,183,000 as of June 30, 1945.

State receipts, expenditures, and bonded debt for the fiscal year ending June 30, 1945, were respectively: \$42,101,841; \$31,489,219; and \$19,052,500. For the year ended June 30, 1944, they were respectively: \$42,775,080; \$30,440,533; and \$20,991,500.

**Agriculture.**—Late snow and frosts caused severe damage to apple and blueberry crops.

Table I.—Leading Agricultural Products of Maine, 1945 and 1944

Crop	1945 (est.)	1944
Corn, bu. . . . .	600,000	640,000
Wheat, bu. . . . .	36,000	40,000
Oats, bu. . . . .	2,916,000	3,515,000
Barley, bu. . . . .	84,000	84,000
Buckwheat, bu. . . . .	93,000	120,000
Hay, short tons . . . . .	919,000	735,000
Potatoes, bu. . . . .	52,785,000	52,260,000
Apples, bu. . . . .	132,000	912,000
Beans (dry), tons . . . . .	1,700	1,900

**Manufacturing.**—The total value of manufactures (1939 census) was \$345,368,595. Total employment was 81,995, and wages paid \$82,026,503.

Table II.—Principal Industries of Maine, 1939 and 1937

Industry	1939	1937
Boot and shoe . . . . .	\$46,162,403	\$42,568,005
Cotton mill . . . . .	28,342,860	28,937,439
Woollen mill . . . . .	36,118,681	28,409,949
Pulp and paper . . . . .	25,370,932	28,890,516

**Mineral Production.**—The leading mineral products of Maine include slate, granite, clay (chiefly for bricks), sand, stone and gravel (the last three chiefly for highway construction), cement, lime, feldspar, mica and peat. Maine also produces tourmalines and other semiprecious stones. Mineral production was low on most items in 1945.

Table III.—Value of Principal Mineral Products of Maine, 1944, 1943, 1942

Product	1944	1943	1942
Clay products . . . . .	\$ 47,892	\$ 120,000	\$ 300,000
Feldspar (crude) . . . . .	80,732	41,652	53,143
Peat . . . . .	710,047	60,033	110,478
Sand and gravel . . . . .	733,503	733,503	800,147
Stone . . . . .	332,736	409,780	556,655
Miscellaneous . . . . .	932,131	1,284,761	1,306,044
			(E.F.D.)

**Maize:** see CORN.

**Malaya, British:** see FEDERATED MALAY STATES; STRAITS SETTLEMENTS; UNFEDERATED MALAY STATES.

**Malinovsky, Rodion Yakovlevich** (1898?- ), Russian army officer, was born in Odessa of peasant parents and was drafted in the tsarist army in World War I. He served in 1915 with one of the Russian brigades in France, fighting beside British and U.S. troops in the Amiens-Arras-Reims region. He was a corporal and machine gunner in 1917 when he joined the Russian revolutionaries who laid down their arms. Malinovsky left France for Russia to take part in the bolshevik revolt. He became an officer during the civil war, but later returned to Odessa. He was soon back in the army, however, and when World War II broke out, he held the rank of major general and was commander of the soviet 6th army. In 1941 Malinovsky was forced to abandon Dnepropetrovsk before the nazi advance; he later personally led the forces which recaptured the city. He beat off German attempts to relieve Stalingrad in 1942, dashing Hitler's hopes of rescuing his trapped 6th army, and was promoted to the rank of colonel general and elevated from command of an army to command of the south front. While commanding the 3rd Ukrainian army in 1943-44, Malinovsky (who was made a marshal, Sept. 10, 1944), evicted the Germans from the southern Ukraine. In 1944 his armies drove into Rumania and entered Hungary. Tolbukhin and Malinovsky captured Budapest by Feb. 1945, and by April the 3rd Ukrainian force had driven into Czechoslovakia. After the war in Europe, Malinovsky was sent to Siberia, where he commanded one of the Russian armies that invaded Japanese-held Manchuria, Aug. 1945. He later commanded a soviet occupation force in Manchuria.

**Malta:** see MEDITERRANEAN, BRITISH POSSESSIONS IN THE.

**Manchuria.** A large area including the three northeastern provinces of China, Fengtien, Kirin and Heilungkiang, in northeastern Asia, bounded N. and E. by soviet Siberia, W. by soviet Siberia, Outer Mongolia and China, S.E. by Korea. Area, 503,143 sq.mi.; pop. (1940) 43,233,954; (1939) 39,454,026, including 642,300 Japanese, 1,162,000 Koreans and 1,035,525 Mongols.

The largest cities (Dec. 1940) were Mukden (1,135,801), Harbin (661,984), Hsinking (formerly Changchun) (544,202), Antung (315,242). The principal religions of Manchuria, in the order of numbers of believers, were Buddhism, Taoism, Lama-

ism, Mohammedanism and Christianity. In 1931 there were about 130,000 Roman Catholics and 125,000 Christians of other denominations.

**History and Government.**—Chinese sovereignty over Manchuria was interrupted when the Japanese army launched a surprise attack against Mukden, seat of Chinese administration, on Sept. 18, 1931. Chinese resistance was weak and disorganized, and Japanese military occupation was extended to the whole country and also to the neighbouring province of Jehol. A separate state was set up under Japanese sponsorship and finally assumed the form of an empire with Henry Pu Yi, a descendant of the Chinese Manchu imperial family, installed as emperor under the name of Kangte.

The new state received the name "Manchoukuo." It was never recognized by China, by the United States or by Great Britain. For some years Japan was the only large power which granted diplomatic recognition; but Germany, Italy and various axis satellite countries later opened up diplomatic relations with the new regime.

The government organization was a transparent screen for Japanese control. The commander in chief of the Japanese army of occupation was always ambassador in the new capital, Hsinking. There was no representative legislative body. A state council was the principal executive organ.

The Japanese hold on Manchuria was broken when the soviet union attacked Japan on Aug. 8, 1945, and overran the country rapidly, apparently in the face of weak resistance. Japan indicated willingness to surrender unconditionally to the United Nations on Aug. 14 of that year. It had been a decision at the Cairo conference of President Roosevelt, Prime Minister Churchill and Generalissimo Chiang Kai-shek in 1943 that Manchuria should revert to Chinese possession.

This decision was affirmed in a treaty concluded between the soviet and Chinese governments in Aug. 1945. This treaty provided that Chinese sovereignty was to prevail in Manchuria, while important economic concessions were to be made to the soviet union. The railway network of Manchuria, which was considerably increased under Japanese occupation, was to be under a system of joint Soviet-Chinese operation. The soviet union was to enjoy the right of using Port Arthur, a Russian leased possession before the Russo-Japanese War of 1904-05, as a naval base and was assured preferential rights in Dairen, the largest Manchurian port.

Information about what happened in Manchuria under soviet occupation was very meagre up to the end of 1945. Immediately after the Japanese collapse, Chinese communist forces moved into the country and offered some resistance to the entrance of central government troops. However, Chinese nationalist authorities and troops were taking over the principal cities with Russian acquiescence in December. It was announced

at the Moscow conference in December that soviet troops would withdraw from Manchuria by Feb. 1, 1946, in accordance with an agreement with the nationalist government of China.

**Education.**—There were 15,877 primary schools, with 1,589,169 pupils in Manchuria in 1939. There were 238 middle schools, with 54,768 students; 40 normal schools, with about 8,000 students; and 13 institutions for higher education, with 3,820 students. Government expenditure on education in 1939 was 45,967,000 yuan.

**Finance.**—The yuan, unit of currency during the "Manchoukuo" period, was kept equivalent in value to the Japanese yen, pegged at 23.48 U.S. cents in Dec. 1941. No information was available on the new financial arrangements which presumably would follow the return of Manchuria to Chinese rule.

**Trade and Communication.**—Exports during the first nine months of 1940 were 544,629,000 yuan; imports were 1,397,715,000 yuan. There were about 6,710 mi. of railways in 1940 and about 30,000 mi. of highways, of which 13,000 mi. were suitable for motor traffic.

**Agricultural and Mineral Production.**—Manchuria's staple crop is the soybean, production varying from 130,000,000 to 210,000,000 bu. yearly. There were 1,683,000 cattle, 2,000,000 sheep, 1,250,000 goats and 2,000,000 horses in 1937. The country produced 685,000 tons of rice and 74,667 bales of cotton in 1940. Coal and low-grade iron are the principal minerals. The output of coal in 1939 was 19,000,000 tons. As a result of Japanese development Manchuria was in 1945 probably the richest industrial area of China. (W. H. CH.)

**Mandated Pacific Islands:** see PACIFIC ISLANDS, MANDATED.

**Mandates.** The mandates section of the League of Nations' secretariat kept available official and unofficial information up to date in 1945, and the mandates commission, though it did not meet, received the annual reports of administering powers.

But the organization for dealing with non-self-governing territories, which was to be set up by the United Nations charter of June 26, 1945, would bring the career of the existing mandates commission to a close. The moral and practical value of the league's experiment in colonial administration was proved up to the hilt. The key principle of trusteeship was incorporated in three chapters of the charter and extended to include more social

#### Mandated Territories

Territory	Area Sq. Mi.	Date of Mandate	Mandatory Power	Former Title	Former Administration
SOUTH-WEST AFRICA, including Caprivi Zipfel, formerly part of Bechuanaland protectorate	317,725	Dec. 17, 1920	Union of South Africa	German South-west Africa	German Empire
TOGO, comprising:					
(1) Togoland, i.e., western section, excluding the seaboard	13,040	July 20, 1922	Great Britain	Togo	German Empire
(2) Togo, i.e., eastern section and seaboard	21,809		France		
CAMEROONS, comprising:					
(1) Cameroons adjoining Nigeria	34,081	July 20, 1922	Great Britain	Kamerun	German Empire
(2) Cameroons adjoining French Equatorial Africa	162,892		France		
TANGANYIKA	360,000	July 20, 1922	Great Britain	German East Africa	German Empire
RUANDA-URUNDI	20,115		Belgium		
PALESTINE	10,100	Sept. 29, 1923	Great Britain	Palestine	Ottoman Empire
TRANS-JORDAN	34,740		Great Britain	Part of the Vilayat of Syria	
*SYRIA AND LEBANON	77,062		France		
NEW GUINEA, TERRITORY OF, comprising:					
(1) Northeastern New Guinea (i.e. the northern section of southeast New Guinea)	93,000	Dec. 17, 1920	Commonwealth of Australia	Kaiser Wilhelm's Land	German Empire
(2) Bismarck Archipelago (New Britain, New Ireland, the Admiralty Isles, etc.)				Bismarck Archipelago	
(3) Certain of the Solomon Islands (Bougainville, Buka, etc.)				German Solomon Islands	
WESTERN SAMOA, comprising Savaii, Upolu, etc.	1,133	Dec. 17, 1920	New Zealand	German Samoan Islands	German Empire
NAURU	8	Dec. 17, 1920	British empire—Great Britain, New Zealand and Australia the present administrator	Nauru	German Empire
PACIFIC ISLANDS NORTH OF THE EQUATOR, comprising:					
(1) Marianas or Ladrone Islands (except Guam)	830	Dec. 17, 1920	Japan	No change	German Empire
(2) Caroline Islands, comprising the Eastern Carolines and Western Carolines, together with Yap Island and Palau					
(3) MARSHALL ISLANDS					

\*Syria and Lebanon were recognized by Great Britain and the Fighting French as independent republics in Sept. and Nov. 1941 and later, by all the great powers (see Syria and Lebanon). Their full independence was in 1945 only a question of time. Both countries took their places as original members of the United Nations at the San Francisco conference.

and economic obligations on the part of the administering states to dependent peoples. Negotiations between the states concerned for the transfer of mandated territories to the United Nations' trusteeship council were in hand. The council would have wider powers than the mandates commission, although certain areas of "strategic importance" in these territories would be outside its authority. Details of transfer from the league system to that of the United Nations were to be settled in 1946.

(See also NEW GUINEA.)

(M. FE.)

**Manganese.** There were in 1945 still many gaps in production data from the smaller producers, so that any total for world output could not be shown, but data from the more important producers were fairly complete.

Table I.—World Production of Manganese Ore, 1939–44

	(In thousands of short tons)					
	1939	1940	1941	1942	1943	1944
Brazil . . . . .	284.7	345.5	482.2	337.5	303.8	162.0
Chile . . . . .	13.8	12.8	39.5	78.6	125.8	?
Cuba . . . . .	112.9	132.2	277.1	274.8	343.0	284.3
Gold Coast . . . . .	427.8	488.3	549.4	761.7	589.1	565.0
India . . . . .	946.0	973.2	879.5	847.7	?	?
South Africa . . . . .	608.1	454.3	491.5	434.8	241.5	?
U.S.S.R. . . . .	?	3,086	2,638	2,000	?	508
United States . . . . .	32.8	44.9	87.8	190.7	205.2	247.6
Total . . . . .	5,698	?	?	?	?	?

**United States.**—Manganese production during World War II was a repetition of the experience of World War I. Output was materially increased above the peacetime level, but reached only a small fraction of the demand, as shown in Table II.

Table II.—Data of Manganese Industry in the U.S., 1940–44

	(In thousands of short tons)				
	1940	1941	1942	1943	1944
Mine shipments . . . . .	44.9	87.8	190.7	205.2	247.6
Metallurgical ore . . . . .	30.4	73.9	178.0	195.1	241.2
Battery ore . . . . .	10.4	11.4	12.4	10.0	6.2
Imports . . . . .	1,435.9	1,714.6	1,583.0	1,511.6	1,315.5
Brazil . . . . .	188.4	353.9	326.5	373.4	197.4
Cuba . . . . .	146.3	272.6	156.3	211.8	467.1
Gold Coast . . . . .	276.6	222.8	189.3	217.0	160.0
India . . . . .	212.2	433.3	600.8	462.9	346.8
South Africa . . . . .	199.1	306.6	234.2	127.7	41.4
U.S.S.R. . . . .	319.2	32.7	17.8	4.6	?
Consumption . . . . .	?	1,310.5	1,481.7	1,588.3	1,593.1

It was not considered likely that postwar consumption would exceed 1,000,000 tons annually, but in the cutback, it was possible that some of the war operations might be able to compete in the postwar market on a price and specification basis. Since most of the ore reserves are of low grade, it seemed likely that the program of experimentation inaugurated during World War II to promote better utilization of low-grade ore might be continued as a peacetime program.

(G. A. Ro.)

**Manitoba.** Central province of Canada and centre of continental America; established in 1870; area 246,512 sq.mi. (26,789 sq.mi. water); pop. (1941 census) 729,744 (6.3% of Canadian population); urban 44%; Canadian-born 73%; density 3.32 per sq.mi.; 59% had always lived in the province. Capital, Winnipeg, incorporated in 1873 (221,960). Other cities are St. Boniface (18,157), centre of culture for Canadians of French origin west of Quebec, Brandon (17,383), Portage la Prairie (7,187) and Flin Flon (6,860) (municipal district), mining and smelting centre of the north.

**History.**—The 21st legislative assembly was elected on Oct. 15, 1945, and the coalition group under the premiership of Stewart Sinclair Garson re-elected with 43 supporters of the 55 members. For the life of the next assembly the three armed services were to be represented by one candidate each, elected by ballot from service voters of Manitoba in Canada and overseas.

**Education.**—Pupils in public school grades in 1944 numbered

119,074. Correspondence students of the government branch totalled 1,990. Public school teachers were 4,354. Dr. A. W. Trueman of New Brunswick was appointed president of the Manitoba university on Aug. 1, succeeding Dr. Sidney E. Smith. Dr. H. P. Armes was appointed to a new position, dean of the university and assistant to the president. United college presented a \$1,500,000 building expansion program. The legislature at its 1945 session approved an act to provide for larger school units. The government appointed a royal commission on adult education, the chairman being Dr. Trueman and the other members being Dr. H. A. Innes of Toronto university, John Grierson, formerly head of the National Film board, J. J. Deutsch, economist with the *Manitoba Free Press*, and Frances I. McKay, director of women's work, extension service of the department of agriculture.

**Public Health.**—The government introduced a health plan in form to be integrated into a national health program and providing: (1) health units, (2) medical care, (3) hospital care, (4) diagnostic services, its operation equalizing medical resources on a province-wide basis.

**Communication.**—Manitoba is served by main trans-Canada railway lines and branches of the Canadian National and Canadian Pacific railways. Hudson's Bay railway from The Pas to Churchill provides transportation to Manitoba's ocean port and was an important link for defense during World War II. The Greater Winnipeg Water District railway parallels the Shoal lake water supply from the Lake of the Woods. Stevenson's field airport is the centre for all air line service of the region. All-weather provincial highways totalled 8,300 mi. in 1945. The government-owned telephone system, with 95,631 subscriber stations, operated two radio stations—one of 15,000 watts at Winnipeg (CKY) and one of 1,000 watts at Brandon (CKX). One privately-owned station (CKRC) operated with 1,000 watts and maintained two short-wave transmitters (CKRO and CKRX).

**Finance.**—The eight Canadian banks have their western headquarters in Winnipeg, and clearings for the year 1945 totalled \$4,335,003,611. Government revenue for the fiscal year ending April 30, 1944, amounted to \$20,050,000, expenditures \$18,567,000, which included an additional \$1,250,000 to postwar reserve, and a new insurance fund allocation of \$500,000. Public debt reduction in the previous three and one-half years totalled \$9,500,000.

**Agriculture.**—The gross agricultural production totalled (est. 1945) \$215,000,000, a slight reduction from 1944.

**Manufacturing, Minerals, Fisheries, Furs.**—Manufactures for 1944 were estimated by the Industrial Development board at \$350,000,000; minerals (1944) \$13,728,126; fisheries, production 27,293,100 lb. with value to fishermen of \$2,511,035 and marketed \$3,228,099 (1945); furs (1944–45), wild catch \$3,788,758, farms \$933,800, processed in Winnipeg \$1,591,812, exported from Manitoba (incl. other provinces) \$8,883,775.

FILMS.—*Prairie Provinces* (Encyclopædia Britannica Films Inc.).

(J. L. J.)

**Mannerheim, Carl Gustav Emil von** (1867– ), Finnish army officer, was born June 4 at Louhisaari, Finland. He studied at Russian military schools, the Hamina Cadet school and the Nikolaev Cavalry school in St. Petersburg. During World War I Mannerheim served with the tsarist armies. At the outbreak of the revolution, 1917, he left his command and returned to Finland, then in the throes of civil war. Mannerheim was made commander in chief of the white army and, enlisting German aid, he quelled Finnish and Russian communists. On Dec. 12, 1918, he became regent of Finland and held this office until



the establishment of a republic in June 1919. He then retired from public life, but was recalled in 1931 to head the Finnish council of defense. He reorganized Finland's armies, planned the Mannerheim line of fortifications strung across the Karelian isthmus and was made a field marshal in 1933. He led the Finnish troops in the war against Russia, 1939-40, and continued as supreme commander of Finland's armies when his country joined Germany in the war against Russia, June 22, 1941. On Aug. 1, 1944, Mannerheim was made president with authority to negotiate an armistice with Russia. The Finnish radio quoted Mannerheim as asking Finland, April 7, 1945, to "create lasting friendly relations with the soviet union." Reports were current in late 1945 that he intended to resign.

**Manpower, War:** see WAR MANPOWER COMMISSION.

**Manufacturers, National Association of:** see SOCIETIES AND ASSOCIATIONS.

**Maple Products.** The 1945 season was the poorest on record in the United States for the production of both sugar and syrup. The 1945 maple sugar production was estimated by the U.S. department of agriculture at 251,000 lb. compared with 565,000 lb. in 1944 and an average of 691,000 lb., 1934-43. This was only about 70% of the previous low production of 366,000 lb. in 1939. Syrup production was even less, 991,000 gal. in 1945 compared with 2,568,000 gal. in 1944 and an average of 2,612,000 gal., 1934-43.

Maple Trees Tapped and Syrup and Sugar Production, by States

State	Trees tapped		Sugar made, lb.		Syrup made, gal.	
	1945	1944	1945	1944	1945	1944
Vermont . . . .	3,111,000	3,496,000	147,000	314,000	351,000	944,000
New York . . . .	2,202,000	2,719,000	36,000	131,000	280,000	835,000
Ohio . . . . .	560,000	747,000	1,000	2,000	136,000	280,000
Michigan . . . .	474,000	515,000	3,000	6,000	82,000	167,000
Pennsylvania . .	285,000	364,000	18,000	28,000	53,000	133,000
Wisconsin . . . .	226,000	283,000	1,000	3,000	23,000	50,000
New Hampshire .	199,000	229,000	9,000	25,000	25,000	57,000
Massachusetts . .	157,000	182,000	20,000	30,000	22,000	60,000
Maine . . . . .	92,000	115,000	6,000	4,000	9,000	21,000
Maryland . . . .	30,000	31,000	10,000	22,000	10,000	21,000

This poor year was the result of the early warm weather in March that caused the sap to stop running much earlier than usual. Many producers were not prepared to begin operations at such an unusually early date; snow was still deep in the woods and labour was scarce. The number of trees tapped was 7,336,000 or about 15% below the previous year and much below the average. (J. C. Ms.)

**Marble:** see STONE.

**Margarine** (OLEOMARGARINE). The production of margarine in the United States showed little change in 1945, production being 591,000,000 lb. compared with 588,000,000 lb. in 1944 and a prewar average of 303,000,000 lb. in 1935-39. Civilian consumption increased slowly from 1931 when it averaged 1.8 lb. per capita to 3.9 lb. in 1945. The exports increased with the beginning of lend-lease in 1942 to about 80,000,000 lb. Relief agencies took about 13,000,000 lb. but the military requirements were small, amounting to only 2,800,000 lb. Domestic consumers showed little disposition to substitute margarine for butter even under the most severe rationing. The average price of margarine was about one-half that of butter. During 1945 the price of uncoloured margarine averaged 24.1 cents per pound compared with butter at 50 cents per pound. This price relationship had existed from the 1930s.

Some agitation to repeal the federal tax of 10 cents per pound on the coloured margarine continued without legislative action. Since margarine must be taxed, all wholesale and retail dealers must be federally licensed. In anticipation of a market when

butter became scarce and was severely rationed the number of licences increased sharply in 1942 and 1943 to about the same total number as in 1929 when many consumers were in distress.

The use of domestic vegetable oils in the manufacture of margarine greatly increased after 1940 because of the scarcity of foreign vegetable oils. At the same time the amounts of animal fats and oils declined slightly. The principal domestic oils used were cottonseed and soybean oils. The latter became of much greater importance after 1940. (J. C. Ms.)

**Marianas Islands.** An archipelago in the North Pacific, located from 12° to 21° N. and 145° E. With the exception of Guam, largest island in the group and a U.S. possession, the Marianas, together with the Carolines and the Marshalls, had been administered by Japan under a mandate from the League of Nations. Area (excluding Guam) 245 sq.mi.; pop. (June 30, 1939) 47,925. Saipan is the largest and most populous of the islands of this group under Japanese administration.

**History.**—Of the three groups of Japanese mandated islands, the Marianas are closest to Japan proper. So it was significant of the growth of U.S. naval and air power that this group was successfully invaded in June and July 1944. The landing on Saipan took place on June 15 and the Japanese sustained heavy losses in aeroplanes and warships in trying to relieve the island. The conquest was completed by July 9, with Japanese losses estimated at 11,500 dead, 58 ships and 900 planes. This was

A U.S. 7th ARMY AIR FORCE Liberator taking off from its base in the Marianas to raid Truk and other by-passed Japanese islands in May 1945



the first occasion when a Japanese population of any size came under United States administration. An internment camp was set up for the survivors. Saipan was subsequently transformed into a base from which B-29s took off for bombing attacks on Tokyo and other objectives in Japan. It was formerly a stopping point on the Japanese air line between Tokyo and Palau.

After the occupation of Saipan, U.S. forces took the neighbouring island of Tinian and reoccupied Guam. The remaining isolated Japanese garrisons in the Marianas, which held out on reserve stores and on what they could cultivate on the islands, laid down their arms after the Japanese surrender in Aug. 1945.

**Physical Features.**—The Marianas fall into two groups. There is a northern group of ten very small mainly volcanic islands of which only four are inhabited, while of the five southern islands—mainly of coralline limestone formation—Guam, Saipan, Tinian, Rota and Aguijan, only Aguijan is uninhabited. The highest elevation in the northern volcanic group is about 2,700 ft. The southern islands rise very little from the surface of the ocean. The climate is damp, the temperature even, the vegetation tropical and luxuriant. There are wild pigs and oxen. Products of the Marianas include coco-nuts, yams, sweet potatoes, manioc, coffee, cocoa, sugar, cotton, tobacco and mother-of-pearl.

**Industry and Education.**—There were more Japanese in the Marianas than in the Carolines and Marshalls taken together. Of the 18,990 Japanese households in the three groups of islands in June 1939, 10,716 were in the Marianas. This was partly because of the intensive development of the sugar industry. Sugar cane was grown on Saipan as far back as the 16th century. But before the Japanese administration there was no refinery and the natives ate the cane raw.

The amount of land under sugar cultivation increased from 50 ac. in 1913 to more than 15,000 ac. in 1933. There were 687,894 long tons of sugar raised in 1938. There are sugar refineries on Saipan, Tinian and Rota, under the ownership of the South Sea Development company, which was capitalized at 20,000,000 yen for the purpose of promoting the economic exploitation of the mandated islands. The value of the annual production of the principal industries in the mandated islands in 1938 was 27,702,567 yen, divided as follows among the industries:

Sugar .....	23,885,733 yen	Canned foods .....	662,508 yen
Alcohol .....	830,410 yen	Alcoholic drinks.....	528,588 yen
Syrup .....	763,649 yen		

The natives lead a simple tribal life under chiefs, whose former powers were greatly curbed by the German and Japanese administrations. The main functions of the chiefs are to collect taxes and transmit government orders to their people. They also perform ceremonial rites. The natives of the Marianas are partly of Kanaka, partly of Chamorro stock. Nature provides for most of their wants, as there is an abundant supply of coco-nuts, sweet potatoes, bananas, pineapples, mangoes. Staple native foods are fish, fruit and meat. There are schools for natives, at which attendance is voluntary, and there was compulsory six-year elementary schooling for Japanese.

(W. H. CH.)

**Marine Biology.** The application of the radar principle<sup>1</sup>, which proved valuable in World War II, promised to have wide application as an electronic navigator which could be used on all sorts of ocean-going craft as well as lake and river ships. Experimental sets, produced for testing purposes by a large manufacturing concern in the United States, were being used in 1945 by the maritime service and

as soon as materials were to be had in volume such equipment would be available for commercial shipping and for other purposes. It was said that obstacles may be detected by this device through darkness, fog and storm up to distances of 30 mi. There can be little doubt that the vessels devoted to the scientific exploration of the seas will take advantage of these developments.

Other attacks on fouling problems promised to be useful to the marine biologist whose technical equipment is subjected to prolonged exposure to sea water. The fouling of ships' bottoms<sup>2</sup>, which reduces their speed, curtails their use by dry-docking and involves tremendous costs in labour, fuel and money, is many sided. It was presented to the biologist and the chemist for solution. In a report issued by a joint anti-fouling subcommittee of the Iron and Steel institute and the British Iron and Steel federation, emphasis was placed upon research which would inhibit the exhaustion of the metallic constituents of paints by the cementlike formations largely of organic origin. It was concluded that several steps in this organic deposition contribute finally in producing a suitable media for organic life as such to make their attachments. It was suggested that any measure which would hinder deposition of lime salts by living organism would counteract fouling. Theoretically zeolite or sodium permutit, applied to the anticorrosive paint base, should prevent the catalytic action and inhibit the formation of gelatinous calcium carbonate.

Such anticatalytic action was observed in a limited way by the use of the new insecticide DDT (dichloro-diphenyl-trichloroethane). A worker at the Yaquina Bay Fisheries laboratory<sup>3</sup>, Oregon, was encouraged to believe from preliminary tests that fouling caused by at least one type of organism may be prevented when this ingredient is admixed with the usual anti-fouling paints. Remarkable resistance had already been achieved to *barnacle* attachment and studies were in progress to determine its efficiency for the control of other fouling marine forms. However, a note of caution was sounded by workers at Mellon institute<sup>4</sup>, Pittsburgh, Pa., since in their researches at Daytona Beach, Fla., the insecticide was ineffectual for the attachment of annelids, bryozoa, algae, hydroids and tunicates.

A report of a textile chemist at the University of Leeds<sup>5</sup>, Scotland, finds seaweeds (kelp) adapted to the production of high quality rayon. Since dry seaweed contains from 15%-40% alginic acid (a polymere of  $\alpha$ -mannuronic acid), this when treating with an alkali ( $\text{Na}_2\text{CO}_3$ ) forms an alginate rayon of excellent quality and appearance. Because of a relatively high metal content of alginate rayon, fabrics made from such yarns are noninflammable. Other properties permit a wide range of colours with basic dyes.

From the Biological Laboratory of Plymouth<sup>6</sup>, England came a report that the autotrophic flagellates and peridinians together constitute by far the larger portion of the oceanic phytoplankton. However, the peridinians are usually less abundant than the diatoms so that one may say the bulk of plankton is well accounted for by the flagellates. A report from the Bishop museum<sup>7</sup>, Hawaii, gives an interesting bit of life history which has been followed in a new species of shrimp belonging to the family Callinassidae; subgenus *Calliactites* (*Callianassa*) (*Calliachibea parva*). The scientist successfully hatched and studied its larval form. As an aftermath of the war in the Pacific<sup>8</sup> certain island birds may become extinct as viewed by two scientists who made a survey of Midway and

<sup>2</sup> See discussion of report, *Science*, April 20, 1945, vol. 101, p. 406.

<sup>3</sup> See brief abstract in *Science* Supplement, Aug. 3, 1945, vol. 102, p. 10.

<sup>4</sup> *Science*, Oct. 26, 1945, pp. 425-26.

<sup>5</sup> *Nature*, June 1945, vol. 155, pp. 655-657.

<sup>6</sup> *Nature*, Oct. 13, 1945, pp. 446-447.

<sup>7</sup> Occasional Papers, Bernice P. Bishop Museum, Honolulu, Hawaii, vol. 18, no. 2, 1944.

<sup>8</sup> See brief abstract, *Science*, Supplement, Oct. 19, 1945, p. 14.

<sup>1</sup> *Science*, Supplement, Aug. 31, 1945, vol. 102, p. 10.

certain other islands. It was believed that the Laysan rail and the Laysan finch have probably become extinct, while many other birds have had their populations depleted severely and may become extinct from various conditions attendant upon war operations within these zones.

The president emeritus of the Woods Hole Marine Biological laboratory,<sup>9</sup> Massachusetts, brought into print a record of the history of that institution. In addition to the intimate information about the marine laboratory from its early beginnings, many interesting aspects of the two other scientific institutions there, the United States bureau of fisheries station and the Woods Hole Oceanographic institution, are included. This report gives ample proof that scientists can successfully co-operate in the management of an institution, free from outside control and devoid of provincialism. Its record of marine research is phenomenal and its co-operative management unique.

A monumental piece of work on algae<sup>10</sup> was brought out by the University Press, Cambridge, which should be of great value to the marine botanists. While the title suggests the volumes deal with structure and reproduction mainly, it includes some considerable taxonomy, ecology and physiology. Because of its completeness, it will no doubt serve as a valuable standard reference text. A captain, commander of the submarine squadron "TWO," reported a poster found on the Oceanographic Institute at Morosi Ko, on Sagami Wan, comparing it with Woods Hole, Mt. Desert, Tortugas, Pacific Grove, Puget Sound stations (U.S.) and suggesting that after the weapons of war were destroyed the university be notified so that the Japanese students might return to their scientific home. (See also ZOOLOGY.)

**BIBLIOGRAPHY.**—Harry S. Ladd, *Report of Committee on Marine Ecology as Related to Paleontology*, no. 3, Nat. Research Council 32 pp., mime. (1943); Reports on Boring Sponge, Sea-Mussel, Great Barrier Reef Bores, Diatoms as Food of Oysters, Ecologic Relations of Larger Foraminifera, Tertiary and Cretaceous Paleontology of California Based on Fossil Fish Remains, etc.; Rolf L. Bolin, "Marine Cottid Fishes of California," Stanford University, *Ichthyological Bull.*, vol. 3, no. 1 (1944); H. U. Sverdrup, et al., *Observations and Results in Physical Oceanography*, Carnegie Inst. Wash. Pub. 545 (1944); Ernst Mayr, *Birds of the Southwest Pacific* (1945); Elmer D. Merrill, *Plant Life of the Pacific World* (1945); Olga Hartman, *The Marine Annelids of North Carolina*, Duke University Press, pp. 53 (1945); Felix E. Fritsch, *Structure and Reproduction of the Algae*, vol. 2 (Phaeophyceae, Rhodophyceae Myxophyceae), Cambridge Univ. Press (1945). (F. M. B.)

<sup>9</sup> *The Woods Hole Marine Biological Laboratory*, by Frank R. Lillie. 284 pages, 27 photos, University of Chicago Press, 1944.

<sup>10</sup> *Structure and Reproduction of the Algae*, by Felix E. Fritsch, 2 vol. XIV + 939 pp., 336 text fig., 2 maps, Cambridge University Press.

**Marine Corps.** On Nov. 10, 1775, the first continental congress by resolution provided for the marine corps as a part of the naval establishment for duty at sea and on shore. The strength has been kept normally at 20% of the naval personnel, the maximum reached in 1945 being about 500,000 officers and enlisted men. Enlisted men come from the selective service and from voluntary enlistment; officers are commissioned from graduates of the naval academy at Annapolis, Md., and distinguished military colleges, from selected enlisted men and civilians.

The basic mission of the marine corps is to aid the navy in accomplishing its mission which is to gain command of the sea and keep it. To do this the marine corps furnishes detachments aboard battleships, cruisers and carriers; maintains amphibious striking forces with the fleets; and provides garrisons at naval shore stations.

The organization and training provides infantry, artillery, aviation, paratroops, tanks and supply units.

Fleet marine forces are corps made up of triangular divisions armed, outfitted and trained for amphibious operations with the fleet or the task forces thereof as integral parts of the fleet.

The commandant of the marine corps in 1945 was General Alexander Archer Vandegrift who with administrative and operational staff was stationed at headquarters in the navy department, Washington, D.C.

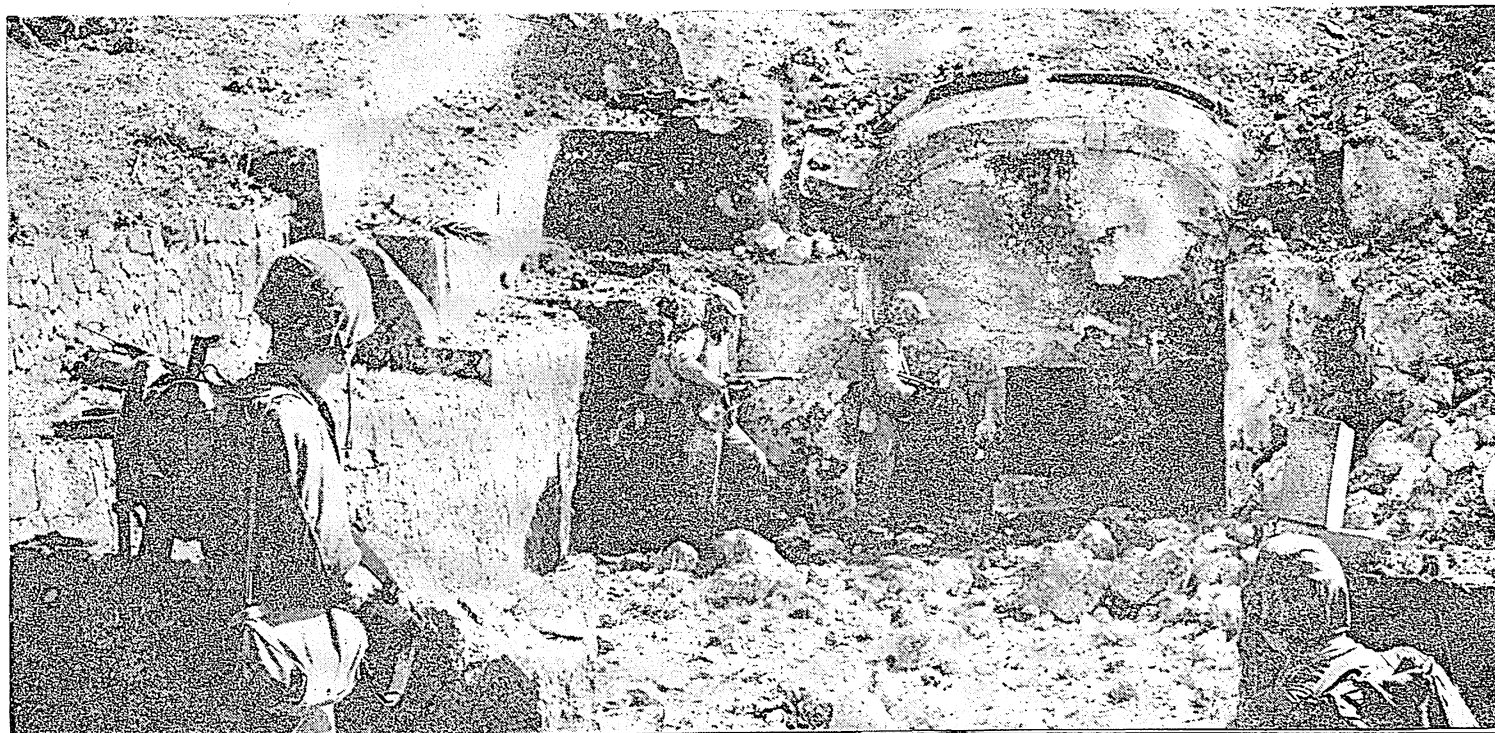
The recruit training stations are at Parris Island, S.C., and San Diego, Calif.

Divisional training stations are at Camp Lejeune, New River, N.C., Camp Pendleton, Oceanside, Calif., and Quantico, Va., the marine corps schools being at the last named station. Aviation units are trained at these stations and with naval aviation ashore and afloat.

During 1945 marine forces under command of Lt. Gen. Holland M. Smith and Lt. Gen. Roy Geiger were engaged with the Pacific fleet of Admiral Chester W. Nimitz in attacks on Japanese islands, notably in the capture of Iwo Jima and Okinawa. Marines were also part of the occupying forces of Guam and other Pacific islands.

The marine corps was in 1945 being reduced from a maximum wartime strength of 500,000 to a peacetime strength of 100,000

U.S. MARINES, newly landed at Okinawa, hunt enemy snipers hidden in a burial vault near the town of Sobe. The town was taken within an hour of the first landings on April 1, 1945





and 8,000 officers. The six combat divisions were to be reduced to two, the first division with headquarters at New River, N.C., and the second division at Camp Pendleton near San Diego, Calif.

As of Dec. 1945 four divisions were assigned to police duty in Japan and north China and two divisions were in reserve. In the progressive reduction in strength 100,000 enlisted men and 10,000 men officers, 5,800 enlisted women and 300 women officers had been discharged.

**Marine Corps Women's Reserve.**—Congress in 1943 authorized the commissioning and enlistment of women in the reserve to replace men in suitable positions, thus releasing the men for active field duty. This organization in 1945 attained a maximum of 1,200 officers and 20,000 enlisted women under command of Colonel Ruth Cheney Streeter, with its training centre at Camp Lejeune, New River, N.C.

They were detailed to clerical and administrative work in offices at headquarters and other shore stations, to ground crews of marine aviation, to maintenance of trucks and motor cars and to supply depots. In the demobilization following World War II these women were being gradually discharged.

**Marine Insurance:** *see* INSURANCE.

**Market Gardening:** *see* VEGETABLES.

**Marketing:** *see* BUSINESS REVIEW.

**Marriage and Divorce.** What was most significant in the history of marriage and the family in the United States during 1945 was also the most obvious. This was the disorganization that came as an aftermath of World War II. The stress revealed in domestic relationships so apparent before the close of the conflict was increased and was finding freer expression. The widespread disillusionment that followed World War I was again developing and seemed likely to be even more disturbing, as it showed itself in domestic life, than was true of the former experience. The causes were many. Imprudent, hasty marriages, marriages made because of ulterior motives such as desire for government allowances, passion marriages and marriages that had no proper start because of the hectic circumstances before the husband went overseas were revealing their inadequate foundations for a genuine life fellowship. Changes in affection, differences in maturity, the fading out of romance as a consequence of war conditions as they affected one or both spouses destroyed a compatibility which under normal circumstances would have been likely to prosper. The unfaithfulness of wives during the absence of their soldier husbands or the suspicion of this, often by men who helped other wives break their marriage vows, contributed its part to the disorganization of war marriages. The inability of the returned soldier to find suitable shelter for his family was one of the most troublesome of his domestic problems, often a serious handicap to the re-establishing of a genuine home life. In the background of all these troublemaking circumstances was the disillusionment associated with the transfer from the highly emotional expectations of the war period to the realistic social consequences of the costly conflict.

This disappointment created among many soldiers and their wives a restlessness, an underlying discontent that easily became disturbing of marriage association. If added to this feeling there was a belief that the husband was needlessly being held overseas there developed a situation which frequently expressed itself in letters that made trouble between the spouses. Wives were also writing more freely to their husbands concerning their dissatisfactions, no longer feeling that for patriotic reasons they ought not to talk of their troubles. Often these seemed selfish and trivial to men who endured genuine hardships.

Another disturbing influence came from the experience of women who went into war industries. They enjoyed an independence never realized before and in a great many instances also a standard of living far higher than that to which they had been accustomed. Many of them also came to prefer the gregarious industrial jobs over their former household tasks. Even when willing to return to housekeeping they were less happily adjusted and ill-prepared to help their husbands through the trying experience of reconverting to civilian life.

Divorces were increasing as was expected by those who knew that after World War I they reached the highest point in the history of the United States. Already exceeding that record before the close of World War II, it appeared that the divorce rate in the immediate postwar years would go still higher. One influence in addition to the disorganization previously mentioned was expected to be the economic independence and advance in standards of living of many wives who went into war industries. Some sociologists expected during postwar years there would be one divorce for every four marriages.

This increase in divorces was taking place wherever there was opportunity for marriage incompatibility to express itself legally. England, for example, was having a marked increase in requests for divorce. In 1914 there were only about 600; in 1945 in London alone, according to a statement of the archbishop of York, there were 4,000 cases waiting to be heard. His interest in salvaging marriages appeared in his statement according to the press that adultery must not necessarily be followed by divorce since it was often the result of great strain and temptation and did not mean a loss of affection.

In many countries, including the United States, a more determined effort was being made to increase the birth rate. On the other hand, there were social leaders who insisted that the atomic bomb made it necessary to give greater attention to the eugenic quality of the population, that the quantity of manpower was no longer significant as a means of national security since that can come only from high standards of intelligence, skill and humanity in the population.

The juvenile delinquency aspect of family disorganization was increasingly characteristic of 1945. During the first half of the year as compared with the same period in 1944 the arrest of boys under 21 years of age as reported by J. Edgar Hoover, director of the Federal Bureau of Investigation, increased 9.8%. The offenses of criminal homicide, rape and other felonious assaults increased in this age group 23.8%. Among girls under 21 years of age the total arrests decreased 5.4% but for offenses against property the increase was 9.2%. Perhaps what was most significant was the violent character of juvenile crime. It was generally felt that family conditions were by far the most important causes of this increasing problem of youth delinquents.

Progress was made during the year 1945 in activities that sought to strengthen and improve marriage and family life. An important contribution came from science through discoveries of the possible danger to the foetus of the Rh factor in human blood plasma, although there was no hopeful treatment except under certain conditions when the affected child is born alive. Another insight came from a study of more than 7,000,000 births by Dr. Jacob Yerushalmy, principal statistician of the United States public health service, who found that among mothers whose children were born neither too near together nor too far apart there were fewer born dead than was true of mothers who had their children close together or far apart. This investigation revealed that the lowest stillbirth rate was not found among the youngest mothers for it was relatively high between the ages of 15 and 19 years (33.7), but among those who maintained a moderate rest period between births, the ideal length of this interval not being determined. The maternal

death rate was the lowest in the recorded history of the United States, while in 1917 it was the highest. The emergency maternity and infant care program financed by federal funds for the wives of men in the four lowest grades of the armed services had an important part in this favourable situation. In the United States and in the Allied nations there was agitation directed toward increasing the birth rate. England, according to the White Paper issued by the government through the royal commission on population, tended toward small families, a condition which was assumed to be the result of the practice of birth control, which endangered the welfare, even the survival of the nation.

Progress was made during 1945 in educational efforts to conserve marriage and the family. Courses in preparation for marriage were well established in the U.S. college program. There was widespread recognition that similar instruction adapted to the needs and limitations of the younger adolescent should be developed in the high school program. There was, however, no agreement as to the content of such instruction, some insisting that sex education should be excluded since it is the obligation of the home while others saw no hope of young people getting this needed insight unless it is given by the school. Marriage counselling was being increasingly recognized as a professional service that is greatly needed. There were three types of counselling: one being developed by scientific specialists, another carried on by members of the ministry, priesthood, social workers and physicians, and the third was in the hands of persons who had no training but who by one means or another obtained publicity that drew ill-informed clients. Headway was being made in establishing and advancing the professional standards of the counselling specialist largely as a result of the influence of the American Association of Marriage Counselors.

There was greater recognition than ever before of the part law plays in the conserving of marriage and the family. Thirty-five of the 48 states and the territory of Hawaii all had some form of prenatal examination law requiring the examining physician to make a blood test for syphilis in expectant mothers. Thirty-two states and the same territory required premarital examination and blood test for syphilis before marriage licences could be issued. In Arkansas, South Carolina and Texas a prenatal examination law was considered but not passed. Arizona, Arkansas, Delaware, Kansas, Montana, Nevada, New Mexico, South Carolina, Texas and Washington were the states in which premarital examination legislation failed to pass.

The most disturbing divorce decision ever made by the United States supreme court (*Williams v. North Carolina*), came during the year when for a second time North Carolina appealed a divorce decree that had been given in Nevada to two of its citizens who went there for the six weeks' required residence. The contention of North Carolina that the six weeks' absence from the state did not constitute a genuine residence in Nevada since it was undertaken merely to obtain a divorce with the intention of then returning to North Carolina was upheld. As a consequence a great many similar migratory divorces had their validity thrown into doubt. In England a decision of equal legal significance was made by the British court of appeals annulling a 13-year marriage as unconsummated on the ground that the husband insisted on using contraceptives. North Carolina enacted legislation recognizing incurable insanity under certain conditions as grounds for divorce.

Although there were several regional conferences concerned with problems of domestic life, because of travel restrictions there were few national meetings. Early in 1945 at the Catholic University of America a Family Life conference was held and its proceedings published under the title, *The Family Faces Forward*. At the same institution the Foundation for Family Study

and Research was established under the direction of Rev. Edgar Schmiedeler. A program of graduate study in preparation for the teaching of marriage and family courses and for marriage counselling was inaugurated at the University of North Carolina. (See also CENSUS DATA, 1945.) (E. R. G.)

**Marriott, Sir John Arthur Ransome** (1859-1945), British historian, was educated at Repton and New college, Oxford. He became lecturer at the latter institution in 1884. He was a member of various government committees and a director of the Great Northern railway, 1919-23. Sir John was a Conservative member of parliament for Oxford City, 1917-22, and for York, 1923-29. An honorary fellow of Worcester college, Oxford, he was the author of many works on history and political science. Among them are *Makers of Modern Italy* (1889), revised in 1931, *The Remaking of Modern Europe* (1909), *English Political Institutions* (1910), *The Mechanism of the Modern State*, 2 vols. (1927), *Evolution of Modern Europe, 1453-1923* (1932), *Queen Victoria and Her Ministers* (1933), *Dictatorship and Democracy* (1935), *Life of Castlereagh* (1936), *Commonwealth or Anarchy* (1937), *This Realm of England* (1938), *The Evolution of the British Empire and Commonwealth* (1939), *The Tragedy of Europe* (1941), *A Short History of France* (1942) and *Federalism and the Problem of the Small State* (1943). Sir John, who was knighted in 1924, died at Llandrindod, Wales, June 7.

**Marshall, George Catlett** (1880- ), U.S. army chief of staff, was born at Uniontown, Pa., on Dec. 31. Commissioned second lieutenant of infantry Feb. 2, 1901, after completing his studies at Virginia Military institute, Lexington, Va., and the Army Staff college, he advanced through the grades to brigadier general in 1936. He was with the American expeditionary forces in France in 1917. He was stationed in China, 1924-27, and was appointed commander of the 8th infantry, 1933. In 1936 he was commanding general of the 5th brigade, and he was made chief of staff on Sept. 1, 1939, the day Hitler invaded Poland; Marshall was also appointed to the rank of full general. Tactful and sagacious, he displayed a rare talent for harmonizing diverse points of view and for retaining everyone's good will. An advocate of conscription, he directed and co-ordinated the enormous task of building up the U.S. army after enactment of the Selective Service bill. When war came, Dec. 7, 1941, his army consisted of only 1,500,000 men. By July 15, 1944, it had grown to 7,700,000, of which more than 4,000,000 were overseas. Marshall was promoted, Dec. 15, to the new five-star rank of general of the army.

Marshall advocated (June 16, 1945) universal peacetime military training, which he declared would tell the world "that we mean business," but would not imply lack of faith in world security. In the army report on Pearl Harbor, made public Aug. 29, he was charged with "failure in his relations with the Hawaiian department." However, both President Truman and Secretary of War Stimson took issue with this charge, and Stimson asserted that Marshall had acted with his "usual great skill, energy and efficiency." In his biennial report, issued Oct. 9, Marshall maintained that the only adequate defense a nation can have is to maintain the "power of attack" and urged establishment of a strong citizen army "to greatly strengthen the hand of the U.S. in securing a genuine organization to handle international differences." He also advocated a merger of the armed services (Oct. 18). Marshall relinquished his post as chief of staff to Gen. Eisenhower, Nov. 20. A week later (Nov. 27), he was named ambassador to China, replacing Maj. Gen. Patrick

Hurley. In Chungking, Marshall succeeded in bringing about a truce in the civil war between Chungking nationalists and the Chinese communists, Jan. 10, 1946.

**Marshall Islands.** An archipelago in the North Pacific, located between 4° and 15° N. and 161° and 174° E. It consists of a number of atolls arranged in two almost parallel lines running from northwest to southeast. Area (estimated) 160 sq.mi.; pop. (June 30, 1939) 10,684. Like the Caroline and Marianas archipelagos (*q.v.*) the Marshalls had been administered as a Japanese mandate under the League of Nations. The chief island and centre of administration is Jaluit. The Marshalls were the westernmost of Japan's island possessions in the Pacific and it is believed that they may have served as a take-off point for the attack on Pearl Harbor on Dec. 7, 1941.

**History.**—The Marshalls were the first Japanese territory to be invaded and partially occupied by U.S. forces. The invasion of the Marshalls began with the invasion of Kwajalein atoll on Feb. 1, 1944. Admiral Chester W. Nimitz announced that the authority of the Japanese emperor was suspended and that the invaded territory was under U.S. military law. Jaluit was one of a number of Japanese island strongholds which were by-passed during the U.S. advance. The isolated Japanese garrisons in the Marshalls laid down their arms after the Japanese government consented to surrender in Aug. 1945.

The Marshalls are the poorest and least developed of the three groups of Japanese mandated islands. The atolls are covered with sand, except in some places where a mixture of decayed vegetables has turned it into soil. Vegetation is sparse and the climate is moist and hot, with a mean temperature of 80.5°. There are few animals. The natives use as food some of the natural products of the islands: coconuts, breadfruit, taro, bananas, yams and pandanus seeds.

Like the other mandated islands, the Marshalls, until the beginning of World War II, were under the administration of the Nanyo Cho, or South Sea government, which was set up in 1922. The governor of the area was under the authority of the ministry of overseas affairs. Matters relating to communications were under the charge of the communications ministry and currency, banking and customs were subject to the control of the ministry of finance.

The government office was composed of the governor's secretariat and the two departments of home affairs and development. The department of home affairs contained sections for local affairs, finance, taxation and police and the department for development was composed of the five sections of agriculture and forestry, commerce and industry, fisheries, transportation and communications. The branch office of the government in the Marshalls was at Jaluit and had charge of such administrative affairs as policing, hygiene, tax collection, education, engineering and harbour construction.

**Communication.**—Although the Marshalls are off the main routes of world communication they enjoyed before World War II the services of the Japanese shipping company, Nippon Yusen Kaisha. It operated an East Round line, with Kobe and Jaluit as the terminal ports and calls at Saipan, Truk, Ponape and Kusaie. There were 19 voyages on this line every year.

**Education and Religion.**—There are schools for the natives on a basis of voluntary attendance and there was compulsory elementary six-year schooling for Japanese children. In 1939 there were 549 Japanese and 10,131 natives in the Marshalls. There is one Christian school in Jaluit.

**Production and Export.**—The chief export products of the Marshall Islands are copra, tortoise-shell, mother-of-pearl and sharks' fins. Between 3,000 and 4,000 ac. are planted with coco-

nut palms.

(W. H. CH.)

**Martinique:** *see* FRENCH COLONIAL EMPIRE.

**Maryland.** A south Atlantic state, according to the classification of the bureau of the census, but often classified as middle Atlantic. One of the 13 original states. Long known as the "Old Line state," latterly also as the "Free state." Total area 10,577 sq.mi.: land, 9,887 sq.mi.; water, 690 sq.mi. Population (1940) 1,821,244: urban, 1,080,351; rural, 740,893; white, 1,518,481 (foreign born, 81,715); nonwhite, 302,763. On July 1, 1944, the bureau of the census estimated the civilian population of the state at 2,127,874. Capital, Annapolis (pop. 1940, 13,069); other cities: Baltimore (859,100), Cumberland (39,483), Hagerstown (32,491), Frederick (15,302) and Salisbury (13,313).

**History.**—Herbert R. O'Connor, Democrat, was re-elected governor in 1942 for a four-year term, which began on Jan. 13, 1943. The general assembly meets regularly in odd-numbered years. The regular session held in March of 1945 passed a motor vehicle financial responsibility act designed to encourage motorists to insure against accident liability. Millard E. Tydings, Democrat, re-elected to the United States senate in 1944, served continuously from 1927. The term of his colleague, George L. Radcliffe, Democrat, was to expire in 1947.

**Education.**—In 1944-45 there were in the state (including Baltimore whose schools are separately administered) 943 public elementary and occupational schools, with a total enrolment of 210,162 and a teaching staff of 5,561. There were 208 secondary and vocational schools, with an enrolment of 86,008 and a teaching staff of 3,482. In the elementary schools about one student in four was a Negro; in the higher schools about one student in seven was a Negro.

The Catholic school enrolment for the entire state was 46,975 white and 2,033 Negro with the total 49,008. The enrolment in non-Catholic private schools was 8,099 white and 75 Negro, with the total 8,174. The state superintendent of schools in 1945 was Dr. Thomas G. Pullen, Jr., whose four-year term of office was to expire in 1948.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—During June 1945, old-age assistance was extended to 11,556 persons (cost, fiscal year ending June 30, 1945, \$3,838,000); 438 needy blind persons were assisted (cost fiscal year, \$161,000); 2,875 families received assistance for the care of dependent children (cost, fiscal year, \$1,247,000). Unemployment compensation benefits paid during the fiscal year 1944-45 amounted to \$803,000. Those paid during the calendar year 1945 were reported as follows: prior to V-J day \$745,546; after V-J day \$8,921,926; total, \$9,667,472.

**Correctional institutions and the number of inmates on Oct. 16, 1945, were as follows:** Maryland penitentiary (1,202); Maryland house of correction (1,050); Maryland state reformatory for males (471); Maryland state reformatory for women (190). Four institutions were maintained for juvenile delinquents, white and Negro, girls and boys; total number of inmates, 768.

**Communication.**—During the fiscal year July 1, 1944, to June 30, 1945, the state roads commission expended \$12,213,929. The total mileage of roads in the state highway system was 4,419; in the county systems approximately 12,000; total 16,419. At the close of the year the total mileage of line-haul steam railroads was 1,368; of switching and terminal companies, 115; of electric railways (inter-urban), 71. The state aviation commission reported 24 licensed commercial airports, 3 licensed private airports and 8 military airports. As of Sept. 30, 1945, there were 292,117 telephone subscribers. The total number of instruments in use was 403,534.

**Banking and Finance.**—As of June 30, 1945, the state bank commissioner reported 111 state banks and trust companies with total deposits of \$938,868,259 and total resources of \$1,000,395,852 and ten mutual savings institutions with deposits of \$324,350,679 and resources of \$364,446,060. On the same date there were 63 national banks with deposits of \$785,527,000 and resources of \$830,674,000. The resources of all banking institutions, state and national in Maryland on June 30, 1945, totalled \$2,195,516,000. State appropriations for the year ending June 30, 1945, were \$50,259,067; expenditures, \$73,482,881; gross debt, \$25,098,000; net debt, \$22,327,079; general fund surplus, \$13,416,025.

**Agriculture.**—The farm value of the principal crops for the crop year 1944-45 was \$87,559,000 compared with \$107,146,000 for 1943-44. During the first 8 months of 1945, livestock and livestock products brought a total of \$66,785,000, as compared with \$66,182,000 during the corresponding period in 1944.

Table 1.—Leading Agricultural Products of Maryland, 1945 and 1944

	1945	1944		1945	1944
Barley, bu.	1,918,000	2,174,000	Potatoes, bu.	2,108,000	1,824,000
Corn, bu.	16,872,000	17,150,000	Tomatoes,		
Oats, bu.	960,000	1,170,000	market, bu.	832,000	1,152,000
Wheat, bu.	6,864,000	8,906,000	Tomatoes,		
Tame hay, tons	588,000	486,000	processing,		
Tobacco, lb.	21,600,000	32,160,000	tons . . .	119,000	330,000

**Manufacturing.**—For Aug. 1945, the Maryland commissioner of labour and statistics reported on 639 manufacturing establishments, employing



174,353 persons, whose combined weekly earnings were \$7,986,993; average weekly earnings in manufacturing industries, \$45.80; average hours worked per week, 44.8.

Mineral Production.—The latest figures available in 1945 on mineral production are shown in Table II.

Table II.—Leading Mineral Products of Maryland, 1944 and 1943

	1944	1943
Bituminous coal (net tons) . . . . .	1,875,804	1,933,380
Fire clay (net tons) . . . . .	81,605	142,309

Oysters.—The commercial catch of oysters in Maryland waters during the season 1944-45 totalled 2,436,133 bu. compared with 2,451,194 bu. during the season 1943-44. (E. GN.)

**Mascagni, Pietro** (1863-1945), Italian composer, was born Sept. 7, in Leghorn. His world-famous *Cavalleria Rusticana*, first produced in Rome in 1890, was an instantaneous success and launched a new school of musical writers known as the Italian verists. Most of Mascagni's later operas were, however, poorly received by audiences at home and abroad. He composed *L'amico Fritz* (1891), *I Rantzau* (1892), *Guglielmo Ratcliff* and *Silvano* (1895), *Zanetto* (1896) and *Iris* (1898), which ranked next to *Cavalleria* in popularity. In 1901, his opera *Le Maschere* was introduced in seven Italian cities at once; but the premieres were hissed at in five cities, stopped in one and won only a lukewarm reception in Rome. *Amica* was produced in Monte Carlo in 1905; later came *Isabeau* (1911), *Parisina* (1913), *Lodoletta* (1917), *Il Piccolo Marat* (1921) and his last opera *Nerone* (1935). The last two years of Mascagni's life were spent in seclusion in Rome, where he died Aug. 2. (See *Encyclopædia Britannica*.)

**Masella, Benedetto Aloisi** (? - ), Titular archbishop of Cesarea of Mauritania and apostolic nuncio to Brazil, was born at Pontecorvo, Italy, and entered the diplomatic service of the holy see as a young priest.

Although of Italian birth, Archbishop Masella is better known outside his native country, having spent 35 years of his priestly career in other lands. He served as chargé d'affaires to the Lisbon nunciature from 1910 to 1919, and was named nuncio to Chile in 1919, serving to 1927 when he was named apostolic nuncio to Brazil.

One of the senior papal diplomats, his excellency is held in high esteem in appreciation of a lengthy and brilliant career of service to the church.

He was nominated cardinal by Pius XII on Dec. 23, 1945, and was created and proclaimed a cardinal at consistory on Feb. 18, 1946.

**Masonic Fraternity.** While giving full recognition to the social services performed and supported by the fraternity, the enduring values of the real vitality of the craft are spiritual. The significance of the spiritual essence and ideals of Masonry is delicately high-lighted for 1945 in a scholarly paper entitled, "Freemasonry and the Idea of Natural Religion," which appeared in vol. 56, part I of the 1945 *Transactions* of the famous Quatuor Coronati Lodge of Research of London. The authors, Douglas Knoop and G. F. Jones, aimed in this paper to examine the historical context of the first charge in the celebrated Anderson constitutions of 1723, which charge is headed, "Concerning God and Religion." The subject is treated with heuristic skill, tact, fine discrimination and masterly impartiality. The paper is highly recommended to all Masons and should prove of much interest to the general reader.

With the termination of World War II in Europe the U.S. Masons were anxious to learn as quickly as possible the true condition of the craft in Europe. Accordingly, the Masonic Service Association of Washington appointed, by and with the

consent and approval of the president who is a Mason, a committee of four prominent Masons to visit Europe in August and September for the purpose of making a survey of the conditions of Masonry and Masons in Europe, as well as to make recommendations how U.S. Masons might and could help their brethren on the continent. One member of this committee was Dr. Charles H. Johnson, grand secretary of the grand lodge of New York. On Nov. 20, 1945, in an adjourned session of this grand lodge, Dr. Johnson read a concise report of the work and findings of this committee. The countries visited were England, France, Belgium, the Netherlands, Denmark, Norway, Sweden, Italy, Czechoslovakia, Finland and Greece. With the exception of Sweden, the destruction of Masonic buildings, property and records was appalling. The saddest story of all was the Netherlands'. The once beautiful grand lodge building in Amsterdam was a fire scarred shell. The grand master and the grand secretary were tortured.

The fine Masonic library, considered by many one of the best in the world, disappeared. Not even a Masonic apron was left. The situation was similar in Finland and Greece. Dr. Johnson expressed high admiration for the fortitude of the continental Masons and their cheerful determination to rebuild mainly by their own efforts and labours. This committee recommended that the Masons of the U.S. raise a fund of \$150,000 to be used for the benefit of the Masons of Europe. The grand lodge of New York agreed to contribute one-tenth of this amount, \$15,000. (E. R. CK.)

**Massachusetts.** A north Atlantic state of the U.S.A., admitted to the union Feb. 6, 1788. Known as the "Bay state." Area 8,257 sq.mi., including 350 sq.mi. of inland water; population (1940) 4,316,721 (1945 est., 4,493,281); population of principal cities (1945 est.), Boston 766,386; Cambridge 111,124; Fall River 115,062; Lowell 101,229; Lynn 105,153; Worcester 198,741; Springfield 159,896. Registered voters in 1945 totalled 2,320,081.

**History.**—The principal officers of the state in 1945 were: governor, Maurice J. Tobin (Dem.); lieutenant governor, Robert F. Bradford (Rep.); senator, Leverett Saltonstall (Rep.); secretary of state, Frederic W. Cook (Rep.); attorney general, Clarence A. Barnes (Rep.); treasurer, John E. Hurley (Dem.); auditor, Thomas J. Buckley (Dem.).

The 1945 session of the general court voted to pay the state's more than 500,000 veterans of World War II a \$100 cash bonus; voted \$15,000,000 for expansion of Logan International airport at East Boston, voted \$15,000,000 for development of the port of Boston and authorized establishment of a new port authority with sweeping powers. The legislature also approved a six-year highway program which was to cost approximately \$153,000,000. On recommendation of Governor Tobin the legislature set up a special recess commission to study the advisability of having a state department of commerce. This commission, headed by former ambassador to Great Britain, Joseph P. Kennedy, strongly recommended to the 1946 legislature that such a department be established with an initial annual appropriation of \$1,000,000. A distinguished committee headed by Governor Tobin and including Dr. Karl T. Compton, president of Massachusetts Institute of Technology, flew to London in Nov. 1945 to make a bid for selection of Boston as the permanent home of the United Nations organization.

The net direct debt of the state on July 1, 1945, first day of the state's fiscal year, was only \$4,593,775. The state's 39 cities and 312 towns were for the most part in strong financial condition, having built substantial surpluses during the war years when capital outlays could not be made. The combined debt of the state's cities and towns at the close of the 1944-45

fiscal year stood at approximately \$170,000,000. This was a drop of \$146,484,599 from the 1932 peak of \$316,484,599.

**Education.**—In 1945 Massachusetts communities maintained 1,771 elementary school buildings, with 34,403 pupils and 13,446 teachers; 177 junior high school buildings, with 86,734 pupils and 3,939 teachers; 276 senior high school buildings, with 128,370 pupils and 6,441 teachers.

The state department of education was headed by Commissioner Julius E. Warren. Under the general supervision of this department were nine teachers' colleges, located at Bridgewater, Framingham, Westfield, Salem, Worcester, Fitchburg, North Adams, Barnstable and Lowell; State College at Amherst; the Massachusetts School of Art, Boston; three textile schools at Fall River, Lowell and New Bedford; the Massachusetts Maritime academy at Hyannis.

Under the direction of the department of education facilities were provided at the teachers' colleges whereby veterans whose high school courses were interrupted by the war might complete them in schools where they would be associated with students nearer their own age.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—During the year ending June 30, 1945, the six major forms of relief operated by the state were: old age assistance, average number of cases 75,406, total payments of \$37,747,027; aid to dependent children, average number of children 17,443, total payments \$6,627,726; general relief, average cases 12,683, total payments \$4,918,539; child guardianship, average cases 8,037, total payments \$2,442,431; unemployment compensation, average cases 14,394, total payments \$2,699,099; aid to the blind, average cases 929, total payments \$485,612.

The five state correctional institutions in 1945 included the state prison at Charlestown; the Norfolk prison colony; the Concord reformatory (for men); the reformatory for women at Framingham; the state farm, Bridgewater. The 1945 legislature appropriated funds for the drafting of plans for a new state prison to replace the antiquated and often condemned institution at Charlestown.

Massachusetts became the first state to sponsor a blood plasma service for its residents. This program was being developed by the department of public health.

**Communications.**—Construction of highways was stopped by World War II, but in 1945 there were 23,516 mi. of highways of which more than 17,000 were rural. Railroad mileage in operation in 1945 was 4,200 including sidetracks and privately owned industrial track. There were 1,103,525 telephones in use in 1945.

**Banking and Finance.**—Of the 1,114 banking institutions as of June 30, 1945, 190 were savings banks, 184 co-operative, 66 trust companies and 459 credit unions. In addition there were 124 national banks and 26 federal savings and loan associations.

**Agriculture.**—Gross income of agriculture production in 1944 was \$156,585,000, of which \$53,171,000 was from crops, \$95,822,000 from livestock and \$5,592,000 from government payments.

Table I.—Leading Agricultural Products of Massachusetts, 1945 and 1944

Crop	1945	1944
Hay, tons . . . . .	588,000	412,000
Tobacco, lb. . . . .	8,460,000	9,381,000
Potatoes, bu. . . . .	2,788,000	3,120,000
Corn, bu. . . . .	1,634,000	1,763,000
Cranberries, bbl. . . . .	470,000	153,000
Crop acreage . . . . .	432,800	433,710
Total value, all crops . . . . .	\$39,901,000	\$35,593,000

**Fishing.**—In 1944 the produce of the Massachusetts fisheries was valued at \$50,000,000. For the second successive year Gloucester surpassed Boston in the number of pounds of fish landed. The Gloucester total was 188,661,349 lb., compared with 144,119,742 at Boston. New Bedford was the state's third largest fishing centre, with 74,935,719 lb. landed in 1944. The development of quick-freeze and the possible transportation of both fresh and frozen fish by air opened up vast new markets for Massachusetts fisheries, which were expected to boom in the immediate postwar period.

**Manufacturing.**—Value of products produced in Massachusetts factories and mills in 1943 was \$6,249,656,177 compared with \$2,753,147,104 in 1940, the last prewar year.

Table II.—Principal Industries of Massachusetts, 1943 and 1940

Industry	Value of products 1943	1940
Electrical machinery . . . . .	\$698,645,382	\$150,792,396
Woollen and worsted . . . . .	471,510,385	223,905,247
Boots and shoes (other than rubber) . . . . .	237,351,056	137,607,328
Cotton goods . . . . .	217,023,888	99,211,503
Foundry and machine shop products . . . . .	269,150,321	87,810,556

There were 8,630 industrial establishments in 1943 compared with 8,928 in 1940, and the wages paid all industrial workers totalled \$1,473,663,654 in 1943 compared with \$586,440,585 in 1940. The average number of wage earners employed in 1943 was 711,727 compared with 492,675 in 1940. (M. J. To.)

## Massachusetts Institute of Technology.

During 1945, the institute carried on war research and development work under 115 contracts, of which approximately 2% were with industrial firms and 98% with government agencies.

The institute's financial operations during its fiscal year 1944-45 totalled about \$50,000,000 as compared with prewar annual expenditures of about \$4,000,000. The war activities of the institute had required addition to its educational and research

plant of 450,000 sq.ft. of floor space by new construction and 260,000 sq.ft. by rental.

To meet conditions created by the war and to co-ordinate with the army and navy college training programs, the institute's academic program for all students remained on a three-term, year-round basis adopted in 1943. Total student enrolment in full-time professional courses fluctuated during the war years, and in 1945 was about two-thirds of the prewar normal. In addition, numerous units of army and navy personnel were assigned to the institute to take special short-term technical programs. New freshmen classes of approximately 600, the normal prewar quota, were admitted each year; to accommodate returning veterans, the freshman quota was increased to 900 for the immediate postwar years. (For statistics of enrolment, endowment, faculty members, etc., see UNIVERSITIES AND COLLEGES.)

(K. T. C.)

**Material Coordinating Committee (U.S. and Canada):**  
see CANADIAN-U.S. WAR COMMITTEES.

**Mathematics.** The preoccupation of mathematicians with war work continued through most of 1945; the effects of the ending of World War II had hardly become noticeable before the end of the year. Although many mathematicians were released from war research, there had not been time for them to publish very much individual work. Others were still engaged in compiling definitive accounts of progress made in technical projects during the war and in revising for publication material which had formerly been confidential. Mathematical meetings were resumed and were well attended. A conference on mechanical methods of computation, held in Cambridge, Mass., in October, and attended by mathematicians from both sides of the Atlantic, attested to the interest in mechanized mathematics which had been stimulated by the necessity of obtaining numerical solutions of complicated problems. The first Canadian Mathematical congress was held in Montreal in June. The American Mathematical society's annual colloquium lectures were delivered by Tibor Rado (Theory of Length and Area).

With the end of World War II, publications from the European continent began to reach other countries more freely, and it became apparent that considerable mathematical work had been accomplished during the German occupation in Belgium, Denmark, France, the Netherlands and Norway. On the other hand, mathematical publication came to a complete standstill in Germany. By the end of the year 1945, mathematical research had been resumed in Poland, once one of the most mathematically active countries, though a large proportion of the prominent Polish mathematicians had died after 1939. A large number of mathematical publications continued to be received from Russia, where some fields of applied mathematics continued to be particularly active.

Few advanced mathematical books were published during the year. E. H. Neville's *Jacobian Elliptic Functions* (dated 1944) treated a classical subject, generally neglected, from a fresh point of view in an attempt to give it new life. J. E. Littlewood's *Lectures on the Theory of Functions* provided a highly individual treatment of special topics in the subject. *Mathematical Cuneiform Texts* by O. Neugebauer and A. Sachs was an outstanding contribution to the history of mathematics.

Considerable interest was attracted by developments in mathematical statistics. Many new results (particularly in the field of quality control) which had been confidential during the war, became available to the general mathematical public. Among individual papers which attracted notice in 1945 should be mentioned those (dating in part from 1944) in two different

branches of the theory of numbers: by L. J. Mordell and his associates in England (geometry of numbers); by U. Linnik in Russia (theory of prime numbers). Well known problems which had been open for several years were solved by P. R. Halmos (theory of measure-preserving transformations), R. P. Dilworth (theory of lattices) and R. Brauer (theory of group representations). Progress in the theory of groups of transformations was achieved by D. Montgomery and S. Bochner. A number of competing theories of the origin of the solar system attracted attention among students of mathematical astronomy (H. Alfvén, C. F. v. Weizsäcker, F. Hoyle).

**BIBLIOGRAPHY.**—A complete bibliography of papers in pure and applied mathematics is given in the abstracting journal *Mathematical Reviews*, vols. 6 and 7 (1945 and 1946). (R. P. Bo.)

**Maurice and Laura Falk Foundation, The:** see SOCIETIES AND ASSOCIATIONS.

**Mauritania:** see FRENCH COLONIAL EMPIRE.

**Mauritius:** see BRITISH EAST AFRICA.

**Meat.** The production of all meats in the United States in 1945 was estimated by the U.S. department of agriculture at 22,600,000,000 lb. which was slightly less than the record production of 24,648,000,000 lb. in 1944 but far above the average of 16,182,000,000 lb. for the prewar period 1935-39. The decrease was due to a reduced slaughter of hogs, calves and sheep. The total pig crop of 1945 was estimated at 86,987,000 or about 200,000 more than in 1944. The early part of this crop came to market in late months of the year but the total meat production was sustained by the larger cattle production of 1943 and 1944. Veal, lamb, mutton and pork began to decline in 1944 and this decline continued through 1945. Beef production increased 10% from 1944, veal declined 2%, lamb 1% and pork 22%. When the decline in hogs took effect meat supplies became tight, as 20% of the supply was taken by the armed forces and 5% for the Allies. Civilians consumed only 130 lb. of meat per capita compared with 150 lb. in 1944 and 126 lb. average 1935-39. The shrinkage from 1944 to 1945 became so acute in many localities as to encourage unofficial or "black" markets. The government set up slaughter quotas for noninspected slaughters and otherwise opposed the illegal practices. With the end of World War II military purchases were immediately curtailed and rationing discontinued. In late fall, however, set-aside orders were reinstated to get meat for the government relief agencies to ship abroad. Meat-animal production increased steadily after 1939 from a total of about 34,000,000,000 lb. live weight to the record of 46,300,000,000 lb. in 1943. The total then dropped to about 40,000,000,000 lb. in 1945. Most of this increase during the World War II period was due to the expansion of hog raising from about 17,000,000,000 lb. in 1940 to 25,500,000,000 lb. in 1943. The increase in beef was much smaller, from 15,100,000,000 lb. in 1939 to 19,000,000,000 lb. in 1944 due to the longer time required to raise the animals for market. The relatively large feed supplies on hand at the beginning of the war, together with the large crops of corn, made it possible to produce this great increase in meat to supply the war's demand.

The price of meats as a whole did not advance markedly during 1945, the average being less than in 1943. In the black market prices were unrecorded. Prices of meat animals as sold by farmers were only slightly above the level of 1944. The farmer's share of the consumer's dollar spent for meat was about 80% for beef, 59% for lamb and 77% for pork.

The goal for 1945 was set at 11,600,000,000 lb. of beef and veal, which with the expected production of 10,600,000,000 lb. pork and 820,000,000 lb. lamb and mutton would make about 150 lb. of meats per capita for total civilian consumption. The



TINS OF MEAT being prepared for shipment to Europe through U.N.R.R.A., at the Swift Canadian Company plant in Toronto, Canada

lamb and mutton goal was 20% below that of 1944 since the sheep industry had to be able to hold more breeding animals to check the decline that began in 1942. Beef production, on the other hand, might be increased since there were ample pas-

Livestock Slaughter in Plants under Federal Inspection (January to September, inc.), 1945 and 1944

	1945 head	1944 head
Hogs . . . . .	28,743,000	53,873,000
Sheep and lambs . . . . .	15,624,000	15,691,000
Cattle . . . . .	10,429,000	9,899,000
Calves . . . . .	4,813,000	5,307,000

tures and other feeds, some being available where horses were disappearing. (See also BACON; CATTLE; HOGS; LIVESTOCK; POULTRY; PRICE ADMINISTRATION, OFFICE OF; SHEEP.)

(J. C. Ms.)

**Medals:** see DECORATIONS, MEDALS AND BADGES—MILITARY, NAVAL AND CIVIL.

**Mediation Board, National:** see NATIONAL MEDIATION BOARD.

**Medical Association, American:** see AMERICAN MEDICAL ASSOCIATION.

**Medicine.** Striking in the medical advances of 1945 in the United States were discoveries related to the use of antibiotic drugs, new discoveries in chemical warfare against disease, outstanding research on nutrition and the glands and, finally, new surgical procedures for the saving of life in conditions formerly considered incurable.

**Antibiotics.**—The amazing virtues of streptomycin were established by its use in conditions not favourably affected by penicillin or tyrothricin. Apparently streptomycin is especially useful against infections with gram-negative germs like those that produce infection in the kidneys, so that Dr. Henry F. Helmholz of the Mayo clinic, Rochester, Minn., considered streptomycin the most important drug yet discovered for the treatment of infections of the kidney. Continued research showed also effectiveness in some cases of ulcerative colitis, tularaemia and undulant fever.

New uses for penicillin included its administration by mouth, requiring three to five times the dose as when the drug is given by injection. Effectiveness against gonorrhoea and infections in the nose and throat was established. Also new was the administration of penicillin by inhalation, using an especially built



vaporizer. Pastilles or lozenges made with penicillin were found useful in treatment of infections of the throat by germs sensitive to penicillin including the germ of Vincent's infection or trench mouth, septic sore throat and diphtheria.

Other antibiotics tested were a derivative of the *Bacillus subtilis* called subtilin, which was being tried in tuberculous infections. A similar product called bacitracin was found to be effective against the same germs that are affected by penicillin. Such antibiotics were much cheaper than either streptomycin or penicillin and would be useful particularly as wound dressings.

Finally, experiments continued toward the development of new antibiotics or other moulds such as *Aspergillus* yielding aspergillin, also clavacin and patulin, and the French announced an antibiotic derived from mushrooms.

**Chemical Warfare Against Disease.**—Among the new discoveries which attracted great attention in 1945 was tridione, a remedy especially effective against some forms of epilepsy and other convulsive disorders. Reports from several clinics confirmed its benefits.

Benadryl was reported useful in certain allergic manifestations such as asthma, urticaria, hay fever and food sensitivity.

Thiouracil was proved beneficial for the treatment of excessive activity of the thyroid gland as in hyperthyroidism, but apparently a high degree of sensitivity to the drug prevails. Such sensitivity is manifested by the temporary loss of the white blood cells. To protect users against infection investigators suggested simultaneous administration of penicillin.

A combination of undecylenic acid (2%), zinc undecylenate (20%) and ordinary talcum powder was proved the best preventive powder against the fungus infection commonly called athlete's foot.

An emulsion for eliminating lice and nits was developed including 5% isobornyl thiocanoacetate and six-tenths of 1% of dioctyl sodium sulfosuccinate. Tried on almost 1,500 people, it eliminated lice and nits completely in 90% with one application and in the remaining 10% with two applications.

The chemical warfare service of the government reported that a by-product of mustard gas which acted directly on basic tissues which produce white blood cells was capable of use against diseases like leukaemia and Hodgkin's disease in which there is an enormous increase of such cells. This product was still in an early experimental stage in 1945.

A new drug for "sick headache" somewhat like ergotamine tartrate was found useful in cases of migraine. While of a similar character, it was claimed to be less toxic.

Investigators reported that people with uncomplicated gastric ulcers were cured by being fed neutralized, filtered and preserved gastric juice of normal people. Another group of investigators reported success against gastric ulcer with feeding mixtures of the amino acids which are the basic constituents of proteins.

Curare, the South American snake poison, was developed as an extract in pure form, called intocostin and used to control muscle spasms in infantile paralysis and in spastic paralysis and also as a preliminary to anaesthesia in bringing about maximum relaxation before surgical operation.

**Biologic Remedies.**—A vaccine was developed against the virus A and B of influenza and was tried first by injection into 8,000,000 members of the United States army. Demonstration of its usefulness preceded release of the product for use by the public.

Vaccines consisting of killed germs were found effective in control of outbreaks of whooping cough.

The American Red Cross, which had previously purchased and distributed for free use by the U.S. public all of the gamma

globulin developed through the collection of blood at blood banks, followed the procedure by purchasing all of the surplus blood plasma also to be distributed through state health departments for use without cost by all of the people of the United States. The blood plasma purchased in 1945 was considered to be sufficient for two years. Co-operation of the American Red Cross with medical societies, hospitals and health departments provided for continuing the blood procurement centres under the auspices of the American Red Cross.

**Epidemiology.**—By the use of DDT in sprays and in widespread dissemination by the use of aeroplanes great areas were freed from the menace of the anopheles mosquito that carries malaria and from flies which are known to be carriers of various forms of infection.

Studies made by the health departments in Chicago, Ill., and by investigators of the University of Buffalo School of Medicine in Buffalo, N.Y., established the fact that infantile paralysis is spread in the vast majority of cases—more than 96%—by direct contact of the person who is infected with someone who carries the infection. Many cases of infantile paralysis never become paralyzed. In the Chicago epidemic only one out of six of those infected became paralyzed. Careful diagnosis and the use of spinal puncture establish the presence of infection. This proof indicated the uselessness of widespread campaigns against flies, mosquitoes and various insect vectors of disease as a means of controlling infantile paralysis.

Conspicuous among new infections becoming widespread in 1945 was infectious hepatitis formerly called chronic catarrhal jaundice. This condition can be transferred through the injection of infected blood and through contaminated drinking water as well as in other ways. Apparently the disease is caused by a virus. Gamma globulin injected in those who have been exposed prevents the development of the disease.

Investigations showed pigeons and other birds frequently to be carriers of a condition called ornithosis, similar to the disease called psittacosis or parrot fever and to atypical pneumonia. Epidemiologists felt that pigeons were not the direct cause of the spread of outbreaks of pneumonia but persons who care for pigeons are frequently infected with ornithosis.

**Surgery.**—A small percentage of babies are born with an anomalous condition of the heart and the circulation of the blood so that an adequate amount of blood does not go through the lungs and receive oxygen. These children become "blue babies." Drs. Alfred Blalock and Helen B. Taussig at Johns Hopkins Hospital, Baltimore, Md., developed a surgical technique for rerouting the blood so as to get a sufficient amount through the lungs. They operated on three children with severe degrees of cyanosis or blueness and brought the condition completely under control, permitting normal development. In the operation one of the large systemic arteries is connected to one of the large arteries that goes to the lungs. Cases were brought to Johns Hopkins from all over the United States—in some instances with funds raised by newspaper campaigns.

A new approach to the prostate gland adds a fourth technique to those already used for removal of this structure when it becomes enlarged or cancerous. The technique is called the retro-pubic extravesical technique, meaning that the approach is from the back of the lower portion of the body and that the operation stays outside the urinary bladder.

In operations on the gall bladder reconstruction of the tubes that carry the bile from the gall bladder to the intestines was improved by the use of artificial metal tubes of vitallium. The bile duct is reconstructed over the vitallium tube. After healing occurs, the tube passes on into the intestine and from there is passed out of the body.

In addition to blood banks where blood is stored in advance

for use against disease, banks were developed for keeping on hand under refrigeration the cornea of the eye and pieces of nerves that are used in nerve grafts. British surgeons also proposed the establishment of skin banks where skin can be kept for use in skin grafting.

War experience greatly improved surgery on the oesophagus. Operations were performed chiefly for cancer. Many surgeons reported mortalities under 20% whereas mortality in 1941 was more than 50%. Improvement in surgical technique was brought about by improvements in anaesthesia and in the technique of repair, also in preoperative and postoperative treatment.

New advances in plastic surgery emphasize flaps of skin taken from the neighbourhood of the defect and transplantation of skin from remote areas of the same person. A method was developed for tattooing skin grafts with pigments so that they blended with the surrounding skin. Refrigeration of skin grafts makes them available for a long time. Application of thrombin and fibrin foam derived from whole blood helps to promote the attachment of the skin graft to its new location. (See also SURGERY.)

**Vitamins.**—While new vitamins were not announced in 1945, new uses for old vitamins were frequently reported. A portion of the vitamin B complex, para-amino benzoic acid (called BAB) was found useful in the treatment of tsutsugamushi fever, also known as scrub typhus, which affected great numbers of U.S. soldiers in the orient.

A mixture of vitamins derived from the vitamin B complex was found useful in the treatment of diabetes because of the special virtues of these derivatives in oxidation of sugars.

The vitamin contents of many commonly used foods were carefully checked. Strawberries were found to have four times as much vitamin C as red raspberries and five times as much as blackberries. Beer was discovered in Great Britain to be a good source of nicotinic acid and British nutritionists said that a luncheon of bread, cheese, milk and beer together with water cress made a fairly balanced meal, at least as far as vitamins were concerned.

Folic acid, derived from the vitamin B complex, was reported to be deficient in the diet of patients with certain forms of anaemia in which the red blood cells do not develop properly.

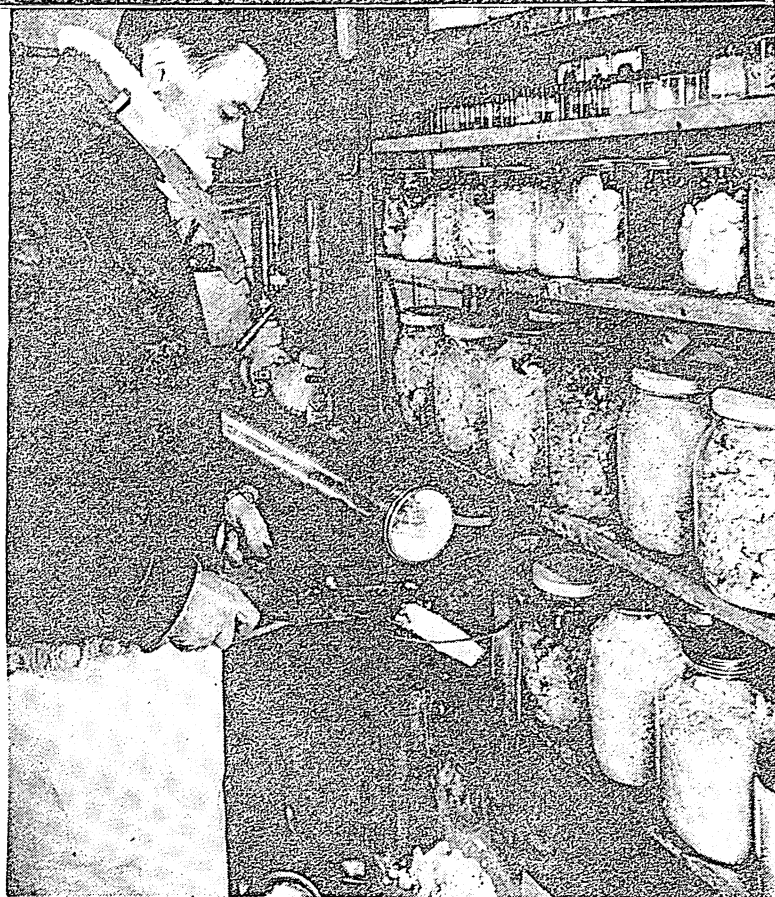
Severe deficiencies of vitamin A in the diet cause changes in the cells on the outer surfaces of the skin, replacing the ordinary cells with hardened material of the type seen in fingernails and in calluses. Similar changes occur in the tissues of the eye and in the membranes lining the stomach, intestines and breathing tract. One of the factors of safety in the human body is demonstrated by the fact that the signs of vitamin A deficiency may be delayed by increasing the amount of vitamin B complex in the diet.

Physicians in a large lying-in hospital reported that the regular use of fairly large doses of vitamin E by women in the menopause helped to reduce the serious symptoms in a manner similar to that of the estrogenic hormones.

Vitamin C was also found to be important in the rate of healing of wounds so that healing was much slower in the presence of vitamin C deficiency.

Vitamin C seems to help maintain the level of the white blood cells and of the platelets in the blood. (See VITAMINS.)

**Cancer.**—Development of atomic energy was considered theoretically in relation to the control of cancer. By the use of atomic energy radioactive isotopes are prepared which can circulate directly to certain tissues of the body and carry radioactivity to these tissues. Thus radioactive iodine is carried to the thyroid gland; other radioactive substances to the liver or the spleen; still others directly to the bone marrow. Such radio-



PRODUCTS of fractionated human blood, stored in a cold-room at Harvard medical school. Already found useful for coagulation in surgery and as a control for shock, these products were explored in 1945 for further medical applications

activity can unfavourably affect the growth of cancer cells.

One of the new B vitamins, folic acid, was said to be active against spontaneous cancers in studies made on mice.

Surveys of cancer made in several large cities proved that great numbers of women die unnecessarily from cancer of the breast because of delay in coming to the attention of hospitals or clinics where competent surgical or radioactive treatment may be applied.

A grant of \$4,000,000 was given by Alfred Sloan and Charles Kettering of the General Motors corporation to establish the Sloan-Kettering Institute for Cancer Research in the Memorial hospital of New York city.

Control of cancer of the lung by surgery was greatly improved in 1945. Out of 75 cases of complete removal of the lung by surgery, 70 operations were done because of cancer. There were 21 deaths or a mortality of 30%, whereas formerly all would have been fatal.

All of the antibiotic remedies were tested against cancer and found to be without special benefit.

Cancer of the prostate gland and cancer of the testicle in man were apparently benefited by the giving of the female sex hormone. Similar experiments were tried in cancer of the breast and of the ovary in women, giving the male sex hormone.

A high degree of recovery in cancer of the throat by the use of radiation indicated great improvement in this method of treating cancer. Formerly, almost all such cases were considered fatal. The technique depends on special devices for administering radiation, on the proper selection of cases, and on the use of adequate amounts of radioactivity.

Cancer of the stomach, considered among the most fatal of all forms, was progressively overcome by utilizing new techniques for early diagnosis. Among 28 persons who were diagnosed as having cancer of the stomach and who refused operation, all were dead in three years. Among 141 people who had a diagnosis of cancer of the stomach with removal of portions of the stomach by operation, more than 27% were alive after

five years and almost 19% after eight years. (See also CANCER.)

**Venereal Diseases.**—Great progress was made in the control of syphilis by new methods of treatment using penicillin, bismuth, arsenical preparations and heat. Combined methods indicate the disease can be brought completely under control, certainly rendered noninfectious, in nine days. Gonorrhoea is cured completely in 24 hours in more than 98% of cases by injections every three hours of adequate amounts of penicillin.

For the first time complete elimination of venereal diseases, as typhoid fever and diphtheria have been controlled, appears possible. (See VENEREAL DISEASES.)

**Neuropsychiatry.**—New diagnostic techniques revealed neuropsychiatric cases as the maximum health problem in the post-war period. The Veterans' administration proposed to approach the problem by training great numbers of neuropsychiatrists and by the establishment of ambulatory diagnostic and therapeutic clinics. Methods of investigation included hypnosis and hypno-analysis of the causative factors, utilizing sedative drugs of the barbituric acid series, as well as active hypnotism, to put the patient into a mental state in which he reveals the causes of his mental disturbance.

**Roentgenology.**—Mass studies with the X-ray proved the usefulness of this method for determining the presence of tuberculosis. The value of the method was questioned because of a certain percentage of instances in which the diagnosis with the X-ray made a diagnosis of tuberculosis suggested but not certain. In the midwest portions of the United States apparently many people when young had a condition called histoplasmosis which leaves changes in the lungs which when observed by the X-ray seem to be those of tuberculosis.

The Nobel prize in medicine in 1945 was awarded to Sir Alexander Fleming, Sir Howard Walter Florey and Dr. Ernst B. Chain of Great Britain who did the fundamental work in developing the use of penicillin as an antibiotic remedy. (See also ALLERGY; ANAESTHESIA; BACTERIOLOGY; BIOCHEMISTRY;

BIRTH CONTROL; CANCER; CHEMISTRY; CHEMOTHERAPY; DIETETICS; DRUGS AND DRUG TRAFFIC; ENDOCRINOLOGY; EPIDEMICS AND PUBLIC HEALTH CONTROL; HOSPITALS; INDUSTRIAL HEALTH; MUNITIONS OF WAR; NERVOUS SYSTEM; PHYSIOLOGY; TUBERCULOSIS; UROLOGY; VETERINARY MEDICINE; X-RAY. Also see articles on specific diseases.)

**BIBLIOGRAPHY.**—"Bacitracin, a New Antibiotic," Editorial, *J.A.M.A.*, 129:953-954 (Dec. 1945); A. E. Casey, W. I. Fishbein and H. N. Bundesen, "Transmission of Poliomyelitis by Patient to Patient Contact," *ibid.*, 129:1141-1146 (Dec. 1945); S. B. Gusberg, "Androgen Therapy of Menopausal Symptoms in Cancer Patients," *Am. J. Obst. & Gynec.*, 50:502-509 (Nov. 1945); L. M. Morrison, "Peptic Ulcer Disappearance After Feedings of Normal Human Gastric Juice," *Am. J. Digest. Dis.*, 12:323-327 (Oct. 1945); L. A. Peer, "Contributions to Plastic Surgery During 1944," *Arch. Otolaryng.*, 42:56-79 (July 1945); K. H. Pfuetze, "Present Status of Chemotherapy in Tuberculosis from the Clinical Standpoint," *Dis. of Chest*, 11:220-226 (May 1945); M. L. Smith, E. M. Bridge, H. E. Underwood and G. E. Dale, "A Study of the Origin of an Epidemic of Poliomyelitis," *J.A.M.A.*, 129:1150-1156 (Dec. 1945); T. D. Spies, C. F. Vilter, M. B. Koch and M. H. Caldwell, "Observation of the Anti-Anemic Properties of Synthetic Folic Acid," *South. M. J.*, 38:707-709 (Nov. 1945); "Studies on Streptomycin in Man," Editorial, *J.A.M.A.*, 129:1098 (Dec. 1945); "Vaccination Against Influenza," Editorial, *ibid.*, 129:619-620 (Oct. 1945); H. N. Vermilye, "Aerosol Penicillin in General Practice," *ibid.*, 129:250-257 (Sept. 1945); E. de Jesus Zerbini, "The Importance of Ascorbic Acid (Vitamin C) in Chest Surgery," *J. Thoracic Surg.*, 14:309-321 (Aug. 1945). (M. Fr.)

**Military Medicine, U.S.**—More effective treatment of casualties from amphibious operations and further control of insect-borne diseases were the most notable advances in military medicine during 1945. Following large scale landings in continental Europe and later in New Guinea, the Philippines, Okinawa and other Pacific islands new techniques were developed that made it possible to provide satisfactory medical care as soon as the first troops secured the beach. Field medical personnel were attached to assault troops and followed them during the landing. Few medical supplies were taken, as it was found that when large amounts were allocated to the initial attack units, there were considerable losses of materials. Plasma, bandages, dressings, morphine syrettes, medicines and instruments that could be carried by hand were all that could be reasonably supplied to medical units during the early phases of the amphibious operation. When large amounts of plasma or whole blood were carried on stretchers from the boats to the aid stations, they were often lost in the surf. Medical officers found bags or haversacks useful in bringing up supplies of plasma. In favourable situations blood could be carried forward in the original containers.

Large stores of blood and plasma were invaluable aids in the initial treatment of casualties on the beaches. Universal donor blood or type "O" was most satisfactory, especially if it had an agglutination titre of less than 1 to 64. Troops and ships' complements were always willing to donate blood prior to combat, thus ensuring an adequate supply of fresh whole blood. In the U.S. three donor centres at Boston, New York and Washington provided about 1,000 pints of group "O" blood daily to the European fronts. Blood was collected, typed, processed and flown to Europe. A satisfactory preservative made it possible for blood to be safely used within 18 days after it had been taken from the donor. After processing, whole blood was chilled and packed in special expendable cartons so that it was properly refrigerated during its transit across the Atlantic. Similar arrangements were made in the Pacific areas and more than 500 pints of whole blood were flown daily from the west coast to army and navy units in the Pacific.

Improvements in surgery saved many lives and limbs in World War II. Wounded were returned as rapidly as possible to rear areas, where skilled surgeons were able to perform excellent surgery. Men were moved from the aid stations to division clearing stations as quickly as the situation would permit. At the clearing stations the wounded were examined and classified according to the urgency of their wounds (triage).

Seriously wounded, nontransportable cases were at once taken

AN INMATE of the Illinois state prison submitting to the bite of malaria-carrying mosquitoes. The Office of Scientific Research and Development sought a permanent cure to prevent recurring attacks of malaria. About 800 men in three prisons volunteered as human guinea pigs in 1945





to a special hospital—often a platoon or two of a field hospital augmented by a platoon of an auxiliary surgical group. Many serious chest, abdominal and head wounds were expertly treated at the earliest possible moment, practically at the front. A large number of wounded who would have died under older methods of evacuation and treatment were unquestionably saved.

Naval medical units utilized similar principles, with slight modifications. Casualties were given first aid by field medical units and were evacuated to ships as rapidly as possible. Small L.S.T. ships were most satisfactory for this, though frequently smaller craft had to be utilized, and at times rafts were improvised. Transfer of patients from small boats to larger vessels standing off shore raised perplexing problems. Litters were hoisted to the larger vessels. Rough weather and lack of personnel precluded the routine use of this type of evacuation. Some units found that a wooden ramp between the vessels expedited the transfer of patients, as they could be easily slid from the small boats to the larger craft. Hoisting small boats to the main rail deck ultimately proved to be the most satisfactory method of evacuating wounded.

Casualties were sorted and classified as soon as they were brought on the deck. Seriously wounded were taken to the operating room at once, and surgery was performed as soon as possible. Careful selection of the proper anaesthetic did much to permit the surgeon greater freedom of operation and to reduce mortality. Pentothal sodium was found invaluable for operations requiring little time, and it was used in more than half the cases. Spinal, inhalation and local anaesthetics were also used. Other wounded patients were sent to the shock, dressing, ambulatory, medical or observation wards for appropriate treatment. Transports or hospital ships left the combat area when a complement of wounded had been gathered, and departed for a fixed base, where reparative surgery could be done.

River crossings taxed the ingenuity of field medical officers charged with the evacuation of patients. Improvisations included the use of rubber rafts, or oil or gasoline drums filled with air lashed to rafts, and vehicles converted to crude ferries. A 500 lb. steel trailer was found to work well after a few adaptations.

**Infectious Hepatitis.**—Infectious hepatitis was a common disease of troops stationed in many parts of the world. It was shown to be a virus disease transmitted by water and believed to be excreted in the feces of patients with the disease. The disease was readily recognized by vague, early gastrointestinal symptoms, the appearance of jaundice, a tender liver and fever.

High carbohydrate diet, complete bed rest and transfusion of matched blood from donors who had recovered from the disease did much to reduce its seriousness. Intramuscular injections of gamma globulin were found to be useful in prevention. Treatment of water containing the virus with chlorine in the usual amounts (1 to 5 parts per 1,000,000) did not inactivate the disease-producing agent. Complete inactivation of the causative virus would require modification of the existing methods of water purification.

**Combat Fatigue.**—Combat fatigue was successfully treated in many forward hospitals. Very good results followed specific treatment for physical fatigue combined with individual treatment of anxiety symptoms. Group psychotherapy was successful when enthusiastic and understanding medical, nursing and hospital staffs were able to make the patients feel a part of the treatment group. Substitution of this new group for their combat organizations helped many patients regain what they had lost during the active fighting. After a few weeks' association with the hospital group, more than half the men voluntarily asked to be transferred to their former units.

Noncombatant psychiatric casualties were successfully treated

by group and occupational therapy, narcosynthesis, analysis and supportive measures. Neuropsychiatric examination of large numbers of men was aided by the use of recently devised questionnaires.

**Skin Diseases.**—Skin diseases were commonly responsible for considerable loss of manpower, especially in the tropics. The occurrence of skin disease depended on the housing, climatic and nutritional states of the troops, hygienic practices and contact with native populations. Scabies was a troublesome problem in Italy and France. Patients with scabies were given a hot bath, and the affected parts were scrubbed well. A 25% emulsion of benzyl benzoate was then applied with a paintbrush or spray gun to all parts of the body except the head. On the second day a second application was given, without a preparatory bath. Within one week more than 90% of all patients were cured. (See also ENTOMOLOGY; NURSING, WAR; PHYSICAL MEDICINE AND OCCUPATIONAL THERAPY FOR THE WOUNDED.)

**BIBLIOGRAPHY.**—Edward D. Churchill, "Surgical Management of Wounded in Mediterranean Theater at the Time of the Fall of Rome," *Bull. U.S. Army M. Dept.*, no. 84, pp. 58-65 (Jan. 1945); M. Baldwin and C. W. Reynolds, "The Treatment of Battle Casualties in the Initial Phases of the Operations at Iwo Jima Island," *Mil. Surgeon*, 97:288-297 (Oct. 1945); M. Herbert Barker, Richard B. Capps and Frank W. Allen, "Acute Infectious Hepatitis in Mediterranean Theater Including Acute Hepatitis Without Jaundice," *J.A.M.A.*, 128:997-1003 (Aug. 1945); Sydney S. Gellis, Joseph Stokes, Jr., George M. Brother, William M. Hall, Hugh R. Gilmore, Emil Beyer and Richard A. Morrissey, "The Use of Human Immune Serum Globulin (Gamma Globulin) in Infectious (Epidemic) Hepatitis in the Mediterranean Theater of Operations," *ibid.*, 128:1062-1063 (Aug. 1945); Sydney S. Gellis and Joseph Stokes, Jr., "The Methylene Blue Test in Infectious (Epidemic) Hepatitis," *ibid.*, 128:782-783 (July 1945); Sydney S. Gellis, Joseph Stokes, Jr., H. Walter Forster, George M. Brother and William M. Hall, "Use of Human Immune Serum Globulin (Gamma Globulin) in Infectious (Epidemic) Hepatitis in Mediterranean Theater of Operations," *ibid.*, 128:1158-1159 (Aug. 1945); M. Herbert Barker, Richard B. Capps and Frank W. Allen, "Chronic Hepatitis in the Mediterranean Theater," *ibid.*, 129:653-659 (Nov. 1945); W. P. Havens, Jr., and John R. Paul, "Prevention of Infectious Hepatitis with Gamma Globulin," *ibid.*, 129:270-272 (Sept. 1945); Joseph W. Owen, Carl G. D. Tillman and Richard A. Brunner, "Treatment of Combat Fatigue in a Forward-Area Hospital," *U.S. Nav. M. Bull.*, 45:611-620 (Oct. 1945); Marvin F. Greiber, "Narcosynthesis in the Treatment of the Noncombatant Psychiatric Casualty Overseas," *War Med.*, 8:85-90 (Aug. 1945); R. A. Cohen and J. G. Delano, "Subacute Emotional Disturbances Induced by Combat," *ibid.*, 7:284-296 (May 1945); Irwin I. Lubowe, "The Commoner Dermatoses Observed in the Italian Theater," *Mil. Surgeon*, 97:225-232 (Sept. 1945); "Benzyl Benzoate for Treatment of Scabies," *Bull. U.S. Army M. Dept.*, no. 89, pp. 19-20 (June 1945).

**FILMS.**—*Body Defenses Against Disease; Defending the City's Health; Home Nursing* (Encyclopædia Britannica Films Inc.). (H. C. L.H.)

## Mediterranean, British Possessions in the.

These comprise Cyprus, Gibraltar and the Maltese Islands, of which the accompanying table gives certain statistics. (See also BRITISH EMPIRE.)

**Cyprus.**—At the beginning of 1945 the government announced a development scheme on which at least £1,500,000 (£1=403.5 cents U.S.) from colonial funds would be spent. This included a water supply project to cost £500,000 (of which the government would pay half) to provide each of the 600 villages with piped water, and irrigation schemes costing £500,000 or more. A further £500,000 was to be devoted to a campaign against malaria and in establishing rural health centres. The department of agriculture set up an experimental farm for seed production and hoped to find a market in Britain for its vegetable and flower seeds. In July the government announced that it proposed to float a loan of £300,000 without interest, but with four-yearly drawings for prizes.

A plea for the cession of Cyprus to Greece was cabled to the Berlin conference by the Cyprus National party, the Pan-Cyprian Farmers' association and the pan-Cyprian Hellenic Socialist vanguard, and a similar plea was made in March by Ploutis Servas, general secretary of the Cyprus Progressive party of working people, when he attended the World Trade Union conference in London.

## MERCHANT MARINE—MERCURY

## British Possessions in the Mediterranean

Territory and Area (in sq.mi.)	Popula- tion	Principal Products (in short tons)	Imports and Ex- ports (in \$)	Road, Rail and Shipping	Revenue and Ex- penditure (in \$)	Education, Elementary and Secondary 1938
Gibraltar, 2	(1938) 20,139	—	free port; no statistics kept	(1938) shpg. cleared 13,748,978 tons net (1939)	(est. 1943) rev. \$1,534,000 exp. \$1,205,000	elem. schools 13; scholars 2,714; sec. schools 4; scholars 450
Malta, 122	(1941) 271,000	(1939) potatoes, 34,650 wheat, 8,360 barley, 4,950	(1939) imp. \$16,684,000 exp. (dom.) \$910,800 re-exp. \$1,749,000 (1943) imp. \$10,526,000 exp. (dom.) \$8,370,300 re-exp. \$447,330	rds. Malta 267 mi. Gozo 68 mi. (1943) rds. 1,852 mi. rlys. 71 mi.	(est. 1943-44) rev. \$13,980,000 exp. \$13,698,000 (est. 1943) rev. \$9,188,400 exp. \$8,692,700	elem. schools 82; scholars 29,118; sec. schools 3; scholars 1,244
Cyprus, 3,572	(1943) 395,000	wines (1939), 4,171,200 gal. pyrites (1938), 853,600 barley (1943), 38,848 wheat (1943), 52,498 potatoes (1943), 359,500				elem. schools: Christian 492; Moslem 212; scholars: Christian 37,646; Moslem 7,493; sec. schools 34; scholars 4,463

On Greek Independence day the police opened fire on a procession at Lefkoniko and two persons were killed and several injured. A commission of inquiry was set up on March 28. The government imposed a censorship until the commission had held its first meeting and this caused considerable resentment. The fact that up to September the commission had not published any findings was widely commented on in the local press.

In July the editor of a trade union paper won an appeal against a conviction for publishing an article entitled "Rich and Poor," "with seditious intention to promote ill-will between different classes of the population." The chief justice, Sir Edward Jackson, in allowing the appeal, held that the article was only socialist propaganda of a kind that a man must be free to publish if he wished "so long as there is any real freedom of discussion in this island."

The Colonial Development and Welfare act, 1945, allocated £1,750,000 to Cyprus for the next ten years.

**Gibraltar.**—Repatriation of evacuees remained a major problem, owing to the serious housing shortage on the Rock. In Feb. 1945 Sir Findlater Stewart, colonial high commissioner, was appointed to investigate the problem, and in August he reported that by June 30 10,950 persons had returned and that about 1,000 others were allowed to return to live with friends and relatives who had room for them; new temporary dwellings accommodated 1,600 persons but were used in the first place for relieving serious overcrowding in small tenements. Proposals for the construction of blocks of flats to provide accommodation for 1,000 families received official approval, but would not be completed until the end of 1947. Meanwhile it was estimated that there would remain more than 2,000 Gibraltarians to be repatriated, mainly from Northern Ireland.

In July elections for the city council were held under the new constitution of Dec. 1944, which provided for seven elected and six official members. Seven candidates supported by the Association for the Advancement of Civilian Rights swept the polls. Their program included public meetings of the council; limitation of the governor's power of veto; extension of the social services and quicker fulfilment of the housing program.

Gibraltar's allocation from the Colonial Development and Welfare act, 1945, was £100,000 for the next ten years.

**Malta.**—The national assembly, an unofficial but representative body formed for the purpose of drafting a new constitution, met for the first time on Jan. 20, 1945; Professor Contino Preziosi and R. G. Miller were elected president and secretary, and the assembly decided to elect a working committee of 12 to frame a constitution. At its third meeting the assembly approved of male and female franchise at 21. When, in July, it seemed apparent that the government intended to hold elections under the existing (1939) constitution, the elected mem-

bers of the council of government resigned on the grounds that under the existing electoral register only a section of the male population and no women would be represented.

In August a delegation of the Malta Labour party visited London to appeal to the colonial secretary for more vigorous measures for rehabilitation in Malta. They stressed the need for immediate and substantial aid from Britain to help Malta to surmount the grave economic obstacles which threatened its recovery.

Elections to the council of government were held on Nov. 10 under the 1939 constitution. There was a poll of 41.9% of voters on the register, the Constitutionists and Nationalists boycotting the election. Nine Labour members and one Independent were returned.

Under the Colonial Development and Welfare act, 1945, the token figure of £50,000 only was allocated to Malta as its needs were the subject of special negotiations. On Dec. 14 the national assembly voted that Malta's affairs should come under the dominions office instead of the colonial office. (J. R.A.)

**Merchant Marine:** see SHIPPING, MERCHANT MARINE.

**Mercury.** Production of the more important countries is shown in the accompanying table, so far as data were received in 1945.

World Production of Mercury, 1939-44

	(Short tons)					
	1939	1940	1941	1942	1943	1944
Canada . . . . .	0.2	77	268	518	845	368
Chile . . . . .	?	?	50	86	97	?
China . . . . .	187	129	248	180	130	114
Czechoslovakia . . . . .	101	98	?	?	?	?
Italy . . . . .	2,552	?	?	?	?	?
Mexico . . . . .	280	443	879	1,233	1,076	990
Spain . . . . .	1,365	1,984	3,286	2,747	1,815	?
South Africa . . . . .	—	?	8	22	45	?
United States . . . . .	708	1,436	1,707	1,932	1,973	1,432
Total . . . . .	5,700	?	?	?	?	?

**United States.**—Mercury production almost trebled in volume during World War II, increasing from 708.1 short tons in 1939 to 1,973.3 tons in 1943, but with the passing of the peak of war demand, dropped back to 1,432.2 tons in 1944, accompanied by a drop in imports from 1,817 tons to 743 tons. Consumption declined from 2,071 tons in 1943 to 1,630 tons in 1944. In the first three quarters of 1945 production dropped still further, to 1,005 tons, but imports rose to 1,991 tons and consumption to 2,139 tons. The relatively heavy consumption of the first nine months of 1945, greater than the full year 1944, was due to the development of a new type of dry battery using mercury as an active ingredient. While military demand for the time being put this use at the top of the list of mercury consumption, it remained to be seen whether the battery could be

produced at a price that could compete with the ordinary type of dry cell in the postwar market.

**Canada.**—Among the surprises brought on by war demand, the increase of mercury production in Canada ranked next after that in the United States. From practically nothing in 1939, output rose to 845 tons in 1943, making Canada the fifth largest world producer (assuming Italy still to be well toward the top of the list).

(G. A. Ro.)

## Meretskov, Kirill Afanasjevich

( ? - ), Russian army officer,

was in command of the Leningrad military district at the outbreak of the Russo-Finnish war, Nov. 1939, and was in part responsible for successful operations against the Finns. After the Germans attacked the soviet union, Meretskov was in charge of the defenses outside of the Leningrad area, and in Jan. 1943, together with Marshal Govorov, he lifted the land blockade of Leningrad. In the early winter campaign of 1943-44, Meretskov's forces on the Volkhov front participated in the Russian pincers operation which completely caved in wehrmacht defenses about Leningrad and captured Novgorod to the south. In the summer campaign of 1944, Meretskov was assigned to the Karelian front and again with Marshal Govorov launched the drive (June 10) that smashed through the Finnish defenses and compelled Finland to sue for peace. Meretskov was awarded the Order of Suvorov in 1944, and on Oct. 26 the Moscow radio disclosed that he had been elevated to the rank of a marshal. In Aug. 1945, when the soviet union sent three of its crack armies into Manchuria, Meretskov commanded the 1st far eastern army. Originally based in the Vladivostok area, this army broke through Japanese defenses along the Ussuri river and drove down the east coast of Manchuria into Korea.

**Merit System:** see CIVIL SERVICE, U.S.

**Mesotrons:** see PHYSICS.

**Metallurgy.** So many new developments in metallurgical procedure were coming to light as the veil of censorship was lifted that only a few of the more novel or important ones can be mentioned even briefly. Only a few reports were made on new features in Germany, but others would be known in time, some of which would doubtless be on a par with advances in the United States.

**Uranium and Plutonium.**—By far the most outstanding metallurgical development of the entire World War II period resulted from the research leading to the production of the atomic bomb. Here we have not only the fulfilment of the alchemist's dream of the transmutation of the metals, but we have even gone a step farther and have produced a new variety of uranium ( $U_{239}$ ) and the entirely new metal plutonium—not in amounts requiring the microscope and spectroscope to detect them, but certainly in pounds, and possibly even in hundredweights. In lieu of the pages of text that would be required to explain in detail what this has involved, it is possible here only to record the bare fact of the practical accomplishment of the primary object of a research project which in turn opened up such enormous future possibilities that in it on the one hand lie the seeds for the destruction of world civilization, and possibly even of the entire human race and the world itself, or on the other hand of furnishing the necessary impetus to bring nations into a sufficient degree of accord that they can dispense with war, while at the same time reap a harvest of untold benefits from a force created primarily for destruction.

**Beryllium.**—Windows for X-ray tubes were being made by powder metallurgy methods, to avoid the large grain size and brittleness inherent in cast beryllium.

**Boron.**—Metallurgically, boron made enormous strides. As an addition agent for low alloy steels, it was found to impart physical properties that would require much greater amounts of other metals; in aluminum permanent mould castings, boron as an addition refines the grain structure and produces round cavities instead of sharp, angular ones, without affecting corrosion characteristics or heat treatment, but at the expense of greater brittleness and some lowering of the physical properties.

**Stainless Steel.**—Conventional methods for the flame cutting of steel give poor results with stainless steel, because of the high melting point of the chromium oxide formed. A novel method of overcoming this difficulty lies in feeding into the cutting flame a finely divided flux, which combines with the oxide and reduces its melting point.

**Zirconium.**—Alteration of crystal structure during heating and cooling resulted in so much disintegration and cracking of zirconium refractories that their commercial utilization was hampered. These difficulties could be avoided by adding certain oxides as stabilizers, but the material remained sensitive to thermal shock, because of its low heat conductivity.

**Inspection Methods.**—By the substitution of high, intermediate and low toned sound signals for the usual visual gauge indications for oversize, good and undersize readings, it was possible to utilize blind operations for delicate gauging operations.

X-rays were used in a nondestructible gauging of the thickness of metal parts not accessible for ordinary procedures, by comparing the density of a negative made under standard exposure with others from metal of known thickness.

**Investment Casting.**—Where the number of pieces did not require conventional methods of forging, stamping and machining, investment or "lost wax" casting was applied for precision castings in limited numbers. The use of polystyrene and other styrol resins in the lost wax process was said to produce tolerances as low as 0.0002 in.

**Localized Heating.**—High frequency induction heating continued to develop as a means of providing flexible heat control, and the concentration of the heat in a specific area for soldering and brazing.

**Metal Cutting.**—Diamond metal cutting tools were being made with three to seven cutting edges side by side around the contour of the tool, so that when one edge is worn dull, the next one can be brought into line with a minimum loss of time.

**Powder Metallurgy.**—German metallurgists were reported to have perfected a method of producing high grade iron powder directly from liquid metal. Thousands of tons of the product were used in shell bands, with an increase of 20% in the life of the gun barrels, as compared with copper bands.

**Spinning.**—The production of bombs was greatly improved by the use of spinning methods in forming the nose and tail parts.

**Substitution.**—A saving of 80% in the requirements of copper for bullet jackets resulted from the use of steel plate clad with copper or gilding metal.

A different type of substitution came into play when it was necessary to use steel rolling facilities to supplement a shortage of capacity for rolling brass for cartridge cases. The chief difficulty to overcome was in controlling the grain size. (See also ATOMIC BOMB.)

(G. A. Ro.)

**Metal Prices and Production:** see MINERAL AND METAL PRODUCTION AND PRICES.

**Meteorology.** Although the wartime meteorological activities of the United States reached their peak in 1945 and began to contract before the year's end, it was apparent that professional meteorological services in general would



continue permanently at a much higher level than before World War II. Many of the field stations and research projects carried on primarily for military purposes after 1941 would be required for peacetime civil uses, and transfer of some of these from the meteorological divisions of the army and navy to the weather bureau was inaugurated. Co-ordination of inter-departmental meteorological plans and activities was continued primarily through the Joint Meteorological committee, and action was taken to compile the vast accumulation of world-wide data during the war as the basis for better understanding of atmospheric structure and processes that would lead to better forecasting. War needs had already led to wide-scale use of mechanical (punched-card) tabulation and sorting of data. This was to be continued. The war had also stimulated development of new meteorological instruments and adaptation of military inventions, no longer secret, for use in weather observations and research.

Chief among the latter were radar and radio direction finding. Both of these devices can be employed to detect meteorological elements hitherto hidden from observation. The detection of certain kinds of storms by radar was begun early in the war when radar technicians had noticed "ghost echoes" on their relatively primitive scopes, "echoes" later realized to be caused by thunderstorms. Within a 100-mi. radius, it was found, the location, extent, intensity, speed and direction of thunderstorms could be radar-detected. Other storms, too, could be followed from a distant observational post. Because of the closeness of the violent hurricane of Sept. 15, 1945, to the radar station, new findings about the nature of the hurricane were made possible. The general shape of the disturbance was plainly seen, and also the variation in rain intensity within the storm as bands of heavier rain moved across the pattern.

In addition to such uses, both radar and radio direction finding were becoming more extensively employed in plumbing the hitherto uncertain wind-flow patterns in storm and cloud. Since the upper air has been studied, it has been the regret of all meteorologists that pilot-balloon observation was restricted to clear skies or to the atmospheric layer beneath the clouds. These war-born devices could be used to follow balloons or radiosondes through all types of weather. The possible benefits to forecasting, to air navigation, and to research in storm structure were incalculable. Some stations were already equipped with these devices by the end of 1945 and installation of equipment at about 25 additional stations was planned for 1946.

With the aid of instrumentation of this type, practical results could be expected from a thunderstorm project launched during 1945 with congressional approval. In this project the weather bureau, with the extensive co-operation of the army air forces and the navy, undertook a detailed study of the microstructure and dynamics of the individual thunderstorm. In planning to use aeroplanes, sailplanes, balloons and radar, all operating in thunderstorms simultaneously with a micro-network of recording surface stations, the project's practical aim was to find methods of circumventing the dangerous parts of thunderstorms. Although hail and lightning are also important in the investigation, excessive thunderstorm gusts and turbulence are recognized as the principal hazards to be met. The A.A.F. was establishing an aeroplane and radar program in connection with the project, and the navy planned to operate "drone" or pilotless aircraft. These flight operations were to be carried out in Florida and in the middle west, co-ordinated with balloon, radar and ground observations. Dr. Horace R. Byers of the weather bureau and the University of Chicago headed the project, while Col. B. G. Holzman and Comdr. R. H. Maynard represented the military services.

In other matters it was also evident that although military

meteorologists were being rapidly released after V-E day, research was not being abandoned. Throughout 1945, the A.A.F. co-operated with leading universities in fundamental research. At New York university a study of vertical motions was conducted. Techniques were developed to measure such motion from upper-air observations, and studies were made of the typical distribution and frequency of observed magnitudes in important storm types. Although the magnitudes found were small—of the order of a few centimetres per second—they were well correlated with subsequent weather developments. Reports on other army-sponsored projects still awaited official release.

Objective techniques in forecasting continued to be a primary purpose of research in the weather bureau. Minimum temperatures, low visibilities, fog and stratus, ceilings, squall lines, thunderstorms and quantitative precipitation were some of the elements being studied with this view during 1945. New York university, the University of Chicago, the University of California at Los Angeles, and Massachusetts Institute of Technology at Cambridge, Mass., co-operated. Large-scale researches in cyclogenesis, convection, advection and convergence were also conducted. More basic synoptic data were made available for research during 1945 by the completion of monthly charts showing, for six levels up to 19 km., the normal pressures and temperatures, the extreme maximum and minimum temperatures and the normal winds throughout the northern hemisphere. Completed charts also showed monthly normal values of temperature, density, west-east and south-north components of wind velocity and altimeter correction, in vertical sections up to 19 km. along every 20th meridian throughout the northern hemisphere. To supplement the 40 years of northern hemisphere sea-level synoptic charts published in 1943, three-kilometre maps from Oct. 1, 1932, to Dec. 30, 1940, were also analyzed and prepared for publication. These printed maps were to be the same size as the sea-level maps and on semitransparent paper for use in conjunction with them.

Instrumental improvements were made by the weather bureau in the measurement of daytime cloud heights by ceilometer and in development of a recorder for the maintenance of a continuous ceilometer record. To obtain meteorological reports from selected sites in the hurricane area, automatic weather-reporting stations were developed and, with the assistance of the coast guard, three were established and were in operation at Dog Rock and Orange Cay in the Bahamas, and at Flamingo, Fla. Receiving equipment was installed at Miami and Key West. Of special interest, also, was the development of a spectroscope for measurement of the water-vapour content of the atmosphere—vertically or horizontally—along a light path. Its use as a practical field instrument in 1946 was indicated.

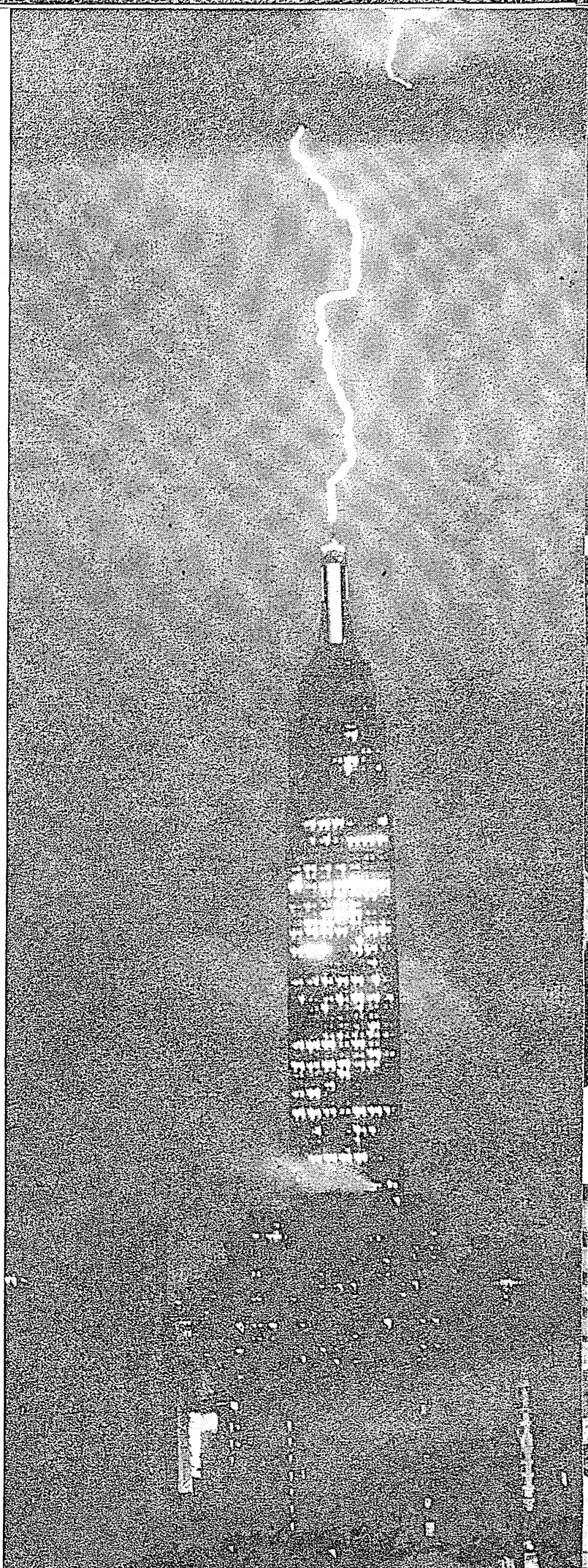
Progress continued in the field of hydrometeorology, a science which depends greatly on co-operation because of its alliance of hydrology and meteorology. The quantitative-forecasting program of the weather bureau, inaugurated in 1944, became routine at all forecast centres. As in other fields, experience was a good teacher; methods were formalized and results assured the program's continuance. The co-operation of the corps of engineers and the weather bureau in the study of major storms and the estimate of limiting rates of rainfall increased in importance as the postwar flood-control program got under way. A similar co-operative program between the weather bureau and the bureau of reclamation was begun during 1945. On the Pacific coast, army engineers worked with the weather bureau on a program of snow investigation. By means of melting-zone reconnaissance surveys, special fixed observers, and field laboratories in the Sacramento and Columbia river basins, efforts were made to determine the distribution of snowfall and

its effect on stream discharge. The influence of snow cover on runoff from rain and the direct contribution from melting snow were measured for purposes of spillway design, reservoir operation and streamflow forecasting. Related to this work was the expansion of the weather bureau program, begun in 1944, of forecasting spring runoff by statistical techniques based on index relations between selected monthly precipitation and temperature records and ensuing spring runoff.

Directly stimulated by the war was an important change in U.S. weather-map usage. Assured by the experiences of the weather services of the nations allied with the U.S. in World War II, the weather bureau during 1945 changed from the use of upper-air charts at fixed levels to charts at constant pressure. The change was not as drastic as it seemed; approximately the same levels were still used and contour lines served the purposes of isobars. Among the advantages was the fact that fewer isolines could represent the variation of more elements than was possible on the fixed-level charts. By the end of 1945 practising forecasters had grown accustomed to the new charts but were in sharp disagreement on the advantages of substituting a 1,000-millibar chart for the well-known sea-level chart. In this change of techniques the official use of the isentropic chart was discontinued. Although still possessing definite theoretical advantages, since air particles more often stay within isentropic surfaces than either fixed-level or constant-pressure surfaces, it was felt that for practical purposes the indications of the isentropic chart could also be deduced from the constant-pressure chart. As a practical matter, also, forecast-station routine and teletype schedules were both so crowded that omission of less useful charts and data was mandatory.

With its importance underlined by war needs, plans were begun in 1945, for the expansion of observational networks in the arctic, the source not only of cold waves but of other important large-scale weather controls. Well-equipped central supply bases for these isolated observers were contemplated as nuclei for the networks. Along the same lines, closer international co-operation in meteorological observations was in prospect. As part of this co-operation, the weather bureau would staff certain U.S. embassies with meteorological attachés. Also linked with the program was the continuation of training, under weather bureau auspices, of foreign students of meteorology at U.S. universities. During 1945 eight students from Latin America (Bolivia, Chile, Colombia and Mexico) were given the university training and, following it, internship at a forecast centre; eight Chinese students were given similar training. In 1946 Brazil, Cuba, Ecuador, Mexico and Panamá were to be represented.

The year witnessed the rapid expansion of the American Meteorological society as a professional society. Release of many war-trained meteorologists by the military forces strained the society's newly organized placement services, its advice and assistance being widely sought. The society's new *Journal of Meteorology* was auspiciously launched and favourably received, while its *Bulletin* grew in size. A contemporaneous appearance was that of the *Journal of Aeronautical Meteorology*, sponsored by the Air Transport Association of America. New books on meteorology continued to tumble from the presses, especially worthy of mention being a new text on *Dynamic Meteorology* by Jorgen Holmboe, George E. Forsythe and William Gustin of the University of California, Los Angeles, and a *Handbook of Meteorology* edited by F. A. Berry, Eugene Bollay and Norman R. Beers of the U.S. Naval academy. One of the widely applauded events of 1945 was the award of the William Bowie



LIGHTNING hit New York's Empire State building during an electrical storm on July 9, 1945. Photographed from a nearby building, the picture was a result of split-second timing

## METEOROLOGY

\*Table I.—Monthly and Annual Mean Temperature and Extremes in °F., 1945, in Cities of the United States

Cities	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year	Annual Dept.†	High- est	Low- est
Albuquerque	36.8	43.0	45.0	52.3	66.2	72.6	78.4	78.2	70.6	58.6	45.2	33.4	56.6	+1.3	98	-7
Bismarck	14.7	16.7	34.0	40.0	49.6	58.0	69.6	69.0	55.6	46.4	23.9	8.6	40.5	+1.5	102	-24
Charleston	49.2	54.0	65.7	69.6	71.4	80.2	80.8	80.7	80.4	66.9	60.0	46.6	67.1	+1.1	96	-8
Chicago	19.2	28.8	48.6	49.8	54.1	65.4	72.0	72.0	64.0	51.4	39.8	22.2	48.9	+0.5	99	-2
Denver	33.8	34.7	43.2	42.2	57.2	62.0	73.0	71.8	60.8	54.9	43.6	32.4	50.8	+0.8	95	-2
Helena	26.5	26.7	33.4	39.2	51.2	56.1	69.0	67.8	53.2	49.2	31.6	21.4	43.8	+1.3	96	-24
Houston	53.5	59.0	68.8	69.6	74.2	81.6	83.6	83.6	80.7	69.6	67.2	52.4	70.3	+1.2	102	27
Knoxville	38.0	43.5	59.0	60.4	64.1	74.2	77.8	77.2	74.5	58.3	50.6	35.0	59.4	+2.0	98	10
Los Angeles	56.6	56.6	54.6	59.4	61.9	64.6	71.0	73.3	73.2	67.2	61.6	57.2	63.1	+0.7	97	39
Memphis	39.2	44.2	60.1	63.4	66.6	76.6	79.7	79.9	75.2	60.8	53.0	37.2	61.3	+0.7	100	11
Miami	65.6	69.2	73.2	76.0	75.8	79.8	80.4	81.0	79.6	76.7	69.8	67.2	74.5	-0.6	89	43
Mobile	51.1	57.7	67.3	69.0	72.2	81.6	80.6	82.6	80.6	67.3	61.8	47.8	68.3	+1.0	96	20
New York	25.4	34.4	51.0	54.8	58.9	70.6	73.8	72.8	69.7	56.2	47.4	30.9	53.8	+1.5	95	0
Norfolk	37.8	44.0	59.5	62.1	66.4	77.1	78.4	77.1	76.2	62.9	54.2	38.6	61.2	+1.7	100	17
North Platte	29.7	31.6	43.6	45.8	56.2	62.2	74.6	73.4	61.6	54.8	40.4	22.0	49.7	+1.4	99	-10
Oklahoma City	39.5	41.0	55.6	58.0	67.2	74.7	79.3	80.4	73.1	62.0	53.7	35.9	60.0	+0.6	100	7
Phoenix	51.9	56.2	57.2	66.4	76.0	82.4	90.9	89.8	85.0	75.0	59.2	51.2	70.1	-0.2	113	27
Portland, Me.	16.0	22.0	38.6	47.0	49.5	60.9	67.1	66.4	60.6	45.8	37.8	22.0	44.5	-1.0	95	-18
Portland, Ore.	44.4	45.8	46.0	51.4	60.0	63.2	70.2	68.8	62.5	56.0	46.8	42.6	54.8	+1.7	98	26
San Francisco	50.2	54.4	51.8	55.9	55.4	61.3	59.6	58.6	62.6	61.6	56.4	52.8	56.7	+0.6	87	39
Sault Ste. Marie	7.2	16.8	34.2	39.6	44.8	57.2	61.9	64.6	54.0	43.4	32.6	16.8	39.4	+1.4	89	-20

†Annual departure.

Table II.—Monthly and Annual Rainfall, in Inches, 1945, in Cities of the United States

Cities	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year	Annual Dept.
Albuquerque	0.34	0.32	0.50	0.77	T	T	1.09	2.27	0.26	0.43	T	0.35	6.33	-1.73
Bismarck	0.39	0.21	0.98	0.98	0.97	1.74	1.98	2.76	1.99	0.07	0.27	0.39	12.73	-3.61
Charleston	1.55	4.02	1.07	4.62	2.32	7.12	17.25	11.57	16.24	2.98	1.31	4.82	74.87	+29.65
Chicago	0.80	1.18	2.29	4.20	7.59	4.12	1.33	4.23	6.01	1.18	2.88	1.65	37.46	+4.59
Denver	0.69	0.34	0.22	2.58	2.06	1.75	2.40	1.44	0.86	0.63	0.51	0.10	13.58	-0.50
Helena	0.08	0.07	0.90	0.58	1.94	2.79	0.29	0.46	1.46	0.23	0.25	0.60	9.65	-1.90
Houston	4.53	2.40	2.98	4.21	6.28	5.38	1.98	11.13	2.85	6.37	0.55	7.58	56.24	+9.19
Knoxville	2.18	7.03	3.29	4.56	4.75	4.34	5.46	2.14	2.88	3.57	4.02	5.48	49.70	+2.32
Los Angeles	0.04	3.34	3.43	0.08	T	0.01	T	0.04	T	0.56	0.23	5.05	12.78	-2.45
Memphis	2.95	5.48	7.05	5.99	2.36	5.89	3.32	0.52	6.04	1.31	10.26	4.24	55.41	+7.69
Miami	1.93	0.41	0.70	2.44	0.82	2.05	4.01	4.15	7.79	6.61	1.26	2.37	34.54	-23.23
Mobile	4.11	2.81	2.36	8.53	1.33	3.76	16.73	4.23	5.41	3.00	2.10	8.26	62.63	+1.02
New York	3.25	3.01	2.23	3.02	5.70	4.42	5.09	2.25	5.38	1.99	4.96	4.44	45.74	+2.75
Norfolk	1.72	5.16	1.30	2.12	2.64	7.72	12.92	3.32	5.74	1.32	4.02	5.87	53.85	+9.76
North Platte	0.41	0.29	0.29	2.01	2.43	4.10	2.92	3.90	3.40	0.03	0.10	0.83	20.71	+2.32
Oklahoma City	1.21	2.91	4.16	7.00	2.59	10.05	4.42	3.43	7.42	0.37	0.27	0.08	43.91	+12.76
Phoenix	0.99	0.12	0.82	T	0.00	0.00	0.93	0.41	T	0.69	0.00	0.31	4.27	-3.51
Portland, Me.	3.88	3.92	1.86	3.28	6.77	5.84	2.56	1.25	3.84	5.52	5.10	5.95	49.77	+7.83
Portland, Ore.	4.13	5.25	7.12	2.95	4.46	0.41	0.60	0.52	3.99	1.73	10.47	6.04	47.67	+6.05
San Francisco	1.33	3.43	4.15	0.32	0.64	0.01	T	T	0.04	1.95	3.24	9.84	24.95	+2.93
Sault Ste. Marie	0.94	1.85	1.38	2.16	5.27	1.65	1.63	3.88	3.55	3.30	3.12	1.20	29.93	-0.01

T=Trace: less than 1/100 of an inch.

Table III.—Duration of Sunshine, in Hours, 1945, in Cities of the United States

Cities	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year	Annual Dept.
Albuquerque, N.M.	199	199	249	312	371	382	334	323	310	263	264	220	3426	+16
Bismarck, N.D.	94	160	198	212	267	240	359	324	207	193	92	116	2462	-194
Charleston, S.C.	195	178	271	261	305	270	213	262	242	244	240	145	2825	-106
Chicago, Ill.	100	128	252	227	232	261	323	311	200	229	121	121	2505	+56
Denver, Colo.	174	145	266	188	262	236	284	232	215	242	211	161	2616	-350
Helena, Mont.	86	125	164	191	239	205	406	319	225	214	93	68	2333	-330
Houston, Tex.	171	150	176	232	319	249	230	250	233	200	174	130	2514	-184
Knoxville, Tenn.	118	109	172	212	222	223	254	279	208	208	177	97	2279	-332
Los Angeles, Calif.	244	202	261	284	306	210	345	340	281	212	256	185	3126	+8
Memphis, Tenn.	128	92	189	208	238	288	303	318	236	227	187	121	2535	-272
Miami, Fla.	255	287	313	321	335	299	279	298	245	220	118	199	3269	+333
Mobile, Ala.	179	133	236	247	321	305	183	269	246	220	182	148	2669	-98
New York, N.Y.	185	174	228	250	253	254	187	253	193	185	149	135	2446	-202
Norfolk, Va.	155	168	270	246	305	306	223	286	215	249	188	93	2704	-32
North Platte, Neb.	145	103	281	219	298	271	356	316	274	272	184	138	2857	-213
Oklahoma City, Okla.	143	106	187	157	273	230	296	313	216	174	211	175	2481	-518
Phoenix, Ariz.	217	270	282	366	415	416	336	336	342	255	266	196	3697	-61
Portland, Me.	186	227	255	269	279	275	331	321	225	173	122	174	2837	+251
Portland, Ore.	108	113	113	150	202	283	374	288	207	159	26	74	2097	-60
San Francisco, Calif.	176	215	233	370	284	357	261	270	274	195	162	125	2922	+49
Sault Ste. Marie, Mich.	112	95	209	187	202	233	262	250	160	82	45	98	1935	-190

medal to Dr. Jakob Bjerknes by the American Geophysical union. First meteorologist to receive the award, Dr. Bjerknes was well known for his contributions to frontal theory and the modern concepts of cyclonic structure and rain formation. Great as were his scientific attainments, he was no less admired for the modesty and objectivity of his viewpoint.

**Weather of 1945.**—Repeated southeastward incursions of arctic air by way of the northern plains states brought the freezing line to the Gulf by the middle of January. Between the Rockies and the Great Lakes temperatures fell as low as  $-30^{\circ}$ , in New England as low as  $-10^{\circ}$ . Persistence of cold air over this large area kept moderate to heavy rains beyond its

\*The tables in the article "Meteorology," are intended only as a guide to indicate the order of magnitude of sunshine, rainfall and temperature variations throughout the United States during 1945, and not the country-wide maxima of these elements. The only comparison that should be made is between the cities actually listed.

periphery. Along its southern edge, moist air from the Gulf overran the cold wedge, causing freezing rains that glazed roads and disrupted transportation. Farther northeast the characteristic precipitation was snow which had no chance to thaw in the persistent cold. On Jan. 15-16 Harrisburg, Pa. experienced a record snowfall of 21 in. in 24 hr. Floods broke discharge records on smaller streams in Louisiana and eastern Texas while snow continued to pile up from Pennsylvania, northward and northeastward. A month-end arctic blast, more severe than its predecessors, brought  $-20^{\circ}$  temperatures to northern New York and New England and freezing weather into Florida as far south as Lake Okeechobee. Protective warnings from the weather bureau limited the resulting crop losses.

As a consequence, the month of January as a whole showed the country east of the Mississippi with below-normal temperatures, the greatest departures being  $-6^{\circ}$  to  $10^{\circ}$  over most of Ohio, Pennsylvania and New York. In this region the total of degree days—i.e., days requiring heat—mounted to 20% above normal for the month, despite coal shortages and oil quotas. At Canton, N.Y., temperatures went to zero or below on 31 days during December and January. In many places average temperatures were lower than during the same period in 1917-18. Westward from the Mississippi, most of the temperature departures were positive, averages being as much as  $6^{\circ}$  to  $9^{\circ}$  above normal from Kansas northward. Above-normal rainfall was confined to southern Texas, Louisiana, Florida,

the central great plains and the adjoining eastern slopes of the Rockies. In the northeast an area of above-normal precipitation was almost entirely snowfall; depths in this region equalled or exceeded the 5-ft. or 6-ft. depths characteristic of the higher elevations of the west. In Pennsylvania average snowfall for December and January was the greatest of record. Subnormal precipitation extended from the Great Lakes to the Ohio valley and in a broad belt from western Montana to southern California. However, although January precipitation in northern California was the lowest in 61 years, a month-end storm continuing into February caused major flooding in the Sacramento valley with runoff values approaching those of Dec. 1937.

In states north of the Ohio river critical water-supply shortages developed. Added to the effects of the cold weather and subnormal precipitation of January was a low ground-water level



resulting from deficient recharge for many preceding months. Storage reserves for domestic and industrial use were exhausted by the cities of Columbus and Lima, some curtailment of war production resulting. Here, thawing of the light to moderate snow cover would bring replenishment. But elsewhere thaws were hoped for as a preventive of a sudden oversupply of water later in the season. The unusual accumulations of snow in Pennsylvania, New York and New England equalled or exceeded the accumulation prior to the great floods of March 1936. There was a natural concern that warm weather and heavy rains might combine with this snow cover to produce serious floods, especially since ground-water and base-flow levels were also above average. In the same region, river ice—grown to more than 1-ft. thickness—promised ice jams in the spring. In Iowa, South Dakota and other northern states, on the other hand, the early formation of thick ice was hailed as an early beginning of ice harvesting.

Generally milder temperatures followed in February but a typical Atlantic coastal storm, a secondary low-pressure system developing southeast of a dying parent system over the upper Ohio valley, brought another severe snowstorm to New England. Drifts piled high by strong winds slowed traffic to a halt. In the heavy-rain belt bordering the Gulf a tornado swept across Mississippi and Alabama on Feb. 12, killing and injuring many. Along the Pacific coast the winter seasonal rains prevailed.

The rapid and frequent cyclonic developments of February brought equally frequent temperature changes and precipitation to the eastern half of the United States. The result was an abnormally warm month for the whole country, with greatest departures from normal in the northern great plains, the great basin and the northwest. Coal piles and oil tanks maintained cheerful levels. Precipitation was well above normal in a wide belt from western New York and Pennsylvania to central Texas, and also in California. In eastern Oklahoma it was as much as 300% of normal. Most serious deficiencies were in Florida, the lake region, the great basin and the far northwest interior.

In the Ohio valley water supply showed definite improvement. By the end of February the Ohio was in flood due to rains augmented by snow melt. The seven-month drought ended, but the flood brought loss of life, damage and disruption of transportation and industry. The predicted ice jams accompanied local breakups of ice in the Susquehanna and Allegheny rivers of Pennsylvania. Farther northeast the flood hazard was reduced. Substantial thawing had depleted coastal areas of snow and freed the downstream reaches of ice, clearing them for unimpeded flow from headwater areas where abnormally deep snow accumulations remained.

In the great basin continued sub-normal precipitation and high temperatures meant an unwelcome reduction of snow accumulation in the mountains. Since from this accumulation comes the main contribution to spring runoff, the outlook for prospective irrigation supplies was not favourable. In Florida, where February rainfall was from 10% to 50% of normal, water levels in the major canals and the Everglades were so low that all available pumping equipment was operated to supply the peak demands for irrigation of truck and other crops. In the Miami area the salt-intrusion dam was operated all month to conserve stored water and to halt the upstream movement of salt water toward municipal wells.

Rapid moderation of wintry temperatures continued in March. By the end of the month sections east of the Rockies showed mean temperatures mostly 10° above normal and as high as 15° above in north-central sections. Maximum temperatures occasionally reached 80° and 90° as far north as Wisconsin. Not after 1910 had such a widespread warm March occurred. Spring farming accelerated. Aided by adequate

moisture conditions in central sections, vegetation advanced so rapidly that by the end of March it was three weeks ahead of the calendar. This was accompanied by general apprehension over possible frost damage, since killing frosts may be expected as late as April 30 in these sections. March was also extremely wet, precipitation exceeding twice normal in central parts of the country. In contrast, the month was extremely dry in the Atlantic states and the western great plains.

Continued rainfall and snow melt kept the Ohio river in flood during the early part of March. In the upper Mississippi early breakup of ice raised the river to flood stages. Combining below Cairo, these excessive flows were augmented later by floods from excessive rainfall over the Arkansas and Red river basins. As a result, the lower Mississippi rose to stages ranking with those of April 1927 and Jan. 1937. In the north-eastern states pronounced thawing accompanied by relatively dry weather further removed the flood threat presented by the snow accumulation. River ice had also melted, without serious jams reported, the breakup occurring four weeks earlier than usual.

The Florida drought continuing, the water level in the Everglades lowered 2 ft. during March. Westward, in the coastal and intermountain states, however, both above-normal precipitation and below-normal temperatures increased mountain snow storage and brightened runoff prospects for the irrigation season.

A reversal to colder weather, freezes and frost came to the states east of the Rockies early in April. Damage to early fruit and other crops was not, however, as great as had been feared. In the north central states blizzard conditions followed the change of air mass, most of the snow cover disappearing within a week as temperatures moderated. Extensive heavy rains persisted over the central states past the middle of the month, over 12 in. falling in about nine hours at Seminole, Okla. This cloudburst caused heavy local damage and the loss of nine lives while other deaths, injuries and damages accompanied tornadoes that swept across Oklahoma and Arkansas. Most widespread consequence of the heavy rains was the moderate to severe flooding of rivers from Oklahoma to east Texas. Another significant result was the hampering of farming operations in the central agricultural sections, where the March impetus was about cancelled.

For April as a whole, the United States was again divided by the Mississippi river into an eastern section moderately warm and a western section moderately cool. But by the end of the month maximum temperatures in the 80s were occurring in western states as far north as Montana, and around 100° in the extreme southwest. Precipitation was 300% of normal over portions of Missouri and Kansas, above normal also in the middle Rockies, but still markedly deficient in the southwest and in Florida.

May reversed the temperature pattern of the immediately preceding months. From the western plains to the Atlantic averages were below normal; westward, they were generally above normal. Precipitation continued above normal in central and northeastern sections and in the Pacific northwest, but an extensive section of the southwest and also much of Florida actually experienced less than 10% of normal rainfall. The rainy season in Florida, which normally begins in June, was eagerly awaited. In the central states, however, where there was little cessation of the rains, farmers toiled nights and Sundays to bring their seasonal work up to date when conditions permitted.

Relatively cold weather prevailed over the eastern two-thirds of the country during the first half of June, with rains frequent and general in the northern two-thirds. In Ohio the coldest June weather of 30 years was reported. Widespread floods occurred in central valleys. By the second half of the month, however, high-pressure stagnant off the Atlantic coast brought southerly winds and midsummer weather as far

Table IV.—Monthly Mean Temperatures in °F. Outside the United States, Oct. 1944–Sept. 1945

Cities	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.
London . . . . .	49.7	44.3	38.5	33.8	45.7	47.2	51.7	56.5	60.0	64.3	62.1	59.3
Edinburgh . . . . .	47.1	40.6	39.5	33.7	44.1	46.9	47.1	49.7	54.9	60.1	57.9	55.8
Stockholm . . . . .												
Lisbon . . . . .	62.1	57.4	51.3	46.9	54.3	58.3	64.4	62.8	70.5			
Calcutta . . . . .	80.5	73.1	69.0	65.6	71.9	82.7	84.0					
Bombay . . . . .	82.7	81.0		72.3	75.3	80.5	82.3					
Baghdad . . . . .												
Singapore . . . . .												
Cape Town . . . . .	61.3	63.9	66.6	70.0	72.1	70.5	66.8	60.3	56.9	53.3	55.1	61.3
Johannesburg . . . . .												
Salisbury (Rhodesia) . . . . .												
Quebec . . . . .	45	36	15	8	18	32	45	50	61	68	66	58
Toronto . . . . .	50	40	26	15	26	43	47	50	63	68	69	62
Winnipeg . . . . .	45	28	10	4	8	29	32	45	59	66	66	52
Victoria, B.C. . . . .	55	47	41	43	43	44	47	56	57	61	60	57
Sydney . . . . .	64.9	69.6	71.1	70.5	70.6	69.4						
Melbourne . . . . .	58.5	62.1										
Perth . . . . .												
Wellington, N.Z. . . . .	52.3	55.6	57.1	61.5	61.0	59.1	55.9	49.5	45.9	45.1	49.5	50.5

Table V.—Monthly Rainfall in Inches Outside the United States, Oct. 1944–Sept. 1945

Cities	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.
London . . . . .	2.71	3.42	1.19	1.66	1.39	0.80	1.13	2.41	1.76	2.69	1.26	1.68
Edinburgh . . . . .	2.35	5.13	2.06	3.29	2.72	0.94	1.12	3.91	1.57	2.33	3.13	3.20
Stockholm . . . . .												
Lisbon . . . . .	1.78	1.40	1.31	2.55	0.44	0.60	1.24	1.35	0.55			
Calcutta . . . . .	3.73	0	0	1.00	0.37	0.54	3.87					
Bombay . . . . .	0.80	0		0.82	0	0	0					
Baghdad . . . . .												
Singapore . . . . .												
Cape Town . . . . .	1.74	1.13	1.29	0.03	0.04	0.20	1.71	7.00	6.56	3.75	3.42	0.18
Johannesburg . . . . .												
Salisbury (Rhodesia) . . . . .												
Quebec . . . . .	2.7	1.6	2.9	4.9	1.7	3.7	4.0	4.5	3.0	6.0	4.6	7.6
Toronto . . . . .	0.5	1.9	4.1	1.8	2.2	4.6	4.2	5.4	3.8	2.9	2.2	5.6
Winnipeg . . . . .	1.1	1.8	0.7	0.6	0.6	2.8	1.6	1.6	2.0	2.7	2.2	5.2
Victoria, B.C. . . . .	2.7	2.6	1.6	4.1	2.5	2.1	1.6	0.6	0.3	0.2	0.5	2.7
Sydney . . . . .	1.22	0.90	0.86	2.41	1.89	1.34						
Melbourne . . . . .	2.10	1.12										
Perth . . . . .												
Wellington, N.Z. . . . .	6.46	2.78	6.51	2.91	6.10	5.62	2.42	4.66	4.69	3.33	5.64	3.25

north as New England. Characterized by more sunshine, the warmer weather spread westward and improved agricultural conditions. Late in this period the first hurricane of the season developed in the northwest Caribbean and was near full strength when it curved northeastward across Florida from Tampa to Jacksonville. Although there was the usual damage to trees, roofs, transmission lines and crops, it was far outweighed by the beneficial results of heavy rain which broke the long drought. Across country, however, in New Mexico and Arizona, some localities experienced less than 20% of normal June rainfall.

July's most unusual feature was that its temperatures averaged close to normal throughout the country. Rainfall was of the summer type—caused by thunderstorm activity rather than by deep cyclonic systems. Since significantly above-normal totals occurred mostly in eastern and southern states, the turn to favourable agricultural conditions in central sections continued from June. From Vermont to Virginia flash floods were frequent. Many local records of short, intense rainfall were established in this region; near Washington, D.C., 6 in. fell in 50 minutes. A persistent northward current of maritime tropical air, rounding a Bermuda high displaced abnormally northward, was the basic cause of these excessive rains. Imbedded in the same current, Florida saw further improvement in its water supply. But in the southwest, rains were deficient and the normally dry summer conditions of the Pacific coast were extreme. Fires became a menace in the unnaturally dry forest regions.

August temperatures also averaged near normal over most of the country. Rainfall distribution was spotty. One consequence of the distribution of temperature and precipitation was that the central states, plagued by a combination of excessive rain and cold in the spring, were suffering lack of rainfall aggravated by high temperatures. In the Pacific northwest a like combination kept the forest-fire hazard active. The second great hurricane of the summer was responsible for an area of heavy rainfall along the Texas coast. Producing winds of 100 m.p.h. and tides as high as 10 ft., the storm's intensity diminished rapidly as it moved inland west of Houston. Timely advices by the weather bureau's special hurricane-warning network prevented great damage and loss of life.

Dominant storm of September was another hurricane which curved across Florida from west of Miami to east of Jacksonville, losing intensity all the way. From the coastal waters it moved inland again west of Charleston, dissipating in north-central North Carolina. Winds exceeded 100 m.p.h. over Florida's extreme tip but diminished thereafter. Floods caused the most widespread damage, a 52-year record being topped by the stage at Fayetteville, N.C.

Increasingly frequent southeastward incursions of cold air from the north shifted temperatures toward a fall pattern—relatively warm over eastern, southern and southwestern sections, relatively cool elsewhere. In the southeast the hurricane had increased rainfall to more than three times normal but over the southwest many stations reported no appreciable rainfall. In central sections, September produced an abrupt shift between two extremes, both agriculturally unfavourable—a shift from warmth and dryness to cold and wetness.

Frequent occurrence of the clear skies and mild temperatures typical of Indian summer improved the farming situation in October. Again near-normal temperatures prevailed. Most of the country was drier than normal although 500% of normal precipitation fell over northern California and west-central Nevada. The latter was largely the result of the first major storm of the season on the Pacific coast, depositing rainfall up to 10 in. and snow at altitudes above 8,000 ft.

By mid-November below-zero temperatures and snow cover overspread Montana and the Dakotas. Frequent cyclonic storms were followed by waves of cold air moving farther southeastward with each recurrence. The final storm of the month, an intense secondary development over the south Atlantic states, produced heavy snow and high winds—blizzard conditions—from Pennsylvania to Maine. Behind the storm system freezing weather descended to the Everglades, but timely warnings prevented extensive truck-farm damage. By the end of November the country north of a line from the middle Gulf to the Sacramento valley had experienced freezing temperatures. Nevertheless, the month averaged warmer than normal, with significant minus departures confined to the region from Montana to Minnesota. Precipitation was less than half normal in the great plains, the southwest, and the Atlantic and Gulf coastal plains, but much above normal from Arkansas-Tennessee to the middle and north Atlantic states, and also in the western lake region, the Pacific northwest and the northern great basin.

Short spells of wintry temperatures and snowy weather during early December were followed by a prolonged period of frigid temperatures and widespread snows. For one week around the middle of the month average temperatures were below normal throughout the entire country except in extreme southwestern California and extreme southern Florida. Over practically the entire area from the Rocky mountains to the Atlantic coast and southward almost to the Gulf minus departures exceeded 10°. Snow was common over the northern half of the country during this period, occasionally reaching as far south as northern sections of the Gulf states. In the vicinity of Buffalo, N.Y., snow drifted by strong winds piled higher than a man's head. Not only traffic but almost all other activities were stalled. Throughout the north and east even crack passenger trains limped into terminals as much as 20 hr. late. Deaths directly attributable to the severe weather occurred in 16 states, New York leading with 11 fatalities.

Moderation of the frigid and snowy weather followed, but occasional freezing rains added to the hazards at the southern edge of the snow cover and occasional blizzards caused by blowing snow occurred in north-central sections. By the end of December the snow cover had receded 100 to 200 mi. northward in most sections east of the Rockies.

On the Pacific coast, where moderate temperatures prevailed, persistent rains during the latter part of December produced general flooding from northern California to southwestern Washington by the end of 1945. Overflow was especially severe in the Willamette basin above Portland, Ore., rich farm land being inundated and transmission lines

washed out. (See also DISASTERS; FLOODS AND FLOOD CONTROL.)

(F. W. RR.)

**Other Countries.**—The values for monthly rainfall and monthly mean temperatures given in the accompanying tables referring to countries outside the United States are provisional and may in some cases require a small correction. Because of war conditions it was not possible to give complete data for some of the stations. Gaps in the tables indicate that the data could not be obtained.

**FILMS.**—*Atmosphere and Its Circulation; The Weather* (Encyclopædia Britannica Films Inc.). (D. BRU.)

## Methodist Church.

The Crusade for Christ which was launched by the general conference in 1944 with five objectives was pressed with vigour. For the first objective—\$25,000,000 for relief, rehabilitation and advance—more than \$27,000,000 was promptly pledged, on which \$21,979,481 was paid up to Dec. 14, 1945. Efforts were being made to add at least 1,000,000 to church membership and to arrest the alarming decline in Sunday school enrolment and attendance. Active membership in the church in Nov. 1945 was reported as 8,046,129, a decrease of 41,789 from 1944. In 3,360 pastoral charges not one new person was received, except by transfer. Although church school (Sunday school) enrolment was 4,898,096, the average attendance was less than one-half that number, and the children's division, which should be largest, was the smallest of the three. Officers and teachers numbered 476,363.

The Methodist Church contributed \$21,598,525 "for others" (benevolences), a material advance. For ministerial support \$42,216,131 was raised. This included the amount paid to retired ministers, and to bishops and district superintendents. The average ministerial salary was \$1,660 and a house. The current expenses of local churches totalled \$23,000,000. Church debt-paying was a feature of operations in 1945. For this the Methodists spent \$12,197,248. In 1944 the church paid \$116,223,876 for all purposes, which was at the rate of \$14.44 per capita. The largest church in the denomination was First Church, Houston, Texas, with 6,760 members, but the average pastoral charge had two small preaching places with a combined membership of 381.

The Board of Publication had its greatest year with sales of \$8,315,232. Its circulation of church school helps and story papers rose to 89,000,000 copies. It appropriated \$400,000 for distribution among the retired ministers. Among its new projects were a colour press for *The Christian Advocate*, whose weekly circulation exceeded 320,000; the provision of a scholarship fund for Methodist youth, designed to fit them for service among its 1,300 employees; and the erection of a headquarters building in Nashville, Tenn.

Changes in the College of Bishops in 1945 were the retirement of Bishop B. T. Badley of India, Bishop Gattinoni of South America and Missionary Bishop John M. Springer of South Africa. The Rev. Arthur F. Wesley, a missionary from North America, succeeded Dr. Gattinoni and the Rev. John A. Subhan, a Mohammedan convert, was elected by the India Central conference in succession to Dr. Badley; Dr. Newell S. Booth succeeded Dr. Springer. War conditions prevented elections in China and Germany. Bishop Ward was released from internment by the Japanese in China. Bishop Melle in Germany suffered much from the bombing and invasion, and reported the destruction of a large proportion of the Methodist Churches and other institutions in the reich. Bishop Edwin F. Lee, who escaped from Singapore when the Japanese invaded Malaya, and later from Manila, served in Washington, D.C., as head of the Chaplaincy commission. He made a flying trip to the Philippines, returning with reports of immense destruction. To meet the calls for relief and reconstruction which came from all the war-torn lands, the Methodist Committee on Overseas Relief raised \$673,296 in the fiscal year ending May 31, 1945. This

agency disbursed \$216,619 for China Relief, and through other channels more than \$460,000. To Archbishop Damaskinos, regent of Greece, the Crusade for Christ gave \$25,000 for child relief in that country.

The unification of Methodism, which had been stubbornly fought in the courts by a small group, was completely confirmed. The last move of the antiunificationists was to "perpetuate" the Methodist Episcopal Church, South, by setting up a South Carolina Conference of the M.E.C.S., taking advantage of a decision of a state court that the unified Methodist Church had no exclusive right to the names of the uniting bodies. To defeat this divisive movement the eight bishops of the southeastern jurisdiction of the Methodist Church—all of them former Southern Methodists, filed a suit in the federal court, which upheld the South Carolina decision. The bishops then took their cause to the United States court of appeals which reversed the decisions of the lower courts, and declared the union completely valid, awarding to the Methodist Church the exclusive use of the former denominational names. (See also CHURCH MEMBERSHIP.) (J. R. J.)

**Metropolitan Museum of Art:** see ART EXHIBITIONS; ART GALLERIES AND ART MUSEUMS.

**Mexico.** A federal republic of North America lying between the United States and Central America. Area, 767,168 sq.mi.; pop. (est. 1945) 21,672,733 (19,473,741 census 1940). Approximately 55% of the population was mestizo, 29% Indian, 15% white, with foreigners and others making up less than 1%. The language is Spanish, but an estimated 14% speak only Indian tongues. There is no official state religion, but the people are overwhelmingly Roman Catholic. The capital is Mexico City (pop. 1,464,556). Other principal cities are: Guadalajara, 228,049; Monterrey, 180,942; Puebla, 137,324; Mérida, 98,334; León, 86,089; Tampico, 81,334; Aguascalientes, 81,124; San Luis Potosí, 78,042; Torreón, 76,613; Veracruz, 70,958; Chihuahua, 57,456; Pachuca, 52,387. The president in 1945 was Gen. Manuel Avila Camacho (took office Dec. 1940).

**History.**—During the year 1945 Mexico occupied itself with World War II; became prominent briefly in world diplomacy; struggled against inflation and illiteracy; but, above all, entered with zest into its presidential campaign. President Manuel Avila Camacho's term was to expire in 1946.

Candidates for the position of president were numerous and colourful. Ex-Minister of the Interior Miguel Alemán had considerably the lead in popularity by the end of the year over his various opponents. He had the blessings of the administration, and the support of the principal Mexican Revolutionary party (P.R.M.). Alemán's campaign, opening almost a year before the July 1946 elections, was very active, with numerous speeches attended by large, cheering crowds. He was described as a handsome, young, clever lawyer who had been governor of the state of Veracruz, and who managed the campaign of President Avila Camacho in 1940. Alemán was known to be a little more liberal than President Camacho and furthermore had the backing of the senators, deputies and state legislators.

The most serious opposition to Alemán was the former foreign minister, Ezequiel Padilla. Padilla, who served under Gen. Zapata and Pancho Villa during the revolution, became a world diplomatic figure during the Chapultepec and San Francisco conferences. He showed himself, furthermore, to be a man of great oratorical ability. He acquired, however, a reputation for having been over-friendly and subservient to the United States. He also lacked the support of any powerful, organized political party, except of his own making. His support came from much more conservative elements than in the case of Alemán.



A GROUND CREW of the 201st Mexican fighter squadron checking a P-47 Thunderbolt. They arrived in Manila during May 1945 to join the U.S. 5th air force in the air war on Japan

Other candidates in the field included Gen. Calderón, Gen. Henriquez Guzmán, Rojo Gómez and Enrique de Montalvo. Also an important figure, but not an avowed candidate, was the labour leader, Lombardo Toledano. The extreme right, including the National Action party, the National Unification movement, and the Sinarquistas were represented as well, but had very little popular support.

Mexico's contribution to Allied arms remained an important issue during the first part of 1945. At the beginning of the year it was decided by the Mexican senate to send troops abroad when and where needed by the Allies. The only group ready to leave for overseas, however, was the Mexican expeditionary air squadron comprising 300 U.S.-trained airmen, who graduated early in January. In April the squadron left for the Pacific. They saw action in the Philippines where the Mexican airmen in U.S. Thunderbolts bombed and strafed enemy troops. The squadron was received back in Mexico, after the defeat of Japan, as conquering heroes with celebrations in the National stadium at Mexico City and decorations of service in the far east.

During the induction of its wartime army, the illiteracy problem in Mexico was highlighted. The problem was considered to be so serious that a program was launched in April 1945 whereby each literate Mexican citizen was required to teach at least one illiterate citizen to read and write. While the results from the program were not yet known, the general effect was thought to be very great in making a substantial reduction in illiteracy.

The year 1945 was an important one for Mexico in international affairs. The Inter-American Conference on Problems



of War and Peace (*q.v.*), which ended its 16-day session on March 8, was held in the famous castle of Chapultepec in Mexico City. Manuel Tello acted as secretary-general, and was credited with having provided an excellently organized and efficiently conducted program. Mexico's foreign minister, then Ezequiel Padilla, representing the host country, was especially influential in the conference. He was assisted by the Mexican ambassador to the U.S., Francisco Castillo Nájera, who later became foreign minister.

Foreign affairs in Mexico were also concerned with a treaty with the U.S. for determining the allocation of the waters of the Río Grande, the Colorado and the Tiajuana rivers. Since the treaty would give large concessions to Mexico in regard to the Colorado river, the state of California registered a strong protest with the U.S. state department. However, after a number of months of negotiations, the treaty was signed by Secretary of State Byrnes and the Mexican Ambassador Antonio Espinosa de los Monteros. In spite of considerable debate both in the U.S. senate and the Mexican senate, the treaty was ratified by large votes. (*See also* IRRIGATION.)

Part of Mexico's foreign relations concerned its refugee colonies. Prominent among the refugee groups in Mexico were the Spanish Republicans. In January the Republicans called a meeting of the cortes in the Mexico City French club. Out of an original membership of 476, there were 90 present. The cortes adjourned without taking action on the organization of a new government, since so many members were missing. Ex-Premier Juan Negrin finally arrived in Mexico from London, and promptly set to work to establish unity among the various groups. Finally, on Aug. 9, all parties except the Socialist Workers were sufficiently in agreement to elect Diego Martínez Barrio as president of the cortes. José Girál was later elected as premier of the new government.

The action of the cortes was shortly followed by official recognition, on Aug. 30, by Mexico as the official Spanish government-in-exile. Other Latin-American countries followed Mexico's lead. This action on the part of Mexico was expected to be of considerable aid to the Spaniards who had been making their homes and plying their trades and professions in Mexico. Previously, all assistance to these elements had to be unofficial through lack of any official channel other than the representatives of Franco Spain.

Another refugee group in Mexico included the Polish colony at Santa Rosa, Guanajuato, Mexico. In the sanctuary at Santa Rosa 1,400 Poles established themselves.

The case of the German internees at Fort Perote at Veracruz was quite different in some respects. Until the collapse of Germany, the internees had been held as prisoners, except that they had always been given considerable freedom within the fortress. As soon as Germany collapsed, Pres. Avila Camacho issued an order for their release and arranged for each man to receive 1,000 pesos to begin life anew. They were further given the privilege of applying for citizenship and of travelling freely so long as they kept the department of the interior apprised of their whereabouts. Most of the internees promptly found employment, and the greatest portion of them had already declared their intention of becoming citizens.

On the educational side, the University of Mexico again was prominent in the events of the year. In March, a new rector for the University of Mexico was chosen to succeed Alfonso Caso. The supreme governing body of the university, the *Junto de Gobierno*, after considerable deliberation chose Lic. Genaro Fernández MacGregor of the faculty of jurisprudence for the usually stormy post of rector. MacGregor announced a policy of complete academic freedom.

Economically, Mexico struggled with inflation, strikes and re-

conversion from wartime conditions. While direct participation in war activities, although costly, were not of such magnitude as to cause great national strain, Mexico reflected the dislocations felt in other parts of the world. This was largely because it had what has been described as a "colonial" or dependent economy. Most of the consumer goods and food, for example, used in Mexico had come from the United States or Europe. When normal markets and sources of supply were cut off or interfered with, Mexico began to feel the strain the same as the warring nations.

As might be expected, one of the powerful effects on Mexico was a tendency to inflation or rising prices. During World War II, Mexico's cost-of-living indexes showed a rise of more than 270%. But even more significant, articles such as clothing and food went higher: clothing reaching 347% and food, 279%. This occurred even though Mexico had established price controls and had carefully pegged the peso in terms of the dollar.

Many movements were begun in Mexico to strengthen its economy. Perhaps the most startling was an attempt on the part of labour and management to form a type of "alliance." Thirty of the Mexican industrial leaders, headed by Aurelia Lobatón, José D. Lavín and Aarón Saénz, met in April at a banquet in Mexico City with 30 labour leaders, headed by Vicente Lombardo Toledano, Fidel Velásquez and Juan Elizondo. The most powerful labour unions and the largest industries were thus represented.

The "alliance" as finally defined and agreed upon in a jointly signed document, was for the purpose of achieving certain national goals. These were principally to establish a more self-sufficient economy for Mexico. At the same time it was agreed that the policy of self-sufficiency should not exclude economic participation with other nations, but co-operation with the United States and other countries should be in terms beneficial to Mexico. It was further stated that the rights of the separate classes of labour and management would in no way be prejudiced by the agreement. The agreement was solely for the purpose of furthering the national interest. What effect the "alliance" would have on the future relations of Mexican labour and management remained to be seen, either in terms of the agreement or in terms of a precedent for future agreements.

Rising prices and new dislocations following the termination of the war had their effects in labour restlessness. A considerable increase in strikes, and in conflicts which were settled without strikes, was registered in 1945 over the previous year, which had had a total of 2,612 disputes.

One of the most serious difficulties arose over a discussion of the textile industry in April to modernize its machinery. It was proposed to install automatic equipment so as to double the output of many of the workers. At the same time, the industry decided upon a type of unemployment insurance which was designed to give displaced workers assistance during the period they would be searching for other employment. A threat of strike soon developed with a demand for a rise in wages. The matter was finally settled by arbitration.

The strike which received very wide notice was that in the Mexican motion picture industry. The dispute was over re-employment rights of some discharged workers. Their reinstatement or the payment of a 150,000-peso fine was demanded.

Citing a general rise in the cost of living on the one hand, and increased-revenues on the other, the silver miners of Mexico gave notice in November of their intention to strike. The demand was for a rise of wages of almost 40%. Government arbitration finally prevailed.

In agriculture, bad weather gave Mexico bad crops for another year. However, in one respect, agriculture showed an appreciable gain. Irrigation works were increased until expendi-

tures in this regard reached 10% of the total national expenditures. This was almost five times the outlay under the former president, Gen. Cárdenas. The government officially expressed the opinion that from 10,000,000 to 15,000,000 ac. of arid land could possibly be irrigated.

**Education.**—Education was free, compulsory and divorced from religion. Private schools were allowed, however, to teach religion. There were approximately 25,000 primary schools, with about 2,000,000 enrolment (15,531 government, with 1,343,504 enrolment). Secondary schools had about 80,000 enrolment (45,534 enrolment in government schools, including technical and agriculture). Also, the 10 universities had about 30,000 enrolment, of which 22,230 (1945) attended the autonomous University of Mexico, Mexico City. Illiteracy was about 35%; however, this number was expected to decrease substantially under the impact of the new program of "each person teach one person to read," and as a result of special instruction given to all personnel who were illiterate.

**Finance.**—The monetary unit was the peso (value in Nov. 1945, 20.578 cents U.S.). By August money circulation, including bank deposits, had risen to a total of \$837,254,250, of which \$307,416,550 was in paper money; \$119,212,850 in coin; and \$410,625,250 in the form of deposits. This surpassed the same period in 1944 by \$174,554,450.

The national budget for 1945 showed a drop from the 1944 high of \$227,150,000 to \$207,377,625. Some of the more important items were: agriculture, \$35,931,000 of which \$29,942,500 was set aside for irrigation; public education, \$35,311,500; national defense, \$35,208,250; navy, \$7,702,243; communications, \$33,127,762; public debt, \$17,065,779; public health and welfare, \$13,422,500; treasury, \$9,770,547; investments, \$4,956,000; national economy, \$2,845,363; interior, \$2,577,533; agrarian, \$2,270,467; foreign affairs, \$1,280,300; legislative, \$1,898,561; judicial, \$1,260,682; labour, \$1,123,360; Indian affairs, \$796,883; attorney-general, \$493,948; presidency, \$334,943.

Bank loans in 1944 totalled \$1,901,415,036. Of these, 46% went to commerce; 36% to industry; 12% to agriculture; and 6% to mining and stock raising.

**Trade and Communications.**—During the last half of 1944 and almost all of 1945 imports exceeded exports, a reversal of experience during former years. Total volume for 1945 was estimated to fall below the 1944 figure. United States received 87% of the trade; Latin America 5%; and Europe 3.9% (most of which went to Great Britain).

Exports in 1944 equalled \$278,506,550 (\$233,316,090 in 1943). Gold, silver, copper, lead, zinc, oil and other mining products comprised some of the largest single items of export. Beef, henequen, tomatoes, chicle, bananas, coffee, chick peas, cotton, vanilla, vegetable wax and fodder stood high on the export list. Values according to certain general classes during 1944 were: animal products \$14,303,950; vegetable products \$79,027,550; mineral products \$61,046,800; fuels \$6,814,500; textiles \$25,998,350; food and beverages \$20,711,950; other products \$11,944,400. It should be noted that for the first time vegetable products surpassed mineral products in value.

Imports in 1944 were \$216,370,700 (\$187,997,600 in 1943). Manufactures including machinery and processed items comprised the largest portion of the imports. Values according to certain general classes during 1944 were: animal products \$35,187,600; vegetable products \$63,622,650; mineral products \$48,155,800; textiles \$13,154,050; chemicals \$28,084,000; machinery and iron goods \$40,990,250; scientific apparatus and vehicles \$24,325,700.

External communications were by sea, especially through Veracruz; by three main railways to the United States and one

to Guatemala; by air to all parts of the hemisphere; and by a growing network of motor highways.

The National railroad hauled 8,895,806 tons during 1944, a total almost equal to the freight hauled by all remaining railroads. Total freight carried was 17,117,277 tons. This was a decrease from the 1943 figure. Railroad mileage was about 15,000 mi. in 1945. There were more than 36,000 mi. of improved roads, of which 5,000 were paved, and 7,000 were traversable in all types of weather.

**Agriculture.**—Mexico had an estimated 37,050,000 ac. of tillable land, of which 13,410,556 ac. were under cultivation according to the 1940 census. More than 17,000,000 ac. were under cultivation in 1945. Forest land comprised 25,893,993 ac.; grazing land, 69,713,715 ac.; 2,471,000 ac. were estimated to be under irrigation by the end of 1945 (more than 2,000,000 ac. of this were under cultivation). Latest estimates on amount of land which could be irrigated if all potential waters were employed equalled about 12,000,000 ac.

Agricultural production was (in tons, 1943, unless otherwise indicated): maize, 2,639,807 (1944); wheat, 424,152 (est. 1945); sugar, 427,900 (1944); rice, 127,576; beans, 171,600; large kidney beans, 18,594; tomatoes, 190,000; chick peas, 82,056; sesame, 96,072; pineapples, 71,700 (1944 marketed); coffee, 54,000; henequen, 660,236 (bales 1944); chicle, 10,400 (1944-45); alfalfa, 2,060,500; green peppers, 34,629; potatoes, 135,770; sweet potatoes, 65,806; cotton 508,267 (bales 1944); vanilla, 164; avocados, 60,104; cacao, 1,650; bananas, 7,200,000 (bunches).

Animal census (1940) by head was: cattle, 11,621,879; horses, 2,511,175; mules, 932,522; donkeys, 2,341,539; sheep, 4,401,014; goats, 6,849,709; hogs, 5,067,642. An estimated 164,000,000 ac. were devoted to range.

Timber produced in 1942 was: 33,315,000 cu.ft. of pine; 1,317,250 cu.ft. of mahogany; 1,045,320 cu.ft. of red cedar; 432,600 cu.ft. of white cedar; 91,820 cu.ft. of primavera. Charcoal, resins and other products equalled 50,265 tons.

**Manufacturing.**—During 1945 there was a steady expansion in Mexican industry. New developments during the year included the establishment of rayon factories (additional annual capacity 17,000,000 lb.); tire factories; medical supplies manufacturers; cement factory; hardware and locks manufacturers; and a fruit packing plant.

The large textile industry (estimated production 600,000,000 yd.) took steps during the year to modernize its machinery. Other important classes of manufacturing firms were: sugar mills; alcohol distilleries; cigar and cigarette (917,000,000 packs) factories; shoe, binder twine and soap factories; chemical works; breweries; flour, paper and coffee mills; iron and steel mills and foundries (steel production was up 25% during 1945); cement manufacturers (688,969 tons in 1944); ice plants; glass and ceramic works; and woodworking shops.

**Mineral Production.**—Although the relative importance of mining to Mexico's economy had decreased, it was still of basic importance in 1945. Actual mining production in 1944 was lower by 25% than in 1943. Total value of metals during 1944 was \$146,408,500, of which precious metals amounted to \$50,786,610; industrial metals amounted to \$90,442,447; and metal-oids amounted to \$5,179,226. Production of various metals during 1943 was: gold, 1,022,238 oz. (1944); silver, 2,960 tons; copper, 54,751 tons; lead, 239,938 tons; zinc, 216,918 tons; antimony, 15,050 tons; arsenic, 22,331 tons; bismuth, 193 tons; cadmium, 882 tons; coal, 1,127,858 tons; strontium, 3,056 tons; tin, 475 tons; graphite, 22,744 tons; iron, 151,763 tons; manganese, 25,245 tons; mercury, 1,074 tons; molybdenum, 2,086 tons; tungsten, 270 tons.

Petroleum production, after declining rapidly from a total of

43,304,179 bbl. of crude in 1941 to 32,955,000 bbl. in 1942, increased to 36,383,455 bbl. in 1944. Refinery products in 1944 equalled 34,660,000 bbl.

During 1944, 27 new wells were sunk of which 24 were producers. Lack of shipping facilities still hampered the Mexico oil industry.

**BIBLIOGRAPHY.**—Secretaria de la Economia Nacional, Dirección General de Estadística, *Anuario estadístico de los Estados Unidos Mexicanos, 1940* (1942); Banco Nacional de México, *Review of the Economic Situation of Mexico* (Mexico City, monthly); H. B. Parkes, *History of Mexico* (1939); Frances Toor, *Guide to Mexico* (rev. ed. 1940); Anita Brenner, text, and George R. Leighton, photographs, *The Wind That Swept Mexico; The History of the Mexican Revolution, 1910-1942* (1943); Hudson Strode, *Timeless Mexico* (1944); Josephine Niggli, *Mexican Village* (1945).

**FILMS.**—*Arts and Crafts of Mexico; Land of Mexico* (Encyclopædia Britannica Films Inc.). (C. L. G.)

**Mexico City Conference:** see INTER-AMERICAN CONFERENCE ON PROBLEMS OF WAR AND PEACE; PAN AMERICAN UNION.

**Mica.** United States.—Statistics on mica production and consumption in the United States during World War II were available, and the salient figures on the industry are as given in the Table.

Data of Mica Industry in the U.S., 1940-44

	1940	1941	1942	1943	1944
Amount sold or used					
Sheet and punch . . . . .	812.7	1,333.2	1,380.9	1,724.1	761.7
Scrap . . . . .	22,386	32,500	43,262	46,138	51,727
Total . . . . .	23,199	33,833	44,643	47,862	52,489
Imports . . . . .	7,688	8,300	11,294	13,759	7,242
Sheet and punch . . . . .	767.1	1,008.4	1,622.4	2,750.9	2,516.5
Scrap . . . . .	3,061	1,251	2,179	2,048	2,412
Splittings* . . . . .	3,860	6,041	7,493	8,960	2,314
Splittings, consumption . . . . .	2,459.4	3,648.8	3,318.3	4,206.7	4,408.5
Stocks, Dec. 31 . . . . .	1,111.3	1,825.2	1,873.6	1,016.4	1,012.1

\*Includes other manufactured forms.

These data reflect clearly the drop in demand that became manifest in 1944 for the strategic form of mica and resulted in relaxations in control measures. They also emphasize strongly the lack of ability to meet more than a small fraction of the emergency demand from domestic output, even at sharp increases in price, which rose from an average of 18 cents per pound in 1940 to 94 cents in 1943 and \$2.14 in 1944.

The greater portion of the U.S. imports from India in 1944 was splittings, while Brazil was the largest shipper of sheet mica, followed by Canada, Argentina and Madagascar.

**Canada.**—While mica production in Canada was reported to have decreased from 4,025 short tons in 1943 to 3,342 tons in 1944, these figures included large amounts of scrap mica. Strategic grades amounted to only 992 tons in 1943 and 652 tons in 1944.

**India.**—India is the world's largest producer of sheet and block mica and splittings, with exports totalling 9,539 short tons in 1940, 11,667 tons in 1941, 9,622 tons in 1942, 10,342 tons in 1943, and somewhat less in 1944. Little if any scrap is included in these figures.

Government purchase of Indian mica was scheduled to end on Nov. 30, 1945, to be followed by restoration of normal commercial operation.

(G. A. Ro.)

**Micara, Clemente** (1879- ), cardinal archbishop of Apamea in Syria and apostolic nuncio to Belgium and internuncio to Luxembourg, was born at Frascati, Italy, on Dec. 24. As a young priest he entered the corps of papal diplomats, shortly reaching the rank of nuncio. Named nuncio of Belgium and internuncio of Luxembourg in 1923, he became dean of all apostolic nuncios.

Following the German occupation of Belgium in 1940, Arch-

bishop Micara was expelled, together with other diplomats, and returned to Rome where he remained throughout the World War II period, engaging in special work with the secretariat. He joined the Belgian exile government at London in the summer of 1944, and later returned to Brussels.

Archbishop Micara was nominated to the Sacred College of Cardinals according to an announcement released Dec. 23, 1945, and he was created and proclaimed a cardinal on Feb. 18, 1946.

**Michigan.** One of the north central group of states, Michigan was the 26th state admitted to the union; it is popularly known as the "Wolverine state." Area 97,940 sq.mi. (including 39,960 sq.mi. of Great Lakes water surface); pop. (1940) 5,256,106; (estimate, Jan. 1, 1946, 6,100,000). Of the state's population in 1940, 3,454,867 were urban, 1,801,239 rural. Whites composed 95.9% of the population, nonwhites 4.1% (215,934). Capital, Lansing (78,753). Larger cities were Detroit (1,623,452), Grand Rapids (164,292), Flint (151,543), Saginaw (82,794).

**History.**—Michigan experienced especially difficult problems of reconversion following V-J day. During the closing weeks of 1945, public attention throughout the country was concentrated upon the huge strike which began in the General Motors plants (Detroit, Flint, Pontiac, Lansing, Grand Rapids and other cities) on Nov. 21. Ranking fourth among U.S. corporations in the number of employees, the General Motors corporation was, it was commonly recognized, in position to influence vitally the whole postwar labour situation. By the end of 1945 no promise of a settlement was yet at hand. Other automobile plants also experienced production difficulties; total automobile production in Michigan in 1945 was less than 15% of that anticipated in early fall.

The 63rd legislature, convening in regular session at the beginning of 1945, was strongly Republican in personnel. For the better part of two months, however, the nominal Republican strength of 24 was reduced to 21 by the resignation of one member charged with graft, the murder of another, and the failure of a third to attempt to occupy his seat, following conviction on the charge of conspiring to buy and sell votes. On the Democratic side, a member previously convicted of recount fraud, was allowed to retain his seat despite some effort to unseat him. The legislature, remaining in session until April 26, passed a total of 381 measures. Except for a few, however, the acts were of routine or limited importance. An annual budget of \$162,500,000 was adopted, representing an increase of \$25,000,000 over expenditures for the fiscal year. New or increased taxes were placed on whisky, on bank accounts and other intangible property, and on horse racing. A state department of mental health was created to replace the State Hospital commission. To combat juvenile delinquency, a Michigan Youth Guidance commission was set up for at least a two-year period. A state department of aeronautics was also established. Of the 381 measures passed, four were vetoed by Governor Harry F. Kelly. The failure of the legislature to adopt more significant legislation was ascribed by some of the members to the "dampening effect" of the grand jury investigation into charges of fraud in the state legislature.

Late in 1945, the governor called the legislature into special session in Jan. 1946, to deal particularly with the state's building program.

In the 1945 spring election, Justices Raymond W. Starr and Walter H. North were by large majorities elected to succeed themselves, as members of the state supreme court. For the remaining offices, the Republican candidates were uniformly successful. Charles M. Ziegler was re-elected state highway commissioner; Eugene B. Elliott, superintendent of public instruc-



tion; and Melville B. McPherson and Forrest H. Akers, members of the state board of agriculture. (Following the death of McPherson, Governor Kelly in July appointed Frederick H. Mueller to succeed him.) New officials chosen were Dr. Charles S. Kennedy and Otto E. Eckert as members of the board of regents of the University of Michigan (making the board completely Republican for the first time in 12 years); and Charles G. Burns as member of the state board of education. A constitutional amendment intended to liberalize the existing 15-mill limitation in order to permit local units of government to finance public building, construction of public works, and acquisition of sites through majority vote of taxpaying electors, was defeated; an amendment to allow state participation in control of rivers and lake levels, was adopted.

Total state revenues for 1944-45 were the highest in history, amounting to \$258,232,442. Nearly 40% of the total came from the sales tax. The combined surplus on June 30 was \$79,034,932. Federal benefits to the state amounted to \$30,300,000. Michigan's wealth was revealed by the fact that with only 3.2% of the population of the United States, its federal tax load amounted to nearly 6% of that levied in the country.

By Nov. 30, more than one-third of the 613,542 men Michigan had sent into the armed services had returned to their homes.

**Education.**—There were 6,029 school districts in the state public school system in 1945, with an average membership of 588,501 pupils and 18,626 teachers in the elementary grades, and 346,643 pupils and 11,965 teachers in the secondary grades. State expenditures for education in 1944-45 amounted to \$68,173,578. The ending of hostilities in August brought a tremendous upsurge in the enrolment of the various universities and colleges in Michigan, with particularly acute housing problems at the University of Michigan, in Ann Arbor, and at Michigan State college, in East Lansing.

**State Insurance and Assistance, Public Welfare and Related Programs.**—State hospitals for the physically ill had a population of 558; those for the mentally ill 20,971; welfare institutions 1,521; reformatories and prisons 7,493. Expenditures for public health and medical assistance were \$8,521,338; for mental hygiene \$13,683,826; for public welfare service \$48,458,529; for public safety, defense and adult corrections \$9,098,301. An inquiry into the administration of the State Prison of Southern Michigan (which with a population of 5,074 was reputed to be the largest prison in the world) instituted in March by Attorney John R. Dethmers, at the request of the Michigan State Police, resulted in the ousting in July of Warden Harry H. Jackson and six other officials and in loud public demands for a thorough revision of administrative practices in the institution.

**Communication.**—State highway fund expenditures of \$51,000,000 exceeded revenues for the year 1944-45 by nearly \$500,000, despite the fact that they were more than \$9,000,000 less than expenditures for the immediately preceding year. During the closing months of the calendar year, however, the lifting of gasoline rationing brought a sharp increase in revenue. A broad postwar program of repair and construction for the state's highway system was planned, comprising more than 9,000 mi. of trunk-line highways and 88,000 mi. of county roads. During the 1945 Great Lakes shipping season, 481,802,217 bu. of wheat passed through the St. Mary's Falls canal (the Soo canal)—constituting an all-time record. The amount of iron ore passing through the U.S. and Canadian locks, 78,039,957 tons, was about 5% less than the record for the preceding year.

**Banking and Finance.**—The 344 state banks in Michigan on June 30, 1945, had total assets of \$2,182,034,633.58; assets of three industrial banks totalled \$4,875,363.75; those of eight trust companies \$39,108,048.95; those of 38 building and loan associations, \$90,674,768.74. Total resources of 75 national banks operating in Michigan were \$2,687,848,000.

**Agriculture.**—The total acreage harvested was 8,253,500; the total value of field and farm crops \$7,150,000. Cash income from crops and livestock approximated \$500,000,000. Despite unusual weather conditions, wheat was a bumper crop, and the total tonnage of feed grain production (grain corn, oats and barley) was 18% larger than in 1944 and 24% above the ten-year average. The tame hay crop was 12% above average; red clover seed production was above average, alfalfa seed production only about 10% of the average. Field bean production was somewhat below normal. The combined tonnage of the principal tree fruits and grapes was only 40% of that of 1944. The apple production was only 16% of average, and peaches alone reached a substantial yield, production being 67% above average.

Table I.—Leading Agricultural Products of Michigan, 1945 and 1944

Crop	1945	1944
Corn, bu. . . . .	61,915,000	57,760,000
Oats, bu. . . . .	64,400,000	44,100,000
Winter wheat, bu. . . . .	27,648,000	23,640,000
Potatoes, bu. . . . .	18,700,000	19,548,000
Apples, com'l, bu. . . . .	1,250,000	7,625,000
Field beans, 100-lb. bags . . . . .	3,247,000	4,158,000
Barley, bu. . . . .	3,906,000	3,900,000
Peaches, bu. . . . .	3,848,000	3,600,000
All tame hay, short tons . . . . .	3,846,000	3,424,000

**Manufacturing.**—Because of war conditions, official statistics on manufacturing were not available beyond 1939. During the first half of 1945, Michigan maintained its leadership in war production, although war production demands—notably for the products of the great bomber plant at Willow Run—declined sharply. During the months following V-J day, reconversion proceeded rapidly, with the effect of labour-management difficulties in the automotive industry considerably neutralized by the conversion of the plant at Willow Run to the manufacture of Kaiser-Fraser automobiles.

**Mineral Production.**—Official figures on mineral production are shown in Table II. Iron and copper production was stimulated by war needs. Activity continued in the extension of Michigan's petroleum and natural gas fields.

Table II.—Mineral Production of Michigan, 1944 and 1943

	1944		1943	
	Quantity	Value	Quantity	Value
Iron ore, long tons . . . . .	13,693,377	\$38,537,000	14,510,357	\$40,258,096
Petroleum, bbl. . . . .	18,490,000	26,600,000	20,768,000	29,280,000
Pig iron, short tons. . . . .	1,617,912		1,492,942	24,782,464
Coke, short tons. . . . .	3,005,424	24,848,937	2,948,389	22,006,821
Cement, bbl. . . . .	5,177,176	7,733,185	6,430,404	9,285,815
Copper, lb. . . . .	84,842,000	11,453,670	93,528,000	12,158,640
Natural gas, M. cu.ft. . . . .	19,600,000	13,622,000	18,006,000	12,567,000
Salt, short tons . . . . .	4,287,758	14,921,719	4,284,685	14,472,820

**BIBLIOGRAPHY.**—*Michigan, A Guide to the Wolverine State* (American Guide Series, 1941); *The Michigan History Magazine*, quarterly; press releases and printed reports of the various governmental offices; *Michigan Official Directory and Legislative Manual*, published by the secretary of state biennially. (L. G. V. V.)

**Michigan, University of.** Between July 1, 1944, and June 30, 1945, 1,632 army and 1,941 navy trainees received instruction at the university and in addition 1,311 officers and officer candidates attended the Judge Advocate General's school occupying quarters in the law quadrangle. The major army groups were those in the intensive Japanese language course and the civil affairs training school, the latter of which was discontinued at the end of the Japanese war and its members sent into active service. For the navy, the V-12 course and the graduate school of naval architecture were the largest units. There were also medical and dental students from both services. War research was carried on, and the expansion of one government contract brought about the increase in the transactions of the department of engineering research from \$1,349,699 to approximately \$4,800,000 in a single year. Considering the needs of the institution in relation to rising costs and expected increase in enrolment, the state legislature of 1945 increased the mill tax appropriation for general expenses from \$4,804,000 to \$5,867,451 and appropriated \$1,500,000 for a general service and administration building, plus \$256,000 for repair and maintenance. The regents of the university also authorized a self-liquidating program of residence hall construction totalling about \$5,000,000, to provide accommodations for approximately 500 men and 650 women students and for 176 married couples. Plans were developed during the year with the expectation that construction would proceed in 1946. (For statistics of enrolment, endowment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.)

(F. E. R.)

**Microphotography:** see PHOTOGRAPHY.

**Midway Islands:** see PACIFIC ISLANDS, U.S.

**Mikolajczyk, Stanislaw** (1901— ), Polish politician, was born in Gelsenkirchen, Germany, the son of a farm labourer who emigrated from Poznan province in western Poland to find work in the Westphalian mines. He was wounded during the Russo-Polish war in 1920. After the war, he entered politics and at the age of 29 was elected to the sejm, serving from 1930 to 1935. He was vice-president of the Polish Peasant party and was made its president in 1937. When the nazis invaded Poland in Sept. 1939, he saw military action in the unsuccessful defense of Warsaw. He fled to Hungary and later escaped to France. He became Presi-

dent Paderewski's deputy in the Polish parliament in exile, and succeeded to the presidency on Paderewski's death. Mikolajczyk became prime minister in 1943. He sought a settlement with the soviet union on the Polish boundary dispute; and in 1944 he conferred in Moscow with Premier Stalin on the issue. Mikolajczyk's efforts to achieve a settlement, however, were hamstrung by anti-soviet elements within his cabinet, and he resigned Nov. 24, 1944. Mikolajczyk endorsed (April 15, 1945) the Big Three decision on Poland which was reached at Yalta, and asserted that a close and lasting friendship with Russia should be the keystone of future policy. He accepted an invitation to confer with soviet leaders in Moscow on reorganization of the Polish cabinet in accordance with the Yalta agreements, and he joined the new Warsaw government as deputy premier, June 23.

## Military Academy, U.S.

A government institution at West Point, N.Y., for the practical and theoretical training of young men for the military service. Operation under the accelerated three-year curriculum was continued until after V-J day. During World War II, 2,624 officers were graduated, more than 800 of whom were commissioned as pilots in the army air forces.

In Sept. 1945 the academy adopted a provisional four-year curriculum, taking into account modern trends in education and the experience gained in the war. Uniform aviation training, sufficient to provide graduates with a competent grasp of combined operations, was prescribed for all cadets; but pilot training was dropped in order to provide time for military and academic subjects of more general importance to army officers.

The new curriculum adhered to the proven methods of the past, but included modifications and additions in keeping with experience in World War II. The basic sciences, chemistry and physics were grouped under the same department, and additional time was allotted in order to permit more instruction in nuclear physics. The course in electricity was extended to include basic instruction in electronics and communications. The course in economics, government and history was expanded to include geography and a more thorough study of international relations and economics of war. Each cadet was required to study one language instead of two; but the list of languages offered was enlarged to include Russian. Continuation of amphibious training, and close liaison with the naval academy were emphasized.

(For statistics of enrolment, faculty, endowment, library volumes, etc., see UNIVERSITIES AND COLLEGES.)

**BIBLIOGRAPHY.**—The *Information Pamphlet, U.S. Military Academy*, obtainable from the Adjutant General, War Department, Washington, D.C., gives complete data on entrance requirements, examinations, courses, etc. (M. D. T.)

**Milk.** The production of milk in the United States in 1945 was estimated by the U.S. department of agriculture to be 123,000,000,000 lb. compared with 118,900,000,000 lb. in 1944 and a prewar average of 105,200,000,000 lb. in 1936-40. This was an all-time high record, 3% above the high yield of 1942. This high production was due to the combined advantages of the largest number of milk cows on farms on record at the beginning of the year in addition to a favourable season for pastures and an abundant supply of concentrated feeds. The average number of cows being milked was not only near the record but the average yield was also unprecedented. This was estimated to be about 4,800 lb. per cow, which was 5% above 1944 and 1% above the 1942 previous high record. In spite of the shortage of labour on dairy farms and general complaints by dairymen of government controls and shipping difficulties the output was maintained above the goal. The national

production was at the rate of 872.1 lb. per capita compared with 852.8 lb. in 1944 and an average of 805 lb. in 1936-40. The civilian population got about the prewar quality for domestic consumption, however, in spite of the withdrawals for lend-lease and military needs. Purchases for military uses were about 14,000,000,000 lb. and for export about 2,500,000,000 lb.

Restrictions on the sale of fluid milk and light cream were lifted on Aug. 1 to Oct. 1 in different markets. The restrictions of rationing were reduced later in the fourth quarter of 1945 with a corresponding increase in civilian consumption. The government ceased to require a set-aside of butter on Sept. 1 and with the end of World War II the army ceased its purchases of dried milk. The output of creamery butter had been severely restricted and was the lowest in two decades being only 1,764,000,000 lb. in 1945 compared with 1,841,000,000 lb. in 1944 and 2,243,000,000 lb. in 1935-39. The production of condensed and dried milk took an increased proportion of the supply, increasing to more than 4,000,000,000 lb. in 1945 compared with about 2,400,000,000 lb. in 1935-39.

The price of milk continued to be stable throughout 1945 at practically the same level as in 1944, which was much above the prewar level. Dairymen received the largest total return on record amounting to more than \$3,500,000,000, which was more than double the prewar total. Government incentives were a factor in attaining the high production and were authorized to continue through June 1946. The total of milk products required for relief uses was indefinite but was expected to offset a large part of the reduction of military and lend-lease takings. The number of cows being milked on farms began to decline in June 1945 and the decline continued to the end of the year, indicating that production in 1946 would be somewhat smaller than the record. Labour scarcity continued on farms and the supplies of machinery were not expected to meet the demand until late in 1946.

The civilian consumption of milk and its products in 1945 was estimated at 803 lb. per capita compared with 788 lb. in 1944 and 801 in 1935-39. Butter consumption dropped to about 11 lb. per capita compared with 12 lb. in 1944 and 16.7 lb. in 1935-39. Condensed and dried milk consumed in 1945 was 19 lb. per capita, compared with 16.7 lb. in 1935-39. Fluid milk consumption continued to show above the prewar level, being estimated at 432 lb. per capita compared with 340 lb. in 1935-39. (See also BUTTER; CHEESE; DAIRYING.)

**FILMS.**—*Milk* (Encyclopædia Britannica Films Inc.). (J. C. Ms.)

**Millstones:** see ABRASIVES.

**Mindszenty, Joseph** (1892- ), cardinal archbishop of Strigonia (Esztergom, Hungary), was born at Csehimindszenty, Hungary. He was ordained in 1915. Named bishop of Veszprima in March 1944, he was elevated to the archbishopric of Strigonia in Oct. 1944, to succeed Justinian Cardinal Seredi. He gained the bitter hatred of the Hungarian nazis because he consistently refused to submit to their threats, and was arrested and remanded to jail for four months in 1944 for defying Hungary's former nazi-sponsored Premier Frederic Szalasi. In his 1946 New Year's message he defended his people against the excesses of propaganda attacks but also reminded them that they had sinned and must do penance.

He was nominated to the Sacred College of Cardinals in Dec. 1945, and was created and proclaimed a cardinal at consistory on Feb. 18, 1946.

## Mineral and Metal Production and Prices.

The close of World War II brought an end to the censorship

# MINERAL AND METAL PRODUCTION AND PRICES

483

Table I.—World Mineral and Metal Production in 1944  
(Metric tons unless otherwise specified: Th. indicates thousands and Mi. millions of units.)

Country	Aluminum (Th.)	Bauxite (Th.)	Antimony (Th.)	Asbestos (Th.)	Cadmium (Th. Lb.)	Chromite (Th.)	Coal (Mi.)	Coke (Mi.)	Copper in Ore (Th.)	Copper (Smelter) (Th.)	Diamonds (Th. carats)	Gold (Th. Oz.)	Iron Ore (Mi.)	Pig Iron (Mi.)	Steel (Mi.)	Lead in Ore (Th.)	Lead (Refined) (Th.)
Algeria	—	—	0.1	—	—	—	0.1	—	p	—	—	—	0.79	—	—	4.6 <sup>8</sup>	—
Angola	—	—	—	—	600	—	—	—	—	—	800	—	—	—	—	—	—
Australia	—	3.5 <sup>2</sup>	0.5 <sup>1</sup>	0.3 <sup>3</sup>	91	0.4 <sup>3</sup>	20.7 <sup>3</sup>	1.6 <sup>3</sup>	31.3	22.0 <sup>2</sup>	658	658	2.25 <sup>3</sup>	1.23 <sup>0</sup>	—	179	—
Belgian Congo	—	—	—	—	—	—	23.7 <sup>3</sup>	4.4 <sup>3</sup>	163.3	156.9 <sup>3</sup>	7,540	453 <sup>3</sup>	0.18 <sup>9</sup>	2.2 <sup>0</sup>	1.57 <sup>3</sup>	p	275 <sup>0</sup>
Belgium	—	—	—	—	—	—	—	—	—	65.9 <sup>9</sup>	—	—	—	—	0.37 <sup>3</sup>	—	20 <sup>1</sup>
Bolivia	—	—	6.9	p	1,170 <sup>9</sup>	—	—	—	6.2	—	—	5	—	—	1.70 <sup>3</sup>	9.0	—
Brazil	—	5	p	p	—	—	—	—	—	—	275 <sup>3</sup>	178	0.21	0.30	0.16 <sup>3</sup>	p	—
Burma	—	—	p	—	—	4.7	2.0 <sup>3</sup>	p	—	—	—	p	—	—	—	78.6 <sup>9</sup>	83 <sup>0</sup>
Canada	418	—	p	380.3	548	25.1	15.4	3.2	248.5	224.4	—	2,885	0.50	1.85	2.74	138.2	130.4
Chile	—	—	—	—	—	—	2.3	—	487.6	490.4	—	270 <sup>3</sup>	0.67	—	—	p	—
China	—	—	0.6	—	—	—	5.5	0.3	p	0.2	—	478 <sup>0</sup>	—	p	—	5 <sup>0</sup>	p
Colombia	—	—	—	—	—	—	—	—	—	—	—	554	—	—	—	—	—
Czechoslovakia	—	—	1.6 <sup>1</sup>	—	—	—	30.5 <sup>8</sup>	2.4 <sup>8</sup>	—	—	—	90	1.04 <sup>2</sup>	1.0 <sup>9</sup>	1.73 <sup>3</sup>	4 <sup>8</sup>	p
France	26	665.6	0.1	p	256 <sup>8</sup>	—	—	5.3 <sup>0</sup>	p	0.1	—	16	9.27	4.6 <sup>0</sup>	2.24 <sup>3</sup>	3.5	4.6
Germany	300	25	p	—	—	—	—	54.4	21.0	153.4	—	99	13.54 <sup>8</sup>	21.0 <sup>9</sup>	20.48 <sup>2</sup>	96 <sup>8</sup>	225 <sup>1</sup>
Gold Coast	—	110	—	—	322 <sup>8</sup>	—	430 <sup>9</sup>	—	—	—	1,000	565 <sup>3</sup>	—	—	—	—	—
Greece	—	10	p	—	—	15 <sup>3</sup>	0.1 <sup>3</sup>	—	—	—	—	20 <sup>3</sup>	0.31 <sup>9</sup>	—	—	4.1 <sup>8</sup>	4.9 <sup>9</sup>
Guiana, Brit.	—	928.2	—	—	—	—	—	—	—	—	27	6	—	—	—	—	—
Guiana, Neth.	—	625.8	—	—	—	—	—	—	—	—	—	50	0.37 <sup>9</sup>	0.46 <sup>9</sup>	—	—	p
Hungary	14	800	—	—	—	—	11.5 <sup>2</sup>	p	p	—	—	—	—	—	—	—	—
India	1.6	25	p	0.5 <sup>2</sup>	—	33.8 <sup>3</sup>	26 <sup>3</sup>	1.9 <sup>2</sup>	12.0 <sup>3</sup>	6.2 <sup>3</sup>	—	228	2.70 <sup>3</sup>	1.78 <sup>3</sup>	1.62 <sup>3</sup>	—	—
Indo-China	—	1	p	p	—	—	1.3 <sup>3</sup>	—	—	—	—	80	—	—	—	39.5	p
Italy	20	100	0.7	6.9 <sup>8</sup>	—	—	3.1 <sup>9</sup>	1.7 <sup>8</sup>	32.4	2.9 <sup>1</sup>	—	4.3 <sup>3</sup>	1.34 <sup>1</sup>	0.89 <sup>0</sup>	1.01 <sup>3</sup>	35 <sup>0</sup>	30 <sup>3</sup>
Japanese Emp.	130	25	—	1	66 <sup>8</sup>	p	p	—	99 <sup>0</sup>	124 <sup>0</sup>	—	1,946 <sup>9</sup>	5.14 <sup>8</sup>	1.0 <sup>0</sup>	1.10 <sup>0</sup>	22 <sup>8</sup>	20 <sup>3</sup>
Luxembourg	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Malaya	—	50	—	—	—	—	0.8 <sup>0</sup>	—	—	—	—	36 <sup>0</sup>	1.87 <sup>0</sup>	—	—	—	—
Manchuria	—	—	—	—	—	—	25.5 <sup>2</sup>	—	—	—	—	100 <sup>0</sup>	1.99 <sup>0</sup>	—	—	—	—
Mexico	—	—	10.1	—	1,545	—	0.8	0.5 <sup>0</sup>	41.3	33.0	—	509	0.19	0.13	—	185.3	178.3
Morocco, Fr.	—	—	p	0.2 <sup>3</sup>	—	—	0.3	—	—	—	—	3	p	—	—	9.3	—
Neth. Indies	—	200	—	—	—	—	2.0 <sup>0</sup>	p	—	—	—	90 <sup>0</sup>	p	—	—	—	—
New Caledonia	—	—	—	—	—	50 <sup>3</sup>	—	p	—	—	—	p	0.22 <sup>3</sup>	0.19 <sup>9</sup>	—	p	—
Norway	15	—	—	—	304 <sup>9</sup>	p	—	p	20.0 <sup>0</sup>	2.0 <sup>3</sup>	—	p	—	—	—	p	—
Peru	—	—	0.9	—	5	—	0.2 <sup>3</sup>	—	32.4	26.9	—	175	—	—	—	52.5	38.9
Philippines	—	—	—	—	60 <sup>3</sup>	—	38.1 <sup>8</sup>	2.5 <sup>8</sup>	9.9 <sup>1</sup>	—	—	1,144 <sup>1</sup>	0.85 <sup>1</sup>	0.87 <sup>8</sup>	—	5.3 <sup>8</sup>	25 <sup>1</sup>
Poland	—	—	—	—	403 <sup>8</sup>	—	—	—	—	—	—	—	—	—	—	—	—
Portugal	—	—	0.2 <sup>0</sup>	—	—	1.5	0.6	—	p	—	—	100	p	—	—	—	p
Rhodesia, No.	—	—	—	—	—	—	—	—	p	—	—	31	p	—	—	—	—
Rhodesia, So.	—	1	p	51.1 <sup>3</sup>	—	266.3 <sup>3</sup>	1.7 <sup>3</sup>	p	p	22.5	—	593	—	—	—	—	—
Sierra Leone	—	—	—	—	16 <sup>3</sup>	—	—	—	—	—	—	33 <sup>9</sup>	0.52 <sup>3</sup>	—	—	—	—
South Africa	—	—	0.5 <sup>2</sup>	32.4 <sup>3</sup>	163.2 <sup>3</sup>	20.6 <sup>3</sup>	0.2 <sup>8</sup>	13.4 <sup>0</sup>	22.6	698.5	12,227	0.74 <sup>3</sup>	0.47	0.48 <sup>3</sup>	—	p	—
So. West Africa	0.2	—	—	—	396 <sup>1</sup>	—	—	1.6 <sup>2</sup>	—	—	154	p	—	—	—	14.7 <sup>9</sup>	4.3 <sup>9</sup>
Spain	—	2	0.1 <sup>0</sup>	—	—	—	11.6	0.8	p	10.6	—	15 <sup>0</sup>	1.56	0.57	0.57 <sup>8</sup>	p	34.8
Sweden	2.5	—	—	—	—	—	0.6 <sup>2</sup>	0.1 <sup>0</sup>	25.6 <sup>3</sup>	14.2 <sup>2</sup>	—	270 <sup>2</sup>	10.82 <sup>3</sup>	0.78	—	8.5 <sup>9</sup>	p
Thailand (Siam)	—	—	—	—	—	—	p	—	—	—	—	13 <sup>0</sup>	—	—	—	17.2 <sup>9</sup>	23.4 <sup>9</sup>
Tunisia	—	—	—	—	—	—	—	—	—	—	—	—	0.03 <sup>3</sup>	—	—	—	—
Turkey	—	—	0.5 <sup>9</sup>	0.1 <sup>3</sup>	—	150	4.3	p	p	11.1	—	p	p	7.30 <sup>3</sup>	13.2 <sup>3</sup>	7.6 <sup>9</sup>	—
United Kingdom	36	45	—	—	275 <sup>8</sup>	0.5 <sup>3</sup>	188.4	14.7 <sup>3</sup>	p	4.5 <sup>0</sup>	—	p	18.66 <sup>3</sup>	7.30 <sup>3</sup>	13.2 <sup>3</sup>	30.2 <sup>8</sup>	10 <sup>3</sup>
United States	704.4	2,869.0	4.0	6.0	8,780	41.4	619	67.2	882.3	1,022.4	—	1,022	95.63	57.06	81.32	p	421.5
U.S.S.R.	71	400	—	86 <sup>8</sup>	110 <sup>8</sup>	325 <sup>3</sup>	140 <sup>3</sup>	16.5 <sup>0</sup>	p	160 <sup>2</sup>	—	5,200 <sup>9</sup>	22.74 <sup>1</sup>	7.08 <sup>2</sup>	p	75 <sup>9</sup>	125.7 <sup>3</sup>
Venezuela	p	50	—	—	—	p	—	—	—	—	22	59	—	p	—	68.8 <sup>0</sup>	10.7 <sup>9</sup>
Yugoslavia	—	—	4.9 <sup>0</sup>	—	—	65 <sup>3</sup>	1.2 <sup>3</sup>	—	642 <sup>9</sup>	80 <sup>3</sup>	—	75 <sup>0</sup>	0.52 <sup>1</sup>	p	—	—	—
World Total	1,744	6,953	30	?	10,582 <sup>0</sup>	1,744 <sup>3</sup>	1,639 <sup>9</sup>	135 <sup>8</sup>	2,780 <sup>3</sup>	2,175 <sup>9</sup>	11,500	27,070	245 <sup>2</sup>	108 <sup>9</sup>	149 <sup>3</sup>	1,772 <sup>8</sup>	1,734 <sup>9</sup>

Country	Magnesite (Th.)*	Manganese Ore (Th.)	Mercury (Th. Lb.)	Nickel (Th.)	Petroleum (Mi. Bbl.)	Phosphate Rock (Th.)	Platinum (Th. Oz.)	Potash (Th.)	Pyrite (Th.)	Salt (Mi.)	Silver (Th. Oz.)	Sulphur (Th.)†	Tin in Ore (Th.)	Tin (Th.)	Tungsten Conc. (Th.)	Zinc in Ore (Th.)	Zinc (Smelter) (Th.)
Algeria	—	—	4 <sup>3</sup>	—	—	79.8 <sup>3</sup>	—	—	27.3 <sup>3</sup>	0.03	p	—	—	—	—	7.0 <sup>8</sup>	—
Angola	—	—	—	—	—	—	—	—	—	0.04	—	—	—	—	—	—	—
Australia	19.8 <sup>8</sup>	13.1 <sup>1</sup>	p	p	p	13 <sup>3</sup>	p	4.8 <sup>1</sup>	44.1 <sup>3</sup>	0.19 <sup>3</sup>	8.59 <sup>3</sup>	—	2.4	3	0.9 <sup>3</sup>	137	79.4
Belgian Congo	—	17.4 <sup>3</sup>	—	—	—	—	0.9 <sup>9</sup>	—	—	p	3.25 <sup>3</sup>	—	15.4	10	0.5 <sup>3</sup>	4 <sup>8</sup>	—
Belgium	—	—	—	—	—	—	—	—	—	—	—	—	—	3.1 <sup>9</sup>	—	3 <sup>8</sup>	65 <sup>0</sup>
Bolivia	—	p	p	—	0.3	—	—	—	—	—	6.80	6.1	39.3	—	—	18.3	—
Brazil	—	147.0	p	p	—	—	—	—	—	0.45	p	—	—	—	—	—	—
Burma	—	—	0.9 <sup>9</sup>	—	0.8	—	—	—	—	0.04 <sup>8</sup>	5.46 <sup>1</sup>	—	5.5 <sup>0</sup>	—	—	55.4 <sup>8</sup>	—
Canada	—	p	736	124.8	10.1	0.4	155.7	—	258.2	0.65	13.59	—	—	0.2	0.5	249.8	153.9
Chile	—	114.1 <sup>3</sup>	19 <sup>3</sup>	—	37.9 <sup>9</sup>	—	9 <sup>3</sup>	—	—	0.04 <sup>3</sup>	1.09 <sup>3</sup>	36.3 <sup>3</sup>	—	p	—	—	—
China	—	p	23	—	0.5	8 <sup>9</sup>	—	—	—	1.15 <sup>1</sup>	0.2 <sup>9</sup>	—	—	—	—	47	—
Colombia	—	—	—	—	22.3	—	36.1	p	—	0.11 <sup>2</sup>	0.20	—	3	2.2	9.0	—	—
Czechoslovakia	74.7 <sup>8</sup>	—	20 <sup>0</sup>	—	0.2	—	—	—	—	0.17 <sup>8</sup>	1 <sup>9</sup>	—	—	—	—	1.97	8.9 <sup>8</sup>
France	—	—	—	—	0.5	—	—	—	581.8 <sup>8</sup>	147.2 <sup>8</sup>	1.61 <sup>8</sup>	10	—	—	p	2.4	8.4
Germany	438 <sup>8</sup>	p	13 <sup>8</sup>	0.6 <sup>8</sup>	7.6	—	—	1,861 <sup>8</sup>	465.3 <sup>8</sup>	7 <sup>9</sup>	—	p	0.5	—	200 <sup>8</sup>	212.3 <sup>8</sup>	—
Gold Coast	—	512.6	—	—	—	—	—	—	—	0.06	—	—	—	—	—	—	—
Greece	168.2 <sup>8</sup>	11.2 <sup>9</sup>	—	1.3 <sup>9</sup>	—	—	—	—	244.0 <sup>8</sup>	0.10 <sup>8</sup>	0.34 <sup>9</sup>	—	—	—	—	9.9 <sup>8</sup>	—
Guiana, Brit.	—	—	—	—	—	—	—	—	—	—	p	—	—	—	—	—	—
Guiana, Neth.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hungary	—	22.2 <sup>8</sup>	—	—	9.9	—	—	—	—	p	—	—	—	—	—	—	—
India	26.0 <sup>8</sup>	767.0 <sup>2</sup>	—	—	2.5	0.3 <sup>2</sup>	—	3.4 <sup>2</sup>	—	1.96 <sup>3</sup>	0.02 <sup>3</sup>	—	—	—	p	—	—
Indo-China	—	2.4 <sup>0</sup>	—	—	22.3 <sup>0</sup>	—	1.6 <sup>9</sup>	0.3 <sup>8</sup>	930.3 <sup>8</sup>	0.17 <sup>0</sup>	p	—	0.5	p	0.1 <sup>2</sup>	5.2 <sup>8</sup>	4.6 <sup>2</sup>
Italy	6.2 <sup>8</sup>	45.0 <sup>9</sup>	5,104 <sup>9</sup>	p	p	—	—	—	—	1.37 <sup>9</sup>	0.88 <sup>9</sup>	9.3	p	p	—	75 <sup>8</sup>	40 <sup>0</sup>
Japanese Emp.	—	80 <sup>8</sup>	p	—	3.0	p	p	p	—	12.7 <sup>9</sup>	138.3 <sup>8</sup>	—	1.7 <sup>9</sup>	2	p	27 <sup>8</sup>	65 <sup>1</sup>
Luxembourg	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Malaya	—	11.7 <sup>0</sup>	—	—	—	—	—	—	—	p	—	—	10	5	0.5 <sup>0</sup>	—	—
Manchuria																	



## MINERALOGY

Table II.—Mineral and Metal Prices in 1945

New York market as reported by E&MJ Metal and Mineral Markets				London market as reported by the Metal Bulletin							
Open	Close	Grade	Units	Grade	Units	Open			Close		
						£	s.	d.	£	s.	d.
15.00	15.00	99% ingot	Pound	Aluminum	Long ton	110	..	..	85	..	..
2.15	2.15	50-55% Sb	S.T. unit	Antimony, Ore	Unit	..	nom.	..	11	..	3
15.839	15.839	Domestic, cased	Pound	Antimony	Long ton	120	..	..	105	..	..
16.50	16.50	Chinese	"	Chinese	"	..	nom.	..	nom.	..	..
4.0	4.0	White oxide	"	Arsenic	"	60	..	..	31	..	..
15.00	15.00	4% Be (a)	"	Beryllium-copper alloy	Strip	..	9	6	..	9	6
1.25	1.25	Ton lots	"	Bismuth	"	..	6	3	..	6	8
90	90	Commercial sticks	"	Cadmium	"	..	5	5	..	5	5
43.50	43.50	48% Cr <sub>2</sub> O <sub>3</sub> , 3 Cr:1 Fe	Long ton	Chromium, Ore	Rhodesian, 1st grade	11	15	..	11	7	6
89	89	98% spot	Pound	Metal	98-99%	..	4	6 1/2	..	4	6 1/2
13	13	4-6% C, 66-70 Cr (a)	"	Ferroalloy	4-8% C	59	..	..	46	10	..
19.5	19.5	2% C, 67-72% Cr (a)	"	Ferroalloy	2% C	..	1	6	..	1	3 3/4
1.50	1.50	97-99% Co	"	Cobalt	"	..	9	..	..	9	..
11.775	11.775	Domestic	"	Copper	Fire ref., high gr.	61	10	..	61	10	..
11.700	11.700	Export	"	Electrolytic	Official	62	..	..	62	..	..
35.00	35.00	Sponge, powder	Ounce	Gold	"	..	168	..	172	3	..
120.00	95.00	Mesabi, nonbessemer	Long ton	Iridium	"	30	..	..	25	..	..
4.45	4.55	Basic	"	Iron, Ore	50% N. African	..	nom.	..	nom.	..	..
23.50	25.25	80% Joplin, Mo.	Short ton	Pig	Basic	6	0	6	7	15	6
76.01	76.01	New York	Pound	Lead, Ore	80% R/C	..	nom.	..	nom.	..	..
20.5	20.5	99.8% car lots	"	Magnesium, Ingots	Foreign, soft	25	..	..	30	..	..
27.5	27.5	48% Atlantic ports	L.T. unit	Sticks	"	..	1	6	..	1	6
85.0	85.0	78-82%	Long ton	Manganese, Ore	50-52% Mn	..	1	3 3/4	..	1	3 3/4
135.00	135.00	19-21% Mn	Flask	Mercury	18-22% Mn	11	1	..	11	11	..
36.00	36.00	90% MoS <sub>2</sub> (b)	Pound	Molybdenum, Ore	85% MoS <sub>2</sub>	69	2	6	30	12	6
142.50	109.00	55-65% Mo (a)	"	Ferroalloy	70-75% Mo, C free (a)	..	43	9	..	41	3
45	45	Cathodes	"	Nickel	Refined	..	6	..	..	6	..
95	95	24% P	Ounce	Palladium	20-25% P	192	10	..	192	10	..
35	35	99.5%	Pound	Phosphorus, Ferro	45% Si	5	17	6	5	17	6
24.00	24.00	97% Si, spot	"	Platinum	75% Si	15	..	..	15	..	..
75.00	75.00	50% Si (d)	Long ton	Rhodium	Official, spot	8	16	3	9	..	..
35.00	35.00	75% Si (d)	"	Selenium	"	33	10	..	30	..	..
125.00	125.00	Foreign, New York	Ounce	Silicon	98-99% Si	..	8	6	..	8	6
1.75	1.75	Straits	Short ton	Ferroalloy	45% Si	85	..	..	85	..	..
14.75	14.75	Domestic	S.T. unit	Tungsten, Ore	75% Si	27	10	..	25	5	6
6.65	6.65	75-80% W (a)	Pound	Ferroalloy	99%+	43	..	23 1/2	39	10	..
8.05	8.05	99% W (c)	"	Vanadium, Ore	15-18% Ti	..	7	..	..	7	..
44.75	70.75	60% Joplin, Mo.	Short ton	Zinc, Ore	65%	300	..	8 3/4	300	..	8 3/4
1.75	1.75	St. Louis	Pound	Metal	80-85% W (a)	..	9	8	..	6	10
52.00	52.00				98-99% W	..	9	9 1/2	..	7	4 1/2
142.50	142.50				10-12% V <sub>2</sub> O <sub>5</sub>	..	nom.	..	..	nom.	..
24.25	24.25				35-60% V (a)	..	15	6	..	15	6
24.00	24.00				52% R/C	..	nom.	..	..	nom.	..
1.90	1.90				G.O.B., foreign	25	15	..	31	5	..
2.625	2.625										
27.5	27.5										
2.80	2.80										
55.28	55.28										
8.25	8.25										

(a) Per pound of base metal contained. (b) Per pound of MoS<sub>2</sub> contained. (c) Per pound of V<sub>2</sub>O<sub>5</sub> contained. (d) Per pound of Si contained.

of mineral and metal production that had been imposed in some degree by all of the belligerent nations, but this did not mean that immediately there would be full production and trade figures available for the war years from any and all sources. In the United States, statistical activity was greatly increased during the war, but most of the results were held confidential for the use of the war agencies. At the close of the war all of the usual and many of the new figures were released, and it was expected that more would be made available later. Wartime data were received from many other countries, and while it was possible to present a table of world production for 1944 that was reasonably complete, there were still gaps to be filled. In some cases there was not time to get the accumulated material organized and reported, while in others the postwar conditions were such as to preclude anything but essential work. The U.S. bureau of mines had representatives in most of the warring countries, and through their efforts much was done to fill in the gaps of the war years, but it was likely that in some cases the gaps would never be filled.

In Table II is presented an abstract of the opening and closing 1945 prices for the leading metals and their ores, as quoted on the New York and London markets. It is impossible to reproduce such data in anything like complete form, but sufficient

of the more important items can be shown to give a good comparison of the price conditions. During the war years prices for most of these commodities were under official government control in both countries. In most cases it will be found that the prices established under control were still in effect at the end of 1945. Relatively few changes were made in prices during the year, and in only a very few cases have normal market prices sagged below the ceiling prices established under control.

Table III shows the gradual expansion of the total value of mineral products of the U.S. during the war years, as reported by the U.S. bureau of mines. The values for 1945 were not reported, but in view of the declines in production in many lines, a decline in value was to be expected, probably about to the level of the 1943 total. (See also STRATEGIC MINERAL SUPPLIES, and the reviews of the various metals and minerals.)

(G. A. Ro.)

**Mineralogy.** The most important publication in mineralogy during 1945 was the "Symposium on Quartz Oscillator-Plates." The entire May-June number of the *American Mineralogist*, vol. 30, 1945, pp. 205-468, was devoted to the symposium, consisting of 14 papers by 8 specialists. The theory, preparation, mass production and the many uses of these important oscillating quartz plates for frequency or wave length control in radio transmitters and receivers and for use in electronic apparatus were described. One of the scientific and technological miracles of World War II was the astounding rapidity with which the enormous demands for these plates were met.

New minerals were described as follows: cattierite and vaesite, cobalt and nickel minerals from the Belgian Congo, by P. F. Kerr (*American Mineralogist*, vol. 30, nos. 7 and 8); brazilian-

Table III.—Value of Mineral Products of the United States

Year	(Millions of dollars)			
	Metallies	Fuels	Nonmetallies	Total
1938	892.6	2,820.3	650.3	4,363.2
1939	1,291.7	2,834.3	788.2	4,914.2
1940	1,678.6	3,116.5	812.8	5,613.9
1941	2,132.0	3,708.1	1,037.9	6,878.0
1942	2,363.9	4,103.4	1,109.0	7,576.3
1943	2,488.0	4,608.3	974.7	8,071.0
1944	2,340.0	5,212.0	900.0	8,452.0

ite, a phosphate mineral from Brazil, which, because of its attractive yellow-green colour and vitreous lustre, might find use as a gem, by F. H. Pough and E. P. Henderson (*ibid.*, vol. 30, nos. 9 and 10); banalsite, a new barium-feldspar from Wales, by W. C. Smith, F. A. Bannister and M. H. Hey (*Mineralogical Magazine*, vol. XXVII, no. 186). In "The Unfolding Crystal" (*Quarterly Review of the Michigan Alumnus*, vol. 52, no. 4), E. H. Kraus traced the remarkable advances made in 50 years in the study of crystals and the solid state of matter.

Two important and very useful dictionaries relating to gem minerals were published—"The Jewelers' Dictionary" by the *Jewelers' Circular-Keystone*, New York city, and *Dictionary of Gems and Gemology* by R. M. Shipley and others of the Gemological Institute of America, Los Angeles, Calif. An American edition of Webster's *Practical Gemmology* (London, England) was prepared by V. V. Hinton and issued as *Introductory Gemology* by the Gemological Institute of America. The users of industrial diamonds welcomed the publication of *Diamond Tools* by P. Grodzinski (Anton Smit, Inc., New York), which is an English translation, with revisions, of the author's important pioneering contribution *Diamant Werkzeuge* published in Berlin in 1936. The enlarged third edition of *Art of Gem Cutting* by H. C. Dake and R. M. Pearl (Portland, Ore.) is an excellent manual for those interested in the cutting and polishing of gems, either professionally or as a hobby.

**Roebbling Medal.**—At a special meeting of the Mineralogical Society of America held in New York city, Feb. 20, 1945, the fifth Washington A. Roebbling medal for meritorious achievement in mineralogy was awarded to E. H. Kraus. The address of presentation by W. F. Hunt, and that of acceptance, in which the contributions of the society and the advances made in the science during the World War II period were discussed, appeared in the *American Mineralogist*, vol. 30, nos. 3 and 4.

**Symposium on Diamonds.**—Because of the very large increase in the use of diamonds in industry, the third symposium on diamonds was held in Pittsburgh, Pa., Dec. 27, 1945, during the meetings of the Mineralogical Society of America. Nine highly important papers were presented which were to be published in the *American Mineralogist*, April, 1946. (See also MINERAL AND METAL PRODUCTION AND PRICES.)

(E. H. KR.)

**Mining:** see MINERAL AND METAL PRODUCTION AND PRICES. See also under separate minerals.

**Minnesota.** A north central state of the United States, popularly known as the "Gopher state." Area, 84,068 sq. mi., of which 4,059 are water. Pop. (1940) 2,792,300. The rural population was 50.2% of the total. Capital, St. Paul (287,736). The only city in the state with a larger population was Minneapolis (492,370); Duluth had 101,065. The native-born white inhabitants in 1940 numbered 2,474,078, foreign-born, 294,904 and Negro, 9,928. On Nov. 1, 1943, the bureau of the census estimated the civilian population of the state at 2,525,558; on July 1, 1944, the estimated civilian population was 2,508,663.

**History.**—Principal elective officials of the state in 1945 were: governor, Edward J. Thye; secretary of state, Mike Holm; treasurer, Julius A. Schmah; auditor, Stafford King; attorney general, J. A. A. Burnquist.

The legislature, meeting in regular biennial session, devoted itself largely to preparations for the demands expected in the postwar period. It authorized appropriations of \$19,512,000 for state buildings and improvements. The Minnesota highway department arranged for a program of highway building, which, with federal aid, was expected to make possible \$74,000,000 of

construction in the first three postwar years. A postwar planning commission was established to stimulate and co-ordinate postwar planning. An act was passed authorizing a veterans' service officer in each county to aid veterans. Funds for old age assistance, aid to dependent children, aid to blind and aid for local schools were increased.

**Education.**—Contribution of the state to local schools, including income from trust funds and fixed income tax allotments, was expected to amount to \$49,103,549 for the biennium that began July 1, 1945. Total public school expenditures for the 1944-45 school year were \$61,860,524, compared with \$53,404,416 in the 1943-44 school year. In 1944-45 Minnesota had 8,207 elementary schools, 654 secondary schools, 6 public state teachers colleges and 11 junior colleges. Enrolment was 309,934, with 12,007 teachers in the elementary grades; 160,515, with 7,516 teachers in the secondary grades; 802, with 98 teachers in junior colleges; 7,509, with 81 teachers in adult education classes; and 291, with 28 teachers in teacher training departments. Dean M. Schweickhard was commissioner of education.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—Aid to dependent children was up 25% in Nov. 1945, compared with Nov. 1944, while old-age assistance in 1945 rose 10% and aid to blind rose 9%. During the year ending June 30, 1945, \$1,781,907 was spent on general relief, with the number of cases averaging 5,587; on old-age assistance, \$19,704,949, with the number of recipients averaging 56,033. A total of \$2,456,649 was spent on the aid to dependent children, with the number of families aided averaging 4,975 and number of children helped averaging 12,450. An average of 940 persons shared in a total allowance of \$407,069 in aid to the blind. The state prison, two state reformatories and two training schools for delinquents had a population of 2,236 inmates.

**Communication.**—Minnesota had, at the end of 1944, 11,233 mi. of state trunk highways and 104,778 mi. of other highways. Expenditure of the state for highways for the fiscal year ending June 30, 1945, was \$21,066,251. Railway mileage at the end of 1944 was 9,081 mi. There were 36 licensed municipal airports and landing fields in the state, 7 seaplane bases and 83 other privately-owned licensed airports.

**Banking and Finance.**—Deposits and resources of Minnesota banks reached a level on July 1, 1945, approximately 18% higher than the total on July 1, 1944. The 487 state banks, one mutual savings bank and four trust companies had deposits of \$675,887,000 and resources of \$722,944,000 compared with deposits of \$561,943,000 and resources of \$604,992,000 on July 1, 1944. The 183 national banks had deposits of \$1,869,395,000 and resources of \$1,980,701,000 on July 1, 1945, compared with deposits of \$1,595,435,000 and resources of \$1,697,272,000 on July 1, 1944. The state had 43 state building and loan associations on July 1, 1945, with resources of \$50,927,705. State expenditures for the year ending June 30, 1945, were estimated at \$103,289,049. Outstanding state bonds and certificates of indebtedness were reduced \$6,880,153 during 1945 to a net of \$72,414,241, making a \$57,373,419 reduction in seven years. Four principal trust funds of the state, income of which is devoted largely to schools, reached \$145,834,043 on Dec. 31, 1945.

**Agriculture.**—A record total of 6,059,000 ac. was planted to corn, Minnesota's most important field crop. This produced 217,248 bu., 14% less than the 1944 crop. Production of oats increased 50% over 1944. Value of the field crops produced in 1945 was estimated at more than \$550,000,000, a gain of about 10% over 1944. Production of creamery butter during 1945 dropped to an estimated 236,000,000 lb., compared with 251,613,607 for 1944, due to federal price control policies that allowed a greater return for creameries selling their product as cream, but Minnesota still held first place among the states in

butter production. For the calendar year 1944 the return from livestock and livestock products was \$786,399,000. The cash return from crops was \$140,383,000.

Leading Agricultural Products of Minnesota,  
1945 and 1944

Crop	1945	1944
Corn, all, bu. . . . .	217,248,000	253,399,000
Oats, bu. . . . .	242,640,000	155,960,000
Barley, bu. . . . .	13,224,000	13,844,000
Wheat, bu. . . . .	20,689,000	21,508,000
Potatoes, bu. . . . .	19,360,000	15,334,000
Flaxseed, bu. . . . .	11,913,000	6,514,000
Hay, tons . . . . .	6,290,000	6,172,000

**Manufacturing.**—Official figures later than 1939 were not available in 1945. According to the U.S. biennial census of manufactures in 1939, there were 4,008 manufacturing establishments, employing 92,084 persons. Wages earned amounted to \$125,442,031 and the output was valued at \$845,771,514. Manufacturing firms covered under the law paid wages estimated at \$485,000,000 in 1945, compared with \$502,761,539 in 1944 and \$168,124,794 in 1940. Number of employees was estimated at 229,000 in 1945 compared with 214,593 in 1944 and 118,945 in 1940.

**Mineral Production.**—Long the greatest iron ore mining centre, with more than 70% of U.S. production, Minnesota mines continued a high level output in 1945, with demands greatly enhanced by World War II. The output of iron ore for the year amounted to 62,823,700 gross tons, with a value of \$154,546,302 (at the mines). Production for 1944 was 66,586,264 gross tons, with a value of \$163,802,209 (at the mines). (E. J. Te.)

**Minnesota, University of.** An institution of higher education at Minneapolis, Minn. Enrolment of regular collegiate students, which started upward in the fall quarter of 1944, showed an accelerated increase which, in the fall quarter of 1945, reached a figure of 11,396—28% more than the previous year. Women students were still in the majority, constituting 63% of the total enrolment as compared with 70% in 1944. Veterans enrolled at the beginning of the fall quarter, 1945, totalled 1,096 as compared with 299 the previous year. The school of nursing, in order to meet war needs and without relaxing prewar standards, increased its enrolment to 1,155 and continued its rank as the largest school of nursing in the U.S. Dr. J. L. Morrill became president of the university on July 1, 1945. Dr. William H. Crawford became dean of the school of dentistry on the same date. Of the 700 staff members on leave for service in the armed forces or for other war-related work, 166 had returned, and 82 had terminated their service with the university. Thus nearly 69% were still on leave. New buildings scheduled for early construction included a \$2,000,000 Mayo memorial medical building, a \$1,469,000 mechanical-aeronautical engineering building, and extensive additions to the dormitory system. (For statistics of enrolment, faculty, endowment, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (J. L. ML.)

**Minor League Baseball:** see BASEBALL.

**Mint, United States:** see COINAGE.

**Miquelon:** see FRENCH COLONIAL EMPIRE.

**Missions, Foreign.** The end of World War II wrought some improvement for the foreign missionary enterprise. In Europe peace made possible the resumption of more of the support of missionaries who had been cut off from contact with their home constituencies. This was notably true of the French. Sailings for missionaries returning to their fields or going out for the first time became somewhat easier. A few new and old appointees went to India and Africa.

A limited number of senior missionaries were permitted to go again to China. Several British and American missionaries made their way into some of the portions of China which had previously been closed to them by the Japanese. Connections were re-established between the Christians, both Protestant and Roman Catholic, of Japan and the Philippines and their respective churches in the United States. In the United States programs were outlined and in part implemented by several of the denominations for raising large funds for the rehabilitation of church buildings, schools and hospitals damaged or destroyed in the war and for sending out reinforcements.

However, the ravages of war were by no means fully made good. Only a small number of missionaries could be sent to any one country. The doors to some lands, such as Korea and the Netherlands Indies, remained shut. Since almost all the former mission fields were in territories controlled by the United Nations, even more obstacles impeded the renewal of German missions than at the close of World War I. Currency inflation, rising costs of travel and living and the blows dealt by war to the European base of missions added to the problems faced by the foreign missionary enterprise. (K. S. L.)

**Mississippi.** A southern state of the U.S.A., admitted to the union in 1817, popularly known as the "Magnolia state"; area, 47,716 sq.mi. (47,420 sq.mi. land and 296 sq.mi. water); pop. (1940), 2,183,796; capital, Jackson (62,107). Other cities: Biloxi (17,475); Greenville (20,892); Gulfport (15,195); Hattiesburg (21,026); Laurel (20,598); Meridian (35,481); Natchez (15,296); Vicksburg (24,460). Of the state's population in 1940, 432,882, or 19.8%, were urban. In 1940 there were 1,106,327 whites; 1,074,578 Negroes; 2,177,324 native born; 6,472 foreign born. On July 1, 1944, the bureau of the census estimated the civilian population of the state at 2,175,877.

**History.**—For 1944-48 the elected officers of the state, chosen in the Democratic primaries in Aug. 1943, and in the general election of that year, were: governor, Thomas L. Bailey; lieutenant governor, Fielding L. Wright; secretary of state, Walker Wood; attorney general, Greek L. Rice; state tax collector, Carl N. Craig; state treasurer, Newton James; state auditor, Bert J. Barnett. The superintendent of education in 1945 was J. M. Tubb.

**Education.**—In 1945 there were 1,319 white elementary schools in Mississippi and 3,637 Negro elementary schools, a total of 4,956. The enrolment in elementary schools was 489,666, of whom 232,185 were whites and 257,481 Negroes. The state had 565 white high schools and 100 Negro high schools, with a total enrolment of 67,426 in 1943-44. There were 9,082 white elementary and high school teachers, and 6,469 Negro elementary and high school teachers, a total of 15,551 teachers. The total enrolment in white elementary and high schools was 279,972; in Negro elementary and high schools, 274,784.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—From July 1, 1943, to June 30, 1944, the state department of public welfare paid \$2,915,206.75 to 29,017 recipients of old-age assistance; \$183,417 to 1,524 recipients of aid to the blind; and \$663,981.95 for aid to 3,462 families for 8,916 dependent children. The department continued in 1945 its regular program of child welfare services on all types of problems affecting children, particularly those children in rural areas. A special child welfare worker had been assigned to the State Industrial Training school for white children; and a special Negro worker had been added to the staff for assignment to the state reformatory for Negro children. The department of public welfare continued its service to the new parole board established by the 1944 session of the Mississippi legislature.



Through its division for the blind, the department maintained a program of sight conservation, restoration and services. It continued its program of training blind persons to work on factory-type sewing machines, making cloth bags of all sorts under government contracts. This division was also made the channel for federal funds for vocational rehabilitation of blind civilians.

**Communications.**—In 1945 the state maintained 6,493 mi. of highways and the counties approximately 54,000 mi. The total state expenditure for highways in 1944 amounted to \$3,126,242.89; in 1943, \$4,305,836.07; in 1942, \$5,552,046.54. The county expenditure for maintenance costs amounted to \$8,020,074 in 1944; \$8,069,506.06 in 1942.

The total mileage of railroads in the state on Dec. 31, 1944, was 3,947.33 mi.

**Banking and Finance.**—On Dec. 31, 1945, there were 179 state banks in Mississippi, with 22 branch banks and 31 branch offices. There were 23 national banks in Mississippi. The resources of the state banks were \$586,240,796.77 and total deposits were \$558,479,403.37; the resources of the national banks were \$240,474,988.99 and total deposits were \$230,239,008.29.

The balance in the general fund account as of Jan. 1, 1945, was \$12,918,667.93. On Dec. 31, 1945, it was \$23,160,421.35. The special fund account showed a balance of \$8,132,656.23 on Dec. 31, 1945.

On Dec. 31, 1945, the full faith and credit debt of the state (direct obligation bonds) was \$18,517,000; outstanding highway bonds amounted to \$46,430,000 (payable solely from gasoline taxes), making a total state debt of \$64,947,000.

**Agriculture.**—In 1945 there were 264,704 farms, exclusive of urban farms. In 1944 it was estimated that of the total land area 19,686,873 ac. were in farms, land in harvested crops being 6,524,000 ac. In 1944 receipts from farm marketings were \$359,467,000, of which \$282,488,000 were from crops and \$76,979,000 from livestock and livestock products; the value of farm products consumed in farm households was \$82,727,000. In 1945 the value of all crops was \$376,256,000.

Table I.—Leading Agricultural Products of Mississippi, 1945 and 1944

Crop	1945	1944
Cotton (500-lb. bales)	1,615,000	1,937,000
Cottonseed, tons	671,000	795,000
Corn, bu.	50,660,000	42,224,000
Oats, bu.	13,671,000	15,096,000
Hay, tons	1,185,000	1,139,000
Sweet potatoes, bu.	6,936,000	6,248,000
Sugar-cane syrup, gal.	3,910,000	3,630,000
Sorghum syrup, gal.	1,680,000	1,950,000
Peanuts, lb.	13,000,000	12,555,000
Pecans, lb.	6,000,000	8,300,000

**Manufacturing.**—The value of manufactures in the state in 1944 was \$383,876,507; in 1940, \$179,144,430. The number of persons employed in 1939 was 50,014; in 1944 (not including firms of fewer than eight employees), 163,892.

The wages paid in 1944 to persons employed in all industries employing eight or more persons amounted to \$201,790,000; in 1939, \$34,083,646.

In the period from 1933 to 1942, the value of manufactured products increased 442.2%, whereas the number of plants increased 100.7%. For the same period, wage earners increased 204.3%, while wages paid increased 569.2%.

**Mineral Production.**—The total value of mineral production in 1944, including natural gas, sand and gravel and other mineral products, was \$18,988,000. In 1944 about 16,337,000 bbl. of petroleum were produced; in 1943, 18,807,000 bbl.

Table II.—Principal Mineral Products of Mississippi, 1944 and 1943

Mineral	Value, 1944	Value, 1943
Natural gas	\$ 314,000	\$ 385,000
Sand and gravel	877,370	1,098,745
Petroleum	16,800,000	18,430,000
Other mineral products	397,115	564,065

In 1944, 1,200,000,000 cu.ft. of natural gas were produced; in 1943, 1,461,000,000 cu.ft.

On Dec. 31, 1944, there were approximately 450 producing oil wells in the state. (A. B. Bu.)

**Missouri.** A west north central state of the U.S.A., admitted to the union in 1821; popularly known as the "Show Me" state. Area 69,674 sq.mi. of which 404 are water. Pop. (1940) 3,784,664 (51.8% urban, 48.2% rural); 3,425,062 (90.5%) native white, 114,125 (3%) foreign-born white and 244,386 (6.5%) Negro. On July 1, 1944, the bureau of the census estimated the civilian population of the state at 3,589,538. Capital, Jefferson City (1940 census) (24,268). Largest cities: St. Louis (816,048), Kansas City (399,178), St. Joseph (75,711), Springfield (61,238).

**History.**—The outstanding political event in Missouri during 1945 was the adoption of a new constitution on Feb. 27, 1945, by a vote of 312,032 to 185,658. The new constitution, which went into effect on March 30, 1945, provided, among other things, for a central revenue bureau, a department of public health and welfare, a commissioner of education selected by a bipartisan state board of education appointed by the governor, taxation of intangible personal property on the basis of yield, elimination of the fee system for remunerating most state and county officers, magistrate courts with practicing lawyers as judges instead of justice of the peace courts, decennial reapportionment of state senatorial districts, reorganization of county governments, voluntary consolidation or division of counties, a public record of votes on bills by members of legislative committees and state financial support of public libraries. It empowers the state supreme court to establish rules of practice and procedure for all courts, to transfer judges temporarily from one court to another and to settle election contests.

The work of implementing the provisions of the new constitution fell to the 63rd general assembly, which convened on Jan. 3, 1945, with Republicans in control of both houses. It was in session in Jan. 1946.

During 1945 there were other events of political importance. On April 12 Vice-President Harry S. Truman succeeded Franklin D. Roosevelt as president of the United States, thus becoming the first native-born Missourian to hold that office. On Jan. 12 Gov. Phil M. Donnelly appointed Frank P. Briggs (Dem.) to succeed vice-president elect Truman as U.S. senator from Missouri.

The major state officers (1945), all Democrats, were: Phil M. Donnelly, governor; Walter N. Davis, lieutenant governor; Wilson Bell, secretary of state; Forrest Smith, auditor; Robert W. Winn, treasurer; James E. Taylor, attorney general.

**Education.**—For the school year ending June 30, 1945, the public school system consisted of 7,925 elementary schools, with 473,418 pupils and 16,983 teachers; 861 secondary schools, with 147,426 pupils and 6,281 teachers; 5 state teachers' colleges, with 5,952 students and 383 teachers; Lincoln university (Negro), University of Missouri, (Rolla) School of Mines and Metallurgy, schools for the deaf and blind and a Negro vocational school. Roy Scantlin was state superintendent of schools.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—For the year ending June 30, 1945, unemployment insurance totalled \$27,983,584, and the government employment services made 361,182 placements. For the same period old-age assistance amounted to \$27,868,326, aid to dependent children \$4,325,823, general relief \$2,243,359 and blind pensions \$1,180,272. In June 1945, 100,406 persons received old-age assistance, 28,080 aid to dependent children, 19,838 general relief and 2,950 blind pensions. In 1945, the state penitentiary had an average of 2,540 inmates per day; the reformatory and

industrial schools, 950. In the same year expenditures for the penal and correctional institutions amounted to \$1,856,888.

**Communications.**—On Dec. 31, 1944, Missouri had 16,147 mi. of state highways and 100,650 mi. of rural roads. During 1944 the state highway department spent \$20,207,571 (state and federal funds), of which \$2,971,585 was for construction and \$5,518,726 for maintenance. On Dec. 31, 1943, railroad mileage totalled 6,913 mi. There were 810,059 telephones in Dec. 1945.

**Banking and Finance.**—On June 30, 1945, Missouri had 483 state banks, with deposits of \$1,773,871,000 and resources (loans and investments) of \$1,682,652,000; 79 national banks, with deposits of \$1,156,377,000 and resources (loans and investments) of \$1,212,583,000; 184 building and loan associations, with resources of \$161,667,370.

Total receipts of the state treasury during 1945 amounted to \$125,137,954; disbursements for 1945, \$109,245,354; gross state debt, Jan. 1, 1945, \$69,000,000 and net state debt, Dec. 31, 1945, \$63,000,000.

**Agriculture.**—In 1944 cash income from crops and livestock was \$682,923,000 and from government payments, \$25,159,000. The value of Missouri's 1945 crops, harvested from 12,506,200 ac., was estimated at \$317,815,000. The total crop production in 1945 was about 18% below 1944, principally because a wet spring delayed planting and a midsummer drought reduced yields.

Table I.—Leading Agricultural Products of Missouri, 1945 and 1944

Crop	1945 (est.)	1944	Value, 1945
Corn, bu. . . . .	105,840,000	162,554,000	\$119,599,000
Timothy hay, tons . . . . .	3,747,000	3,481,000	56,205,000
Winter wheat, bu. . . . .	22,518,000	21,998,000	34,678,000
Oats, bu. . . . .	31,161,000	29,970,000	23,059,000
Soybeans (for beans), bu. . . . .	9,490,000	10,605,000	20,024,000
Cotton, bales . . . . .	155,000	411,000	17,515,000

**Manufacturing.**—The number of persons employed in the manufacturing industries in Sept. 1945 was 306,600, or 28.8% less than the wartime peak of 430,500 in July 1943. Discontinuance of war industries, especially ordnance and aircraft, caused approximately 75% of the decline.

Table II.—Principal Industries of Missouri, 1939 and 1937

Industry	Value of products	
	1939	1937
Meat packing (wholesale) . . . . .	\$107,254,213	\$116,576,053
Footwear (except rubber) . . . . .	100,346,106	103,253,379
Iron and steel (excluding machinery) . . . . .	89,059,177	77,681,234
Wearing apparel . . . . .	85,297,177	76,998,667
Malt liquors . . . . .	41,412,301	34,272,016
Drugs, medicines . . . . .	23,006,499	24,335,460

In 1939, when the last U.S. biennial census of manufactures was taken, Missouri's industries manufactured products valued at \$1,388,056,267, employed 178,538 wage earners and 24,275 salaried persons, and paid \$190,735,851 in wages and \$58,937,137 in salaries.

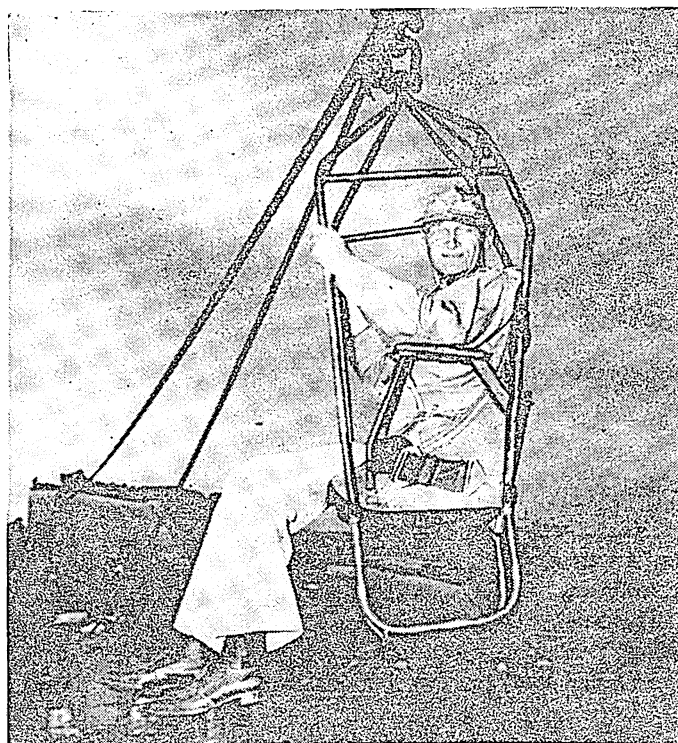
**Mineral Production.**—In 1944 the value of Missouri's mineral production was \$72,369,000, slightly more than in 1943,

Table III.—Principal Mineral Products of Missouri, 1944 and 1943

Mineral	Value, 1944	Value, 1943
Lead . . . . .	\$27,949,280	\$27,736,500
Bituminous coal . . . . .	11,733,000	10,755,849
Zinc . . . . .	8,350,728	6,569,208
Lime . . . . .	5,820,028	6,046,453
Stone . . . . .	5,312,384	5,864,005
Cement . . . . .	4,881,516	7,024,285
Clay (raw and products) . . . . .	3,205,495	4,140,557

but 4.9% less than the wartime peak of \$76,122,304 produced in 1942. (R. P. Br.)

**Mitscher, Marc Andrew** (1887— ), U.S. naval officer, was born Jan. 26. He entered the navy in 1906 and had advanced through the grades to vice-admiral by 1944. He was in command of the aircraft



ADM. MARC A. MITSCHER, commander of task force 58, being transferred to another warship in a bosun's chair from his flagship, the carrier "Bunker Hill," as it lay blazing from the hits of two Japanese suicide planes off Okinawa on May 11, 1945

carrier "Hornet" when that vessel carried Gen. "Jimmy" Doolittle's army bombers within 800 nautical miles of Japan to bomb Tokyo, April 18, 1942. Mitscher's carrier task force participated in virtually every important naval operation in the Pacific war theatre in 1944. On June 23 the navy revealed that Mitscher had been selected to command task force 58, then described as the "most powerful and destructive naval unit in the history of sea warfare." During that year Mitscher's force participated in the Marshalls invasion, the attack on Truk, the Marianas invasion, the battle of the Philippine sea (1944), the Luzon and Formosa raids and the battle for Leyte gulf. In March and April of 1945, the carrier planes of Mitscher's task force slashed targets in Japan and the Ryukyus. On May 11, two Japanese kamikaze planes crashed on the deck of the carrier "Bunker Hill," Mitscher's flagship, taking the lives of 373 crew members. Mitscher was transferred to another craft. Although other naval officers asserted that the kamikaze attacks were destructive, Mitscher belittled their effectiveness. On July 14, he was relieved as commander of the 1st carrier task force and returned to Washington as deputy chief of naval operations for air. In another change (announced Dec. 4), Mitscher was made commander of the 8th fleet in the Atlantic.

**Mohammedanism:** see ISLAM.

**Molasses:** see SUGAR.

**Molotov, Vyacheslav Mikhailovich** (1890— ), Russian statesman, was educated at Petersburg polytechnic and during his youth organized bolshevik student groups and worked for the newspaper *Pravda*. February of 1917 found him a member of the Petrograd soviet executive committee. He was appointed president of the soviet of people's commissars in 1930, was named foreign commissar May 3, 1939, succeeding Maxim Litvinov, and signed the nazi-soviet pact of nonaggression in Moscow, Aug. 24, 1939.

On May 6, 1941, Molotov resigned as premier of the U.S.S.R.

and was succeeded in this office by Stalin; he remained as foreign commissar, however, and took over the vice-premiership. Three weeks after the German invasion of Russia, Molotov signed, July 13, the British-U.S.S.R. mutual-aid pact in which each nation agreed not to make a separate peace. In Aug. 1942, Molotov was named vice-chairman of the people's council of commissars. From Oct. 19 to 30, 1943, he presided at a tripartite conference with Anthony Eden and Cordell Hull in Moscow.

On Feb. 1, 1944, Molotov suggested a revision of the soviet constitution to enable each of the 16 republics of the U.S.S.R. to enter into direct relations and sign agreements with foreign powers. He participated in the Stalin-Churchill parleys in Moscow that ended Oct. 18. Molotov attended the Yalta parley (Feb. 4-11, 1945) and headed the soviet delegation at the United Nations conference in San Francisco. Although Molotov's objections to seating Argentina at the parley were rejected by a 31 to 4 vote (April 30), he nevertheless scored a diplomatic triumph; in admitting this avowedly totalitarian state, the western democracies weakened their arguments against admitting the Warsaw government. The Russian foreign commissar then attended the Berlin conference and represented the soviet union at the London Council of Foreign Ministers (Sept.-Oct. 1945). Molotov asserted the failure of this conference was due to refusal of the other powers to accept a soviet compromise plan for continuing the work on the European peace treaties. A later meeting of Molotov, Byrnes and Bevin at Moscow in December was more successful and the Big Three reached agreement (Dec. 27) on atomic energy control, the drafting of European peace treaties and on many phases of the far eastern problem.

**Molybdenum.** The following data on the molybdenum industry in the United States during World War II were made public, in millions of pounds of metal content of concentrates.

Metal Content of Concentrates of Molybdenum, 1940-44

	(In millions of pounds)				
	1940	1941	1942	1943	1944
Production . . . . .	34.3	40.4	56.9	61.7	38.7
Shipments* . . . . .	25.3	38.4	66.4	54.0	39.4
Consumption . . . . .	?	16.9†	56.4	49.9	31.5

\*Including exports.

†Second half only.

The tight position of molybdenum during 1940 to 1943 is reflected in a total production figure of 131,600,000 lb. as compared with shipments of 130,100,000 lb. Demand dropped sharply in 1944, after the peak of demand had been passed, and continued to drop in 1945. For the first half of 1945 production totalled 18,100,000 lb. and shipments 20,700,000, with an equivalent drop in stocks. This drop of more than two-thirds of the output between 1942 and 1945 covers not only the normal decline in the standard demand for the metal, but also a similar decline in the use of molybdenum as a substitute for tungsten.

(G. A. Ro.)

**Monaco.** A principality on the Mediterranean coast, bounded on the land side by French territory. Area 375 ac. (0.59 sq.mi.); pop. (census 1939), 23,973. Chief towns: Monaco, La Condamine, Monte Carlo; ruler: Prince Louis II; language: French.

On April 14, 1945, a financial agreement was signed with France which was designed to prevent further tax evasions by French persons and companies domiciled in Monaco, and to enable the French government to recover sums owed to it in the past by these tax evaders. It was also decided that a commission should meet every six months to examine questions arising from the agreement.

(J. RA.)

**Monazite.** Consumption of monazite in the United States dropped from 2,075 short tons in 1943 to 1,990 tons in 1944. With 3,262 tons in government stock piles, and industrial stocks equivalent to two years' demand, imports were allowed to drop from 4,980 tons in 1943 to 384 tons in 1944.

(G. A. Ro.)

**Monetary Units:** see EXCHANGE CONTROL AND EXCHANGE RATES.

**Mongolia** (OUTER AND INNER). A vast, arid, sparsely settled tableland in northeastern Asia, bounded N. by Siberia, E. by Manchuria, W. by Sinkiang (Chinese Turkestan), S. by China. Area: 956,844 sq.mi. Estimated population (no accurate census was ever taken) between 6,000,000 and 8,000,000. Politically, Mongolia is divided into the two regions, Outer and Inner. Outer Mongolia is the larger in size (622,744 sq.mi.), but Inner Mongolia (334,100 sq.mi.) is much more thickly settled because it contains industrial, agricultural and mining regions, together with the vast stretches of grazing land which are characteristic of all Mongolia. In contrast to the settled Chinese farmer, the Mongol is usually a pastoral nomad and almost all the wealth of the various Mongol clans or "banners" is in their herds and flocks.

**Outer Mongolia.**—Population (est. 1941), 850,000. Capital, Ulan Bator (formerly Urga) (100,000). This immense country had been almost completely cut off from the outside world (apart from the U.S.S.R.) from 1921, when soviet troops, pursuing the anti-soviet forces of Baron Ungern-Sternberg in a concluding phase of the civil war in eastern Siberia, entered Outer Mongolia and made it possible for Mongol revolutionaries to set up a regime in Outer Mongolia which called itself a People's republic. Outer Mongolia appeared on maps as part of China, although the authority of the Chinese central government was somewhat limited and Russian political and commercial influence was strong before the Revolution.

After 1921, however, the exclusion of Chinese and other foreign trade and influence was complete and from that time Outer Mongolia was one of the least visited regions in the world by foreigners, with the exception of soviet Russians. When the U.S.S.R. resumed diplomatic relations with China in 1924 the soviet government recognized Outer Mongolia as an integral part of China and promised to withdraw its troops. But it never proved feasible for China to send officials there, even on a mission of investigation, and close politico-military co-operation prevailed between the soviet and Outer Mongolian governments.

A treaty of military alliance between the U.S.S.R. and Outer Mongolia was concluded in 1936. Japanese and soviet troops, along with Outer Mongolians and Manchoukuo units, were involved in a number of border clashes along the ill-defined Manchuria-Mongolia frontier during the 1930s. The most serious of these was at Nomonhan in 1939 and apparently ended in a severe Japanese reverse because of the efficiency of the soviet armoured units.

China consented to renounce its claim to sovereignty over Outer Mongolia in the event that a plebiscite in that country should reveal a majority in favour of union with the U.S.S.R. This agreement was embodied in the soviet-Chinese treaty of Aug. 1945. The plebiscite was subsequently held and the official result was a vote of 483,291, without a dissenting vote being cast, in favour of union with the U.S.S.R.

Politically and economically Outer Mongolia had been under strong soviet influence. A number of young Mongols were regularly sent to the U.S.S.R. for technical training. There were reports of Mongol units serving in the soviet armies in Europe; but it was not clear whether these units were recruited in



Outer Mongolia or in Buryat-Mongolia, an autonomous republic in eastern Siberia.

**Economic Characteristics.**—Russian experts helped to organize the financial system of the country. The unit of currency is the tugrik, valued at 90 kopeks. Outer Mongolia remained predominantly a pastoral country, although there were a few industrial enterprises, including a brick factory and an electric power station at Ulan Bator. In 1942 there were 1,340,000 horses, 270,000 camels, 1,500,000 oxen and 10,600,000 sheep in the country.

Ulan Bator is connected with the U.S.S.R. by means of a radio station and an air line which functions between the Mongolian capital and Verkhne-Udinsk, in eastern Siberia. There is a highway from Ulan Bator to the Siberian border town of Kyakhta; but there are no railways in Outer Mongolia. The foreign trade of Outer Mongolia is directed entirely toward the soviet union and is largely composed of an exchange of Outer Mongolian pastoral products, meat, wool, hides, bristles and casings, for such soviet products as oil, chemicals, cement, textiles and manufactured goods. There is steamer transportation on the Orkhon and Selenga rivers.

Northwest of Outer Mongolia is the little soviet protectorate of Tannu-Tuva, area 64,000 sq.mi., pop. 65,000, capital Kysylchoto. Its communication with Siberia is by way of the Yenisei river, which rises in Outer Mongolia.

**Inner Mongolia.**—Inner Mongolia includes the three northern Chinese provinces of Chahar, Suiyuan and Ningsia (Sitao). The population is more mixed than is the case in Outer Mongolia and the area is economically more developed and served by the Peking-Suiyuan railway. Mongols predominate in the grazing areas and Chinese in the towns and in farming regions along the line of the railway.

The surrender of Japan in Aug. 1945 brought important changes to Inner Mongolia. Chinese sovereignty in this area was suspended after the Japanese military occupation in 1937. The Japanese detached Inner Mongolia administratively from the rest of North China and sponsored the creation of a so-called new state, Mengchiang (Federated Council of the Mongol Borderland). There were three subdivisions of this state, with local capitals in Hohohoto (formerly Suiyuan), Kalgan and Tatung. The regime at Hohohoto is predominantly Mongol.

Tatung is the largest town in North Shansi and the centre of a big inadequately developed coal region. Kalgan is an old trading town northwest of Peking. Nearby are extensive iron deposits. Immediately after the collapse of Japan, Chinese communist forces moved into Inner Mongolia and gained control of Kalgan, the largest town which had fallen under communist rule up to the close of 1945. The attitude of the Mongols, who always possessed a good deal of local autonomy, was not clear. There was a certain amount of fighting between communists, central government troops and other forces in Inner Mongolia; but the administrative situation at the end of 1945 was still very obscure.

The population of Inner Mongolia is roughly estimated at from 5,000,000 to 7,000,000. Principal products of the area are wool, furs, coal, iron, opium, cereals and linseed. (W. H. CH.)

**Montana.** A northwestern state of the United States, popularly known as the "Treasure state." Area, 147,138 sq.mi.; pop. (1940): 559,456. The urban population was 211,535 or 37.8%. Capital, Helena (15,056). Other cities of 10,000 or more were: Butte (37,081); Great Falls (29,928); Billings (23,261); Missoula (18,449); Anaconda (11,004). It was estimated that the population of the state had gone up 40,000 or 50,000 after 1944 (est. 464,999 as of July 1, 1944). Of the total population there were 540,468 whites (1940), of whom 484,826 were native-born and 55,642 were foreign-born.

The Indian population numbered 16,841.

**History.**—The principal state officers in 1945 were Sam C. Ford (Rep.), governor; Ernest T. Eaton (Rep.), lieutenant governor; Sam W. Mitchell (Dem.), secretary of state; R. V. Bottomly (Dem.), attorney-general; George T. Porter (Rep.), treasurer; John J. Holmes (Dem.), auditor; Elizabeth Ireland (Rep.), superintendent of public instruction; and Horace F. Casey (Dem.), railroad and public service commissioner. Congressman James F. O'Connor died early in 1945 and at a special election in June, Wesley A. D'Ewart (Rep.), one of the leading opponents in the state to a Missouri Valley authority, was elected for the unexpired term.

**Education.**—There were 1,534 elementary schools in Montana in 1945, with an enrolment of 66,303 and a teaching staff of 3,401. There were 190 high schools with 24,605 students and 1,307 teachers. The net amount spent on the operation of these schools was \$13,941,463.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—Through federal and state aid, approximately 17,500 persons received public assistance in 1945. Grants totaling \$5,414,295 were distributed as follows (figures in parentheses indicate the average number of recipients per month): Old age assistance (10,754), \$4,021,218; aid to dependent children (4,553), \$662,492; aid to needy blind (322), \$131,181; subsistence (1,056), \$316,472; medical care (257), \$43,466; hospitalization (308), \$214,392; burials (31), \$25,074. Unemployment benefits of \$73,431—about 23% less than the amount for 1944—were paid to 765 persons, an average of \$12.39 per week for 7.75 weeks, or \$96 per claimant. Correctional institutions with their average populations and total expenditures in 1945 were: Montana State prison, 325 inmates, \$126,000; State Industrial school, 86 inmates, \$70,509; Vocational School for Girls, 77 inmates, \$44,949.

**Communications.**—In 1945 the state highway commission maintained 7,963 mi. of highways, of which 1,070 mi. were unsurfaced. State highway expenditures in 1945 were \$5,466,143, including federal aid. On June 5, the electorate approved a \$12,000,000 highway debenture issue of bonds for Montana's participation in the federal-aid highway building program. There were 106 designated airports, of which 26 were suitable for large commercial or military aircraft. The railway mileage was approximately 5,203 mi. The number of telephones was estimated at 78,841.

**Banking and Finance.**—There were 130 banks in the state in 1945. The 40 national banks had total deposits of \$213,024,000, and their total assets were \$223,638,000. State banks had total deposits of \$199,919,556, and their total assets were \$209,511,829. There were 16 building and loan associations with assets of \$14,156,662. The state government, with a general fund balance of \$925,000 after setting aside \$4,500,000 for a postwar reconstruction program, was in excellent financial condition. For the fiscal year 1944-45, the net state income was \$32,904,451 and the total expenditures \$27,263,277. The gross debt of the state on July 1, 1945, was \$7,331,000 and the net debt, \$4,925,129.

**Agriculture.**—Most Montana crop yields were reduced in 1945 owing to less favourable weather conditions. The value of

Table 1.—Leading Agricultural Products of Montana, 1945 and 1944

Crop	1945	1944
Wheat, bu. . . . .	57,726,000	74,764,000
Hay, tons . . . . .	2,487,000	2,433,000
Barley, bu. . . . .	13,248,000	16,290,000
Oats, bu. . . . .	9,486,000	15,717,000
Sugar beets, tons . . . . .	877,000	682,000
Flaxseed, bu. . . . .	1,410,000	1,453,000
Corn, bu. . . . .	2,010,000	2,940,000
Potatoes, bu. . . . .	2,016,000	2,520,000
Alfalfa seed, bu. . . . .	88,000	84,000
Seed peas, 100 lb. bags . . . . .	288,000	414,000
Dry beans, 100 lb. bags . . . . .	200,000	250,000
Mustard seed, lb. . . . .	25,200,000	22,000,000

all main crops was \$154,803,000 as compared with \$179,822,000 in 1944. Cash income from livestock and livestock products was estimated to be in excess of \$150,000,000.

**Manufacturing.**—The total value of products manufactured in Montana in 1939 was \$151,885,026 as compared with \$176,278,814 in 1937. Persons employed in manufacturing numbered 10,898 in 1939 and were paid salaries and wages amounting to \$15,832,241.

Table II.—Industrial Products in Montana, 1944 and 1943

Products	1944	1943
Cheese, lb.. . . . .	3,940,502	2,147,234
Butter, lb. . . . .	11,807,544	12,731,782
Powdered milk, lb. . . . .	44,000	49,773
Ice cream, gal. . . . .	1,455,590	1,414,730
Beet sugar, tons. . . . .	109,000	104,000
Flour, sacks . . . . .	2,946,559	2,770,604
Mill feed, lb. . . . .	110,900,405	98,377,446
Beer, bbl. . . . .	251,912	219,592

**Mineral Production.**—The value of the 1945 production of gold, silver, copper, lead and zinc in Montana was \$39,134,900, a decrease of 20% under that of 1944. The shortage of labour in the mines, mills and smelters was the most acute experienced up

Table III.—Principal Mineral Products of Montana, 1945 and 1944

Mineral	Value, 1945	Value, 1944
Copper . . . . .	\$24,616,000	\$31,911,300
Zinc . . . . .	6,440,000	8,236,956
Silver . . . . .	4,422,400	5,044,064
Lead . . . . .	2,064,000	2,096,800
Gold . . . . .	1,592,500	1,693,650
Total . . . . .	\$39,134,900	\$49,039,855

to 1945. There was some increased activity in Montana gold mines following the rescinding on July 1, 1945, of the War Production board's gold mine closing order of Oct. 8, 1942.

Crude oil production amounted to approximately 8,416,000 bbl. in 1945, somewhat less than for 1944. (E. E. B.)

**Montenegro:** see YUGOSLAVIA.

**Montgomery, Sir Bernard Law** (1887— ), British army officer, was born Nov. 16. The son of an Ulster clergyman, he joined the Royal Warwickshire regiment as a second lieutenant in 1908, and fought in France during World War I. A month before the outbreak of World War II, in Aug. 1939, he was appointed to command the third division which went to France with the B.E.F., and helped evacuate his troops from Dunkirk in June 1940. In the summer of 1942, Lt. Gen. Montgomery was made commander of the British 8th army. Under "Monty's" leadership, the 8th army turned back the Afrika Korps at El Alamein in Oct. 1942, and chased Rommel into Tunisia. On Feb. 11, 1943, Montgomery's forces were placed under Gen. Dwight D. Eisenhower's unified command. Montgomery played a major role in the conquest of Tunisia, the landings in Sicily and in the Italian campaign. During the early phase of the invasion of France, Montgomery was field commander of Allied ground forces. On Aug. 30, 1944, Eisenhower split his land forces into two groups, with Montgomery commanding the 21st army group (mostly British imperial troops), and with Gen. Omar Bradley heading the 12th (predominantly U.S.) army group. The following day, Aug. 31, King George VI appointed Montgomery field marshal supernumerary.

During the German counterattack in the Ardennes forest, the U.S. 1st and 9th armies were transferred (Dec. 20, 1944) to Montgomery's command. They were returned to Gen. Bradley's jurisdiction after the German bulge was ironed out. Montgomery's forces drove through the Netherlands, northern Germany and up to Denmark in the closing phases of the battle for Germany, and on May 4, 1945, all German forces in that area surrendered to his armies. Montgomery was appointed chief of the

British occupation forces and British member of the Allied Control commission in Germany, May 22, 1945.

**Montreal.** A city in the province of Quebec, Canada, first called Ville Marie, founded in 1642 on the site of the Indian village of Hochelaga, Montreal is on an island at the confluence of the Ottawa and St. Lawrence rivers, approximately 1,000 mi. from the Atlantic ocean and 2,760 mi. from Liverpool. Being at the head of ocean navigation, it is the terminus for lake vessels from the Great Lakes and is served by three canal systems—the St. Lawrence canals (1,230 mi. to the Great Lakes), the eastern United States canals, via the Richelieu river and Lake Champlain (length 127 mi.) and the Ottawa river canals (length 119 mi.).

The population of the city proper in 1945, as estimated by *Lovell's Directory*, was 1,345,605, and of greater Montreal 1,554,261.

The city is governed by a mayor and a council of 99 members, of whom one-third are appointed by public bodies, one-third elected by the property owners and one-third by the citizens generally. The mayor is elected by the citizens. The council appoints from among its members six councillors to act as an executive committee. Greater Montreal is supervised by the metropolitan commission, on which the city and suburban municipalities are represented.

The port of Montreal is the largest in Canada. Deep-sea-vessel arrivals in 1945 numbered 601, with a net tonnage of 2,231,232. The number of coastal- or inland-vessel arrivals in 1945 was 217, with a net tonnage of 201,780.

The assessed value of real estate, as of April 30, 1945, was \$1,278,204,636, of which \$346,566,674 was exempt from taxation.

In 1945 building permits were issued for 1,934 new projects, having a value of \$16,532,935, and for 2,425 repair jobs, having a value of \$5,370,913.

Bank debits (for 11 months ended Nov. 30, 1945) were \$15,834,667,688. (J. A. MA.)

**Montserrat:** see WEST INDIES, BRITISH.

**Mooney, Edward** (1882— ) cardinal archbishop of Detroit, was born at Mt. Savage, Md., on May 9. He was ordained in 1909. After serving for three years as spiritual director of the North American college in Rome, he was elected titular archbishop of Irenopolis Jan. 1926, and was named apostolic delegate to India. First U.S. priest to be given a permanent appointment in the diplomatic service of the holy see, he was later transferred to Japan in the same capacity of delegate. An outstanding accomplishment of his five years as delegate to India was the settlement of the so-called "double jurisdiction" question, effected through an accord between the holy see and Portugal.

He was installed bishop of Rochester, Oct. 12, 1933. He was also elected chairman of the Administrative Board of National Catholic Welfare conference in Nov. 1935, a post which he held, with the exception of one year, until Nov. 1945.

On June 1, 1937, following the death of Bishop Michael J. Gallagher early in that year, the announcement came from Vatican City that the diocese of Detroit had been elevated to the rank of an archiepiscopal see, that the entire state of Michigan had been made into a new ecclesiastical province, and that Archbishop Mooney had been named its first archbishop.

An ardent supporter of the labouring man, he formed the Association of Catholic Trade Unionists in Detroit and became a powerful factor in counteracting communist influence in the unions and in promoting responsible unionism.

An announcement of Dec. 23, 1945, revealed that he had been elected to the Sacred College of Cardinals. He was created and proclaimed cardinal at consistory Feb. 18, 1946.

**Mormons.** On May 14, 1945, Heber Jeddy Grant (*q.v.*), president of the Church of Jesus Christ of Latter-day Saints, passed away.

On May 21, 1945, Elder George Albert Smith, at the time president of the Council of the Twelve, was chosen and set apart, at a meeting of the Council of the Twelve Apostles, as successor to President Grant.

President George F. Richards was, at the same time, chosen and set apart as the president of the Council of the Twelve.

At the death of the president of the church, the Council of the Twelve Apostles becomes the governing body of the church and the depository of all of the powers and authorities incident thereto, and the council continues to possess and to exercise such powers and authorities until a new president is chosen and set apart, who then receives, by ordination at the hands of the Twelve, all the powers, authorities and keys incident to the presidency of the high priesthood of the church. Thereafter the Council of the Twelve again becomes the second governing body, or quorum, of the church. The new president is then accepted and sustained by the body of the church, in solemn assembly, as president of the church, and as prophet, seer and revelator thereto.

George Albert Smith was born in Salt Lake City, Utah, on April 4, 1870. His father was an apostle for 29 years and counsellor to President Joseph F. Smith, who preceded Heber J. Grant as president of the church. His grandfather, also George Albert Smith, was an apostle and counsellor to Brigham Young.

Before his ordination to the apostleship on Oct. 6, 1903, at the age of 33 years, George Albert Smith had been active in business, civic and political circles. He continued active in civic affairs, being vice-president, then president, of the International Irrigation congress. He served as president of the International Dry Farming congress and later as president of the Combined Irrigation and Farm congress in Kansas City, Mo., in 1918. He was president of the European mission of the church, 1919-21. For many years he was prominently identified with the Boy Scouts of America, being a member of the national executive council and receiving the Silver Buffalo award from that organization for his outstanding and meritorious service to boyhood. He was also prominent in the Sons of the American Revolution, being twice elected national vice-director general. He actively promoted the work of the Utah Pioneer Trails and Landmarks association. (See also CHURCH MEMBERSHIP.) (J. R. CL.)

**Morocco:** see FRENCH COLONIAL EMPIRE; SPANISH COLONIAL EMPIRE.

**Morrison, Herbert Stanley** (1888- ), British statesman, was born at Brixton, London, Jan. 3, 1888. Having left elementary school at 14, he passed through a variety of jobs. From 1913 onward he took up politics as a full-time occupation, first as a journalist, later as secretary to the London Labour party. After a year as mayor of Hackney (1919-20) he was elected, in 1922, to the London county council which remained the main sphere of his activities and influence for 18 years. Having been a member of parliament during 1923-25, 1929-31, and from 1935 onward, and minister of transport in the second Labour government, he became, in May 1940, one of the three Labour members of the Churchill coalition government, first as minister of supply, and from Oct. 1940 as home secretary and minister of home security, offices which he held until the breakup of the

coalition government in May 1945, from 1941 as a member of the war cabinet. As a member of the Labour party executive and chairman of the Labour party election campaign committee he could take some of the credit for organizing the sweeping victory of his party in the general election of July 1945. In the new Labour government he held in 1945 a prominent position as leader of the house of commons and lord president of the council (in which capacity he was expected to be in charge of the general co-ordination of economic policy). In November he laid before the house of commons the Labour government's legislative plans for the nationalization of the inland transport and fuel and power industries. (H. W. AT.)

**Mortgages, Farm:** see AGRICULTURE; FARM CREDIT ADMINISTRATION.

**Mortgages, Home:** see HOUSING.

**Moscow.** With victory approaching, Moscow continued, in the early part of 1945, to be an ever-growing centre of attraction to civilians from all parts of the soviet union, and especially for officers and soldiers on leave. The partial blackout was completely lifted on April 30. The series of almost nightly victory salutes, with their coloured rockets, and culminating in the tremendous fireworks of victory night on May 9, added ideologically and sentimentally to the glamour of Moscow and to its symbolic significance as the heart of the soviet union. On victory night 2,000,000 to 3,000,000 people were estimated to have thronged central Moscow. There were many spontaneous pro-Ally demonstrations, notably outside the U.S. embassy. On May 1, the day before the fall of Berlin, a large military parade was held in the Red square. Here also a victory parade was held, in Stalin's presence, on June 24.

For a variety of reasons the population of Moscow continued to increase, and was unofficially estimated at 5,500,000 to 6,000,000 in 1945, as against 4,137,018 in 1939. Housing and transportation were very severely overcrowded, but apart from some typhus and an increase in social diseases, health was reasonably good. Food and fuel continued to improve, and undernourishment, common in 1942 and 1943, practically disappeared. After V-E day the usual seasonal wartime mobilization of about 250,000 civilians for cutting peat and timber for Moscow's wartime needs was stopped. Overtime was stopped in industry, holidays were allowed, and production in many cases was converted to civilian goods, notably in the great Moscow textile industry. Consumers' goods became more plentiful and cheaper. Large plans existed for rebuilding and extending Moscow, but these awaited large-scale demobilization. From July many thousands of demobilized soldiers of the older age-groups who arrived in, or passed through, Moscow were lavishly entertained.

In the summer the Allied reparations commission met in Moscow, and also a congress of Allied scientists, in connection with the 220th anniversary of the soviet academy of sciences. The summer of 1945 was exceptionally rainy, and crops in the Moscow province, except potatoes, were bad. (A. WH.)

## Moscow Conference of Foreign Ministers.

At the Berlin conference which ended Aug. 2, 1945, the heads of the governments of Great Britain, the soviet union and the United States decided to establish a Council of Foreign Ministers of the three powers and, in addition, of China and France. This council would convene in a series of foreign ministers' conferences to resolve international problems. (See BERLIN CONFERENCE.)

The first session of the Council of Foreign Ministers met accordingly in London in Sept. 1945 but it ended in a stalemate between the U.S.



and Britain on the one side and Russia on the other. Some progress was made in the draft of a peace treaty with Italy, but on other points there was disagreement. The rupture came, however, on a question of procedure. On Sept. 11 the Russians agreed that all five powers should be present at all meetings. But on Sept. 22 the Russians insisted on the exclusion of France and China from the discussion of the peace treaties (except that France was to participate in the treaty with Italy). To this the other two foreign ministers would not agree, and there the conference ended.

To break the stalemate, Secretary Byrnes proposed a conference of the foreign ministers of Great Britain, the Soviet Union and the United States to be held in Moscow. The conference met accordingly from Dec. 16 to Dec. 26, 1945. The Russians were willing to make some concessions to U.S. interests in the far east, but they remained adamant in the middle east where primarily British interests were at stake. On other points a formal agreement was reached, though its implementation might still give rise to various interpretations.

It was agreed that the peace treaties with the former German satellites should be drawn up only by those members of the Council of Foreign Ministers who signed the surrender terms of the country in question. The completed drafts were to be submitted to a conference on which the Big Five and all United Nations which actively waged war with substantial force against European enemy states would be represented. This conference was to be held not later than May 1, 1946. Its recommendations would be considered in drawing up the final peace treaties by the states signatory to the terms of the armistice.

In regard to the far east, it was decided to replace the Far Eastern Advisory Commission with a Far Eastern Commission consisting of the Soviet Union, Great Britain, the United States, China, France, the Netherlands, Canada, Australia, New Zealand, India and the Philippines. This commission was to formulate the policies and principles for Japan. The U.S. government would formulate its directives in accordance with these policies and principles and would transmit them to the supreme commander who would implement them. The commission would have its headquarters in Washington. In addition there was to be an Allied Council in Tokyo under the chairmanship of the supreme commander and including in addition a Russian, a Chinese and a British commonwealth member. It would meet not less often than once every two weeks to consult with and advise the supreme commander regarding the control of Japan.

Korea, it was decided, should be put under a provisional democratic Korean government and put under a joint trusteeship of Great Britain, China, the Soviet Union and the United States for a period of up to five years to prepare the country for national independence.

With regard to Rumania, it was decided that the representatives of the three powers should visit Rumania and satisfy themselves that two truly representative and suitable members of the National Peasant Party and of the Liberal Party were included into the government, which should declare as soon as possible free and unfettered elections and should guarantee the freedom of the press, speech, religion and association. In Bulgaria the Soviet government undertook to give friendly advice to the Bulgarian government to include two representatives of democratic parties which were not represented in 1945 in the fatherland front government.

An important decision was taken, as a result of the U.S.-British-Canadian agreement on atomic energy control, for the establishment, by the general assembly of the United Nations, of a commission for the control of atomic energy. This commission, composed of representatives of the states represented in the Security Council plus Canada, would submit its reports and recommendations to the Security Council which also would issue directives to the commission. The commission would discuss and submit proposals for extending between all nations the exchange of basic scientific information for peaceful ends; for the control of atomic energy to the extent necessary to ensure its use only for peaceful purposes; for the elimination of atomic weapons and of all major weapons for mass destruction; and for effective safeguards of inspection against violations and evasions.

**Motion Pictures.** The year 1945 was a turbulent one in the U.S. motion picture industry, with the producing studios torn for more than eight months by a jurisdictional strike. From a box-office standpoint, it was estimated that 1945 surpassed even the record figure of 1944. Production costs, both for labour and materials, stood at new highs. The end of World War II was followed by termination of government censorship and film rationing.

In 1945 Eric A. Johnston, president of the U.S. Chamber of Commerce, became president of the Motion Picture Producers and Distributors of America. Will Hays, who had been its head from its formation in 1922, his long tenure giving rise to the popular designation of "the Hays office," remained in an advisory capacity. Soon after Johnston's accession, Warner Bros., which had withdrawn in 1944, returned to membership in both the M.P.P.D.A. and the Association of Motion Picture Producers in Hollywood. Early in December, both these organizations were merged under Johnston's leadership, with the title of Motion Picture Association of America. Byron Price, who had been director of government censorship during the war, became vice-president in charge of Hollywood activities. Another national



FIGURE in a mob scene from *Ivan the Terrible*, Soviet film pageant in three parts, produced by Sergei Eisenstein and shown in the Soviet Union in 1945. Emphasis was placed less on the czar's reign of terror than on his role in unifying all the Russians

figure, Donald M. Nelson, who had been chairman of the War Production Board, became president of the Society of Independent Motion Picture Producers.

The year 1945 saw the slow beginning of motion picture distribution by U.S. companies in countries formerly occupied by the Germans, such as France and Italy. The foreign market situation differed from country to country, variously complicated by such factors as quota systems, depreciated currency, frozen funds, taxation and nationalization of motion picture industries. The rule was to re-establish distribution and leave to the future the matter of financial return. U.S. firms did not operate in Russian spheres of influence. Outside Europe generally, the foreign situation showed little change.

The U.S. film industry in 1945 organized the Motion Picture Export Association, headed by Eric A. Johnston. Its primary purpose was to look after U.S. interests in regions where a free economy did not prevail.

J. Arthur Rank, the English motion picture executive, visited

Hollywood in 1945, and his activities loomed large in the U.S. film industry. Regarded as the most important of his deals involving Hollywood was the announced affiliation, late in the year, of Rank, Universal and International (William Goetz and Leo Spitz) in a world-wide organization, United World Pictures company. Plans called for reciprocal showings of U.S. and British produced pictures, with interchange of talent in production. This was followed by announcement of a similar world-wide distribution set up by Rank and Pathe industries, which controlled Producers Releasing corporation (PRC).

The long-expected government antitrust action involving eight motion picture companies went to trial in the U.S. district court in New York city before Circuit Judge Augustus N. Hand and District Judges Henry W. Goddard and John Bright. Generally, the charges concerned asserted monopoly through control of theatres, and various asserted trade practices tending to create a virtual monopoly. The defendants were Paramount, Loew's (Metro-Goldwyn-Mayer), 20th Century-Fox, RKO, Warner Bros., Columbia, United Artists and Universal, with the three last-named exempt from the charges of theatre control. The trial went into 1946 for final arguments.

The house of representatives committee on immigration and naturalization conducted hearings on the extent of alien employment in the industry. Chairman Samuel Dickstein (Democrat, New York) later reported that the number of aliens, including actors, was only slightly more than 1%.

Tabulation of the industry's war record showed that the Hollywood Victory committee had set up 55,619 free appearances by stars and other performers in behalf of the war effort, entertaining servicemen, aiding war bond sales and other activities. Celebrities had made 122 overseas tours, 151 hospital tours, 254 camp tours and 41 bond tours. The Hollywood Canteen closed after having entertained 3,000,000 servicemen and women. The War Activities committee of the industry had donated 43,306 16-mm. prints of feature pictures and 33,326 prints of short subjects to the Army Pictorial service for overseas distribution.

Among the prominent names in the industry returning from service with the armed forces were Louis Hayward, Richard Greene, John Howard, Victor Mature, John Payne, James Stewart, Clark Gable, Robert Montgomery, Henry Fonda, Tyrone Power, Cesar Romero, William Holden, William Lundigan, John Carroll, Ronald Reagan, Jean Pierre Aumont, Van Heflin, Gene Raymond, Buddy Rogers, Gene Autry, Lew Ayres, Bruce Cabot, Jackie Coogan, Wayne Morris. A tabulation at the end of the year showed a total of 2,750 men and women in service who had returned to their jobs at the various studios.

Emphasis in 1945 naturally was on "escapist" pictures, with war topics sharply receding. Musicals were again to the fore, as were comedies and mysteries, the latter running importantly to psychological themes. In the religious field, *The Bells of St. Mary's*, released toward the year's end, promised to repeat the success of *The Song of Bernadette* and *Going My Way* of the two preceding years.

The capital investment of the industry in 1945 continued at:

Theatres . . . . .	\$1,900,000,000
Studios . . . . .	125,000,000
Distribution . . . . .	25,000,000
	\$2,050,000,000

The year 1945 was outstanding in the development of important new screen personalities, which included Jeanne Crain, Peter Lawford, June Haver, Angela Lansbury, Dane Clark, Elizabeth Scott, Lawrence Tierney and Yvonne De Carlo.

The outstanding pictures of the year were: *Spellbound*, *Anchors Aweigh*, *Saratoga Trunk*, *Valley of Decision*, *Wonder*

*Man*, *The Dolly Sisters*, *A Tree Grows in Brooklyn*, *Love Letters*, *Mildred Pierce*, *Incendiary Blonde*, *State Fair*, *House on 92nd Street*, *Rhapsody in Blue*, *The Clock*, *Kiss and Tell*, *Enchanted Cottage*, *Over 21*, *A Song To Remember*, *Those Endearing Young Charms*, *Objective Burma*, *Our Vines Have Tender Grapes*, *Pride of the Marines*, *Picture of Dorian Gray*, *Murder*, *My Sweet* and *A Medal For Benny*.

One of the most controversial pictures of the year was *Dillinger*. It cost less than \$150,000 to make, but at latest report was expected to gross more than \$3,000,000. This was the biggest "small" picture of the year and caused considerable controversy about gangster pictures.

With the war's end, imports of foreign pictures began to increase. During the first 11 months of 1945, the Production Code administration approved 23 foreign pictures, as against 12 for the corresponding period in 1944. Perhaps the most important of the imports were two of J. Arthur Rank's British productions, *Colonel Blimp* and *Blithe Spirit*, and a Swiss picture *The Last Chance*.

Jean Hersholt became president of the Academy of Motion Picture Arts and Sciences, succeeding Walter Wanger.

The *Motion Picture Herald* annual poll showed the following stars as the leading box-office attractions in 1945. Bing Crosby again headed the list as the top money-maker:

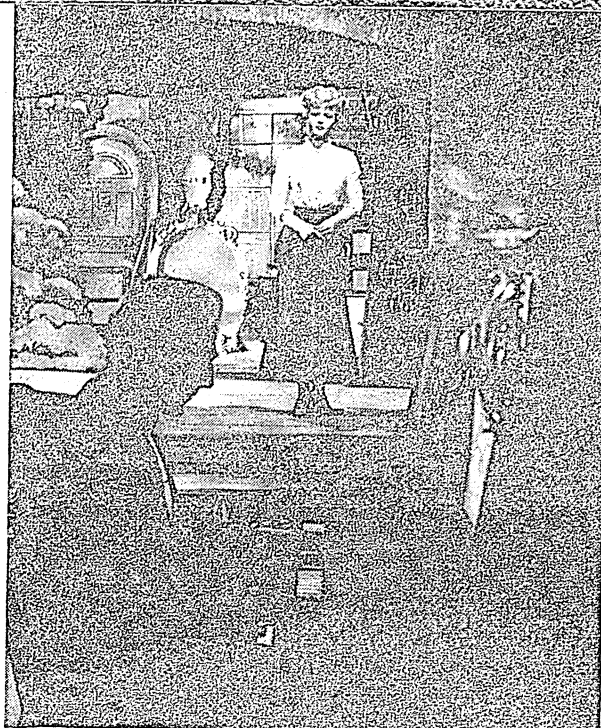
- |                  |  |
|------------------|--|
| 1. Bing Crosby   | 6. Humphrey Bogart and Gary Cooper (tie) |
| 2. Van Johnson   | 7. Bob Hope                              |
| 3. Greer Garson  | 8. Judy Garland                          |
| 4. Betty Grable  | 9. Margaret O'Brien                      |
| 5. Spencer Tracy | 10. Roy Rogers                           |

**Awards.**—Academy of Motion Picture Arts and Sciences awards for 1944:

Irving G. Thalberg Memorial Award, for most consistent high quality production achievement by an individual producer, Darryl F. Zanuck; best picture, *Going My Way*, Paramount; performances: actor, Bing Crosby in *Going My Way*; actress, Ingrid Bergman in *Gaslight*, Metro-Goldwyn-Mayer; supporting actor, Barry Fitzgerald in *Going My Way*; supporting actress, Ethel Barrymore in *None But the Lonely Heart*, RKO; best direction, Leo McCarey for *Going My Way*; best written screen play, Frank Butler and Frank Cavett for *Going My Way*; best original screen play, Lamar Trotti for *Wilson*, 20th Century-Fox; best original motion picture story, Leo McCarey for *Going My Way*; best art direction—black and white—Cedric Gibbons and William Ferrari for *Gaslight*; colour, Ward Ihnen for *Wilson*; best cinematography—black and white—Joseph LaSelle for *Laura*, 20th Century-Fox; colour, Leon Shamroy for *Wilson*; best sound recording, E. H. Hansen for *Wilson*; short subjects—cartoon, *Mouse Trouble*, Metro-Goldwyn-Mayer (Frederick C. Quimby, producer); one-reeler, *Who's Who in Animal Land*, Paramount (Jerry Fairbanks, producer); two-reeler, *I Won't Play*, Warner Bros. (Gordon Hollingshead, producer); best film editing, Barbara McLean for *Wilson*; best scoring of a musical picture, Morris Stoloff and Carmen Dragon for *Cover Girl*, Columbia; best scoring of a dramatic picture, Max Steiner for *Since You Went Away*, Selznick International; best song, "Swinging on a Star," from *Going My Way* (music by James Van Heusen, lyrics by Johnny Burke); best special effects, *Thirty Seconds Over Tokyo*, Metro-Goldwyn-Mayer (A. Arnold Gillespie, Donald Jahraus and Warren Newcombe for photography; Douglas Shearer for sound); best interior decoration—black and white, Edwin B. Willis and Paul Huldscrinsky for *Gaslight*; colour, Thomas Little for *Wilson*; documentaries—feature, *The Fighting Lady*, 20th Century-Fox and U.S. navy; short subject, *With the Marines at Tarawa*, U.S. marine corps; special award, Bob Hope, for his many services to the academy; Margaret O'Brien, outstanding child actress of 1944. (L. O. P.)

To Alexander Knox for his role in *Wilson* went the award for the best performance of an actor in 1945, as judged by U.S. motion picture critics in a nation-wide poll. Ingrid Bergman for *Spellbound* and Greer Garson for *Valley of Decision* were tied for the best actress' performance during the year. Other outstanding male stars chosen by the critics, according to *The Film Daily*, were Gregory Peck for *The Keys of the Kingdom*, Burgess Meredith for *The Story of G.I. Joe*, Gregory Peck, again, for *The Valley of Decision*, with a tie for fifth place among Joseph Cotten for *Love Letters*, James Dunn for *A Tree Grows in Brooklyn* and Cary Grant for *None But the Lonely Heart*. Actresses named after those tied for first place were Joan Crawford for *Mildred Pierce*, Bette Davis for *The Corn is Green* and Greer Garson, again, for *Mrs. Parkington*. Those voted the best supporting actors and actresses for the year were Clifton Webb in *Laura*, J. Carol Naish in *A Medal For Benny*, Robert Mitchum in *The Story of G.I. Joe*, John Dall in *The Corn is Green*, Keenan Wynn in *Without Love*, Ann Revere in *National Velvet*, Joan Blondell in *A Tree Grows in Brooklyn*, Ethel Barrymore in *None But the Lonely Heart*, Joan Loring in *The Corn is Green* and Ann Blyth in *Mildred Pierce*. The critics' choice of outstanding screen plays were *Wilson*, *Laura*, *The Story of G.I. Joe*, *Love Letters* and *A Tree Grows in Brooklyn*, the last two being tied. Lauren Bacall, Elizabeth Scott, John Dall, Gregory Peck and Cornel Wilde were judged the talent "finds" of the year. (X.)





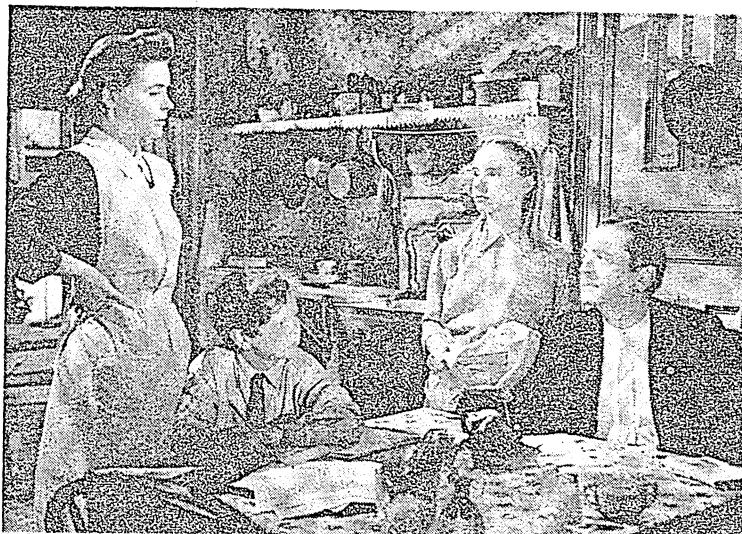
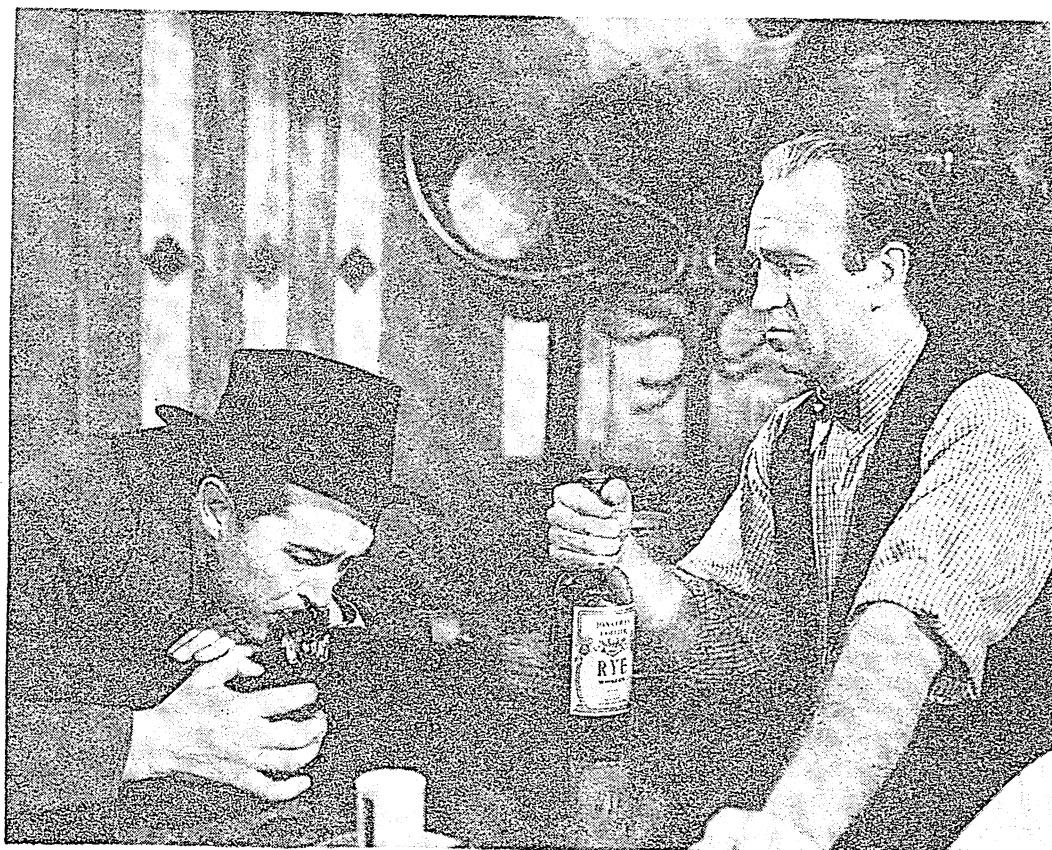
Above: ANGELA LANSBURY and HURD HATFIELD in a scene from *The Picture of Dorian Gray*, which was given an award by the Academy of Motion Picture Arts and Sciences for the best cinematography of 1945 in the black and white class

Above, right: JOAN CRAWFORD in the title role of *Mildred Pierce*, which won for her the 1945 award of the Academy of Motion Picture Arts and Sciences for the best actress

Right: RAY MILLAND was named the best actor of 1945 by the Academy of Motion Picture Arts and Sciences for his role as a drunkard in *The Lost Weekend*, which was chosen the best picture of the year. Other honours awarded the picture were those for best direction, by Billy Wilder, and for the best written screen play

Below, left: JAMES DUNN (right) in a scene from *A Tree Grows in Brooklyn*. He was named the best supporting actor of 1945 by the Academy of Motion Picture Arts and Sciences. Peggy Ann Garner (second right) was given a special award as the outstanding child actress of the year

Below, right: ANNE REVERE (right), for her performance in *National Velvet*, was named the best supporting actress of 1945 by the Academy of Motion Picture Arts and Sciences





**Technical Developments.**—The termination of hostilities in Europe and the Pacific came too late to permit equipment companies and industry engineers to do much in the way of new development.

**Standards.**—Forty-nine U.S. war standards were adopted by the War Committee on Photography and Cinematography in order to facilitate the design, procurement, operation, maintenance and interchangeability of motion picture equipment. Sixteen of these standards were turned over to the American Standards association as proposed peace-time standards. The remainder of the war standards were expected to be considered and turned over to the A.S.A. as rapidly as possible.

**Sixteen Millimetre Film.**—The impetus given to 16-mm. picture production and exhibition through the widespread use of this medium by the military forces, both for training and entertainment purposes, had begun to show its effect even before the close of World War II. Producers of 35-mm. entertainment films continued their plans for 16-mm. releases of their regular 35-mm. pictures. Some planned to enter the educational field and others planned to enter the industrial or advertising motion picture field. Equipment companies formerly interested only in 35-mm. professional camera, sound recording and projection equipment, prepared to supply professional 16-mm. equipment. A few feature-length entertainment films were photographed in 16-mm. colour and produced for 16-mm. release only. Future plans called for considerably more production of this type. It appeared that the early stages of a 16-mm. motion picture industry were developing; while the 16-mm. probably would always supplement the 35-mm. industry, it might nevertheless, grow to comparable importance.

**Colour.**—Insofar as commercial use of colour in the industry was concerned, there were no new developments. All film manufacturers were believed to be working on new or improved colour processes. Considerable interest was shown in a picture produced in Germany during the war, in which a colour process developed by Agfa was used, that was believed to be a negative-positive process. This process was being thoroughly investigated by various branches of the motion picture industry and might be placed in commercial use in the United States if it revealed advantages over existing processes. A commercial pilot laboratory for the processing of 35-mm. and 16-mm. Ansco colour reversal film was being constructed in Hollywood. This laboratory was to be completed in the early part of 1946 and was expected to contribute much information regarding the commercial use of the Ansco reversal process.

The new colour films, unlike the previous Technicolor process, resulted in a sound track with high transparency in the infra-red range. Since photoelectric cells which were in use for sound reproduction in theatres had their maximum sensitivity in the red and infra-red range, such sound tracks presented a new problem. As a solution to this problem, the industry was considering the use of a different photoelectric cell having its maximum sensitivity in the blue range. It was believed that these new blue-sensitive photocells would reproduce satisfactorily either the existing silver image sound tracks, or the dye-type sound tracks encountered in several of the colour processes.

**Sound.**—Republic studio completed, and placed in operation, a music-recording stage which was perhaps the largest and finest in the industry. It was designed to accommodate orchestras of 100 or more men and to provide a separate vocal room to permit isolation of the vocalist from the orchestra.

Various studios, including RKO, Republic and Disney, constructed and were using, special reverberation chambers comprised of two rooms with different reverberation characteristics. These rooms were connected by a door, the opening of which was remotely controlled by the sound engineer. These chambers provided special reverberation effects for original music recording and for re-recording.

Equipment companies announced new lines of recording equipment providing improved facilities. None of this equipment was available in 1945; but during 1946 it was expected that much of the equipment originally installed about 1928 and 1929 would be replaced.

Before World War II, the industry considered the adoption of a "control track" system for improved reproduction in theatres. This intention was revived and the industry was expected to standardize on such a system during 1946. The system would provide an auxiliary sound track, controlling the loudness of the sound in the auditorium and providing for the use of auxiliary loud-speakers during the high-level sections of the picture. It was expected that this system would permit a more realistic reproduction of large musical numbers and scenes requiring high-level sound effects. In general, the control track would not be operative during dialogue sequences.

**Film.**—The duPont company introduced a new variable density recording negative stock and a new variable density recording print stock for studio use. Both stocks were reported to be blue-sensitive fine-grain emulsions.

**Mexico.**—In Mexico City two new studios were under construction and it was believed that they would provide the best technical developments of the industry. It was reported that when these studios were completed, Mexico would have facilities adequate for the production of approximately 200 feature pictures per year. It was expected that Mexican studios would produce a considerable portion of the entertainment pictures for the Spanish-speaking countries of the world.

**Reconstruction.**—In England, France, Russia and Italy motion picture production facilities were destroyed or converted to other uses during the war. The program of reconstruction of these facilities, and in many

cases their enlargement, was actively under way. It was to be expected that the industries in these countries would emerge from the reconstruction period with the finest equipment which had been developed in any part of the industry.

**Television.**—The U.S. Federal Communications commission did not allocate any space in the ether for commercial theatre television; they did, however, authorize the use of certain frequency bands for experimental theatre television. Radio Corporation of America and other companies were believed to be continuing the development of theatre television equipment, but it was too early to anticipate the future commercial use of such equipment.

Most of the motion picture producing companies in the U.S. filed applications for commercial licenses to operate television broadcasting stations in one or more of the larger cities. At least one producing company was constructing a motion picture studio, specifically for the production of television shows. Reportedly, these shows might be either live-talent, motion picture, or a feasible combination of the two.

Considerable interest was also being shown in the industry in the possible application of television equipment to the production of motion pictures. (W. V. W.)

**Educational Motion Pictures.**—The motion picture in 1945 emerged from the furnace of World War II a superb tool of education. The armed forces during 1941-45 produced six times as many educational films as had been produced during the previous 50 years. The sharp factual and inspirational blade of this two-edged instrument was used for training and morale by the entire army and navy. More people utilized instructional films during the four years ending in 1945 than ever before in the history of education. At an expense of about \$100,000,000 the army and the air forces produced about 2,700 training films and the navy about 1,200.

The U.S. Office of Education during the same period completed a series of about 450 visual-aid units for industrial training, each consisting of a sound motion picture, a filmstrip and an instructor's manual. The filmstrip, containing stills of key scenes for review and discussion, provided a basis for new emphasis on techniques of effective utilization. The USOE announced that it had carried through its 53-month production program at the rate of 100 films a year and that it had distributed more than 50,000 prints of its pictures.

The University of Chicago established itself as a world centre for the development of classroom films, including versions in foreign languages, by transferring from New York to Chicago the Encyclopædia Britannica Films producing organization, headed by V. C. Arnsperger, and by extending the activities of the university's centre for the study of Audio-Visual Materials, under the direction of Stephen M. Corey. Among the classroom films produced by the E.B.F. organization in 1945 were notable reels on *Democracy and Despotism*.

In line with Uncle Sam's new role in world affairs, William Benton, formerly chairman of the board of Encyclopædia Britannica Films and vice-president of the University of Chicago, was appointed assistant secretary of state to develop a world-wide program for the interpretation of U.S. policies through mass-education media, including notably the use of educational films.

The American Council on Education recommended in 1945, on the basis of its researches, and as a minimum goal in the development of educational films, one 16-mm. sound projector for every 200 students—a tenfold increase in the number of projectors—150,000 machines as against 15,000 in U.S. schools in 1945.

Hollywood's interest in classroom films took practical shape in 1945 with the establishment at New Haven of a tentative research centre for the production of text films, operating with funds from the major film companies, under the guidance of a commission on motion pictures set up by the American Council on Education, Gardner L. Hart, director of the project, announced in Dec. 1945, that preliminary scripts had been prepared in the fields of art, health, democracy, mathematics and teacher training.

The MGM studio took the lead in setting up in 1945 a 16-mm. department in its laboratory, under the general direction of Arthur M. Loew, head of Loew's International corporation. Loew announced plans for world-wide distribution of MGM films in 16-mm. He indicated also that American-made classroom films would be included in his foreign distribution plans, as a step toward closing the gap between the world and the classroom. Loew said: "The war gave such impetus to the improvement of 16-mm. projectors, sound and film that today 16-mm. film approaches 35-mm. quality for audiences of less than 1,000."

Implementing the new interest of major companies in 16-mm., the Loew organization brought to America in 1945, the first group of candidates selected from its 30 foreign territories for training in 16-mm. operations. Following the lead of MGM, other major companies, including RKO Radio, United Artists and Warner Bros., announced plans for 16-mm. operations abroad.

These operations included the use of mobile units, or fully-equipped sound trucks. Similar units were introduced in the U.S. in 1945 by the University of Idaho to carry audio-visual programs to rural areas.

Thus far the major film companies were permitting domestic distribution of 16-mm. versions of their product only on a nonprofit basis, through Teaching Film Custodians, and only after the films had exhausted the domestic theatrical market. In 1945 MGM released, in accordance with this policy, through T.F.C., for schools and colleges, re-edited, 40-minute versions of *Romeo and Juliet*, *A Tale of Two Cities*, *Treasure Island* and *David Copperfield* in 16-mm.

The March of Time continued the development of its 16-mm. series for schools by increasing its Forum edition subjects in 1945 to 16, each running 20 minutes.

The National Education association recognized the growing importance of educational pictures by setting up a new Division of Audio-Visual Instructional service at its Washington headquarters, with Vernon G. Dameron in charge.

The Virginia legislature in 1945 appropriated an unprecedented \$1,112,000 for visual aids in the schools during the academic year 1945-46. One of the first orders under this budget was for some 2,500 reels of Encyclopædia Britannica classroom films.

Churches in 1945 showed a marked increase in educational film activity. A Protestant group inaugurated a film production program with an initial budget of \$1,000,000.

Periodicals devoted to audio-visual education increased in 1945 from four to six, with the addition of *See and Hear* and *Film World* to the pioneer group including *Educational Screen, Film and Radio Guide*, *Business Screen* and *Film News*. The last-named, under a Rockefeller grant, developed in 1945 from a bulletin into a regular magazine. Two additional film magazines of educational interest were launched in Hollywood in 1945—the *Hollywood Quarterly*, published by the University of California press, and *The Screen Writer*, published by the Screen Writers' guild. (See also PHOTOGRAPHY.)

FILMS.—*Bringing the World to the Classroom*; *Sound Recording and Reproduction*; *Using the Classroom Film* (Encyclopædia Britannica Films Inc.). (W. L.N.)

## Motor-Boat Racing.

The end of World War II and the subsequent lifting of the restrictions on gasoline in the U.S. did not come in time to permit the resumption of motor-boat racing on a national scale during 1945. The only two events that brought a large number of boats together were the 13th Annual Hearst Gold Trophy regatta, held at Long Beach, Calif., and the 5th Annual Salton Sea regatta, run off Sandy Beach (Calif.), Nov. 17-18-19. Both events drew a large field of racing drivers from the Pacific coast and near-by states, and some from the more eastern states. The outstanding class in both regattas, in point of interest, was the 135-cu.in., in which a new speed record for the mile trials was established. The Salton Sea regatta established five new records, as follows:

Class	Driver	Boat	New Record	Prev. Record	How Made
135 cu.in. Pacific O.D.	Thomas Hill	"LyBee"	80.178	73.781	Mile Trial
Class A1	Hydro Elmer Cravener	"Pudgy"	52.36	51.547	" "
Outboard Class A1	Thomas DeWitt	—	46.899	45.317	Comp't. 5 Mi.
Outboard Class C11	Thomas DeWitt	—	50.281	49.528	Mile Trial
Outboard	Thom Cooper	—	63.549	60.45	" "

The speedboat championship of the Pacific coast was won in three heats by Edward Meyer in "Avenger." The same driver and boat won in both the 135-cu.in. class and the 225-cu.in. class at the Hearst Gold Trophy regatta earlier in the season.

(H. L. St.)

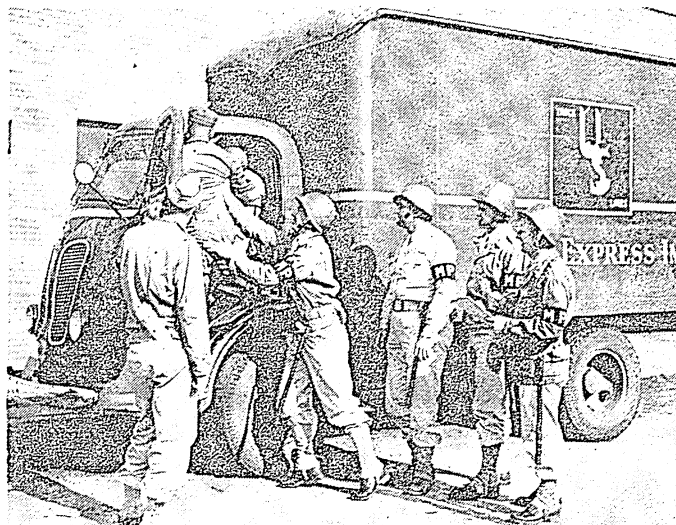
**Motor Buses:** see AUTOMOBILE INDUSTRY IN RECONVERSION; MOTOR TRANSPORTATION.

**Motor Cars:** see AUTOMOBILE INDUSTRY IN RECONVERSION.

## Motor Transportation.

Prospects of the bus industry in the United States at the end of 1945 were substantially better than for industry as a whole. This may sound a bit contradictory since some economic factors were at work over which the industry had no control. In substance, however, the statement is true. Labour was restive just as it was in other industries, but nearly all other factors were on the credit side. Riding on both the city and the intercity lines was not far below the inflated wartime peaks, but it was continuing at a high level. This is ascribed to the continuing high level of employment and to retardation of the programs for the production of new automobiles for replacements. The end of World War II did not take all the pressure off bus operations, but it eased the situation on lines that were burdened almost beyond the capacity of the available vehicles. For the most part, these restrictions were removed. All government wartime operating embargoes were removed shortly after V-J day, the tire situation was greatly relieved, and parts were in greater supply. As indicated before, labour problems were many and some of them critical, but there was no longer a manpower shortage.

Fortunately the industry secured a substantial number of new vehicles during 1945. Year-end figures of production showed that nearly 10,000 new motor buses and more than 200 trolley buses were delivered to common carriers and that more than



THE U.S. ARMY took over truck deliveries when Chicago teamsters went on strike May 16, 1945, in a dispute over wages and hours. Acting under presidential orders, soldiers functioned as drivers and escorts

8,000 buses went to schools and to contractors that furnish school bus service. To provide vitally essential wartime transportation in 1942-45 \$1,131,000,000 was expended for new equipment, fuel and oil, tires, maintenance materials, replacement parts, garages, shops and shop equipment and tools. Despite this, the industry had to a large extent been living out of its capital, particularly in the matter of vehicles, and it was not surprising that vast expenditures were in prospect for replacement and renewals. Some idea of the extent of the expenditures in prospect in the intercity field was conveyed in the estimate of the National Association of Motor Bus Operators that \$42,000,000 would be spent for the construction and remodeling of terminals and garages as soon as wartime restrictions were lifted. In addition to construction work approximately 6,000 buses were to be purchased at a cost of \$90,000,000. With another \$10,000,000 earmarked to rehabilitate equipment the immediate postwar expenditures of the intercity bus industry were expected to exceed \$140,000,000. One system alone, Greyhound, planned to spend \$35,000,000 in the initial stages of a vast program to provide better equipment and terminal facilities for its subsidiaries. In the city field the story was very much the same. Thus New York city proposed to spend more than \$38,000,000 to modernize its bus and streetcar lines and the Third Avenue Transit system had under way a modernization program that called for the complete substitution of buses for streetcars at an estimated expenditure of about \$12,000,000. For this work 700 new buses were ordered. In Chicago, Ill., orders were placed for vehicles to cost more than \$6,000,000 while in Boston, Mass., \$10,000,000 was to be spent, in Detroit, Mich., \$25,000,000, in Cleveland, O., \$26,000,000, in Atlanta, Ga., \$5,000,000 and in Los Angeles, Calif., \$5,000,000.

This list could be extended indefinitely. It is of interest in that it indicates the extent of the improvements that were in store for the riding public. These included better lighting, air conditioning and other features in both the city and intercity vehicle. As a prospect not too far in the future it was predicted that the gasoline and diesel engines might soon be obsolete and their places taken by a gas turbine connected to a small, high-speed, glass insulated D.C. generator. These developments were said to wait only on the ability of the metallurgists to produce suitable turbine wheel material and appurtenances that would stand up under very high intake temperatures. Even the use of atomic power was predicted, once the secret was learned of how to control its release. Some of the things that were promised sound fantastic, but the growth of the use of the bus in so short

a period is in itself fantastic.

As matters stood bus and other companies that operate under fixed rates continued to face tax burdens likely to be proportionately high and would probably have to continue to do business at higher wages and higher other costs. Some slight measure of tax relief was in prospect, however, during 1946 under the modification of the excess profits tax. As the year 1945 ended the possibility loomed that the bus and other carriers might benefit by cuts in excise taxes being considered by congressional and treasury experts as subjects for hearings on the long-term bill early in the new year. Among the items that appeared likely to undergo revision or elimination were gasoline and other oil products, tires and tubes and parts and new buses.

Just as the bus performed a stupendous task on the home front the flexible and speedy truck kept raw materials, parts and subassemblies moving to the war plants and finished products flowing out to their domestic destinations and to shipsides for destinations abroad. The largest group of truck users were the farmers with their 34% of all trucks in which they hauled record volumes of agricultural products to market. It is estimated that the truck manufacturing industry produced military vehicles and parts at the rate of \$2,500,000,000 a year during the wartime period, or two and one-half times the total value of trucks and parts in 1941, the highest peacetime year. Just before the end of the war it was estimated that 4,744,000 trucks and 216,000 trailers were operating under certificates of war necessity, only slightly below the all-time peak. As in the bus field great need existed for the replacement of vehicles, surveys showing that one out of every eight trucks was made prior to 1931. (See also AUTOMOBILE INDUSTRY IN RECONVERSION; HORSES; MUNITIONS OF WAR.) (C. W. S.)

**Other Countries.**—In Great Britain the basic gasoline ration, withdrawn in 1942, was restored in June 1945. The reconversion of the motor industry, which had been given over entirely to war production, was greatly slowed by labour troubles and shortages of specialized manpower and materials. Government restrictions and taxation standards proved a further handicap, and the purchase tax on motor cars added 33½% to prices at home. The taxation led to a reduction in sales at home, and by October only 1,700 out of 7,000 government permits for the purchase of new cars had been used. Car prices showed a rise of more than 100% as compared with those of 1939, because of increased labour costs, prices of materials and the purchase tax. More than half the postwar cars and the bulk of the commercial vehicles were earmarked for export, but shipments overseas were restricted by transport difficulties.

Late in 1945 removal of the wartime ban on publication of statistics permitted the disclosure that in the early weeks of gasoline rationing in 1939, 1,627,083 private cars had been in use, a decline of nearly 200,000 on the prerationing figure. A further drop to 794,995 followed the cutting off of the basic ration in 1942, and in 1943 the number declined to 723,971. In June 1945, the day before the basic ration was restored, 1,010,744 cars were in use. New car registrations, which in 1942 were at 267 the lowest after 1917-18, showed in 1945 a progressive monthly increase, ranging from 58 in January to 510 in August.

In the supplementary budget presented in the house of commons on Oct. 23 the chancellor of the exchequer announced a tax of £1 per 100 cc. of engine cylinder capacity to operate from a date to be fixed for cars, and from Jan. 1, 1946, for goods vehicles and motor buses.

In Australia plans were made for prominent British and U.S. companies to establish manufacturing plants there. In New Zealand arrangements were being discussed for the assembly of vehicles in that country. Within two months of the end of the war South Africa placed an order in Great Britain for £2,000,-

000 worth of vehicle products.

In Europe, French and Italian production showed signs of revival, and cars and trucks were being produced in small quantities. Germany was permitted to reopen plants for the manufacture of 20,000 cars for essential services in 12 months. The soviet union announced plans for large-scale peace production. (See also ACCIDENTS; RAILROADS.)

FILMS.—*Arteries of the City; Bus Driver; Development of Transportation* (Encyclopædia Britannica Films Inc.).

**Motor Vehicles:** see AUTOMOBILE INDUSTRY IN RECONVERSION; FEDERAL BUREAU OF INVESTIGATION.

**Mottas, Carlo Carmelo de Vasconcellos:** see VASCONCELLOS MOTTAS, CARLO CARMELO DE.

**Mountbatten, Lord Louis** (1900— ), British naval officer, was born June 25 in Windsor, England, as Louis Francis Albert Victor Nicholas of Battenberg. His mother, Princess Victoria, was a daughter of Louis IV, grand duke of Hesse, and a granddaughter of Queen Victoria. His father, Austrian-born Prince Louis of Battenberg, grandson of Louis II of Hesse, resigned as an admiral of the British navy in 1917 because of anti-German sentiment and changed his name to Mountbatten. Lord Louis entered the British navy as a midshipman at the age of 13 and served throughout World War I. He rose through the grades until, in March 1942, he was made acting vice admiral. Early in World War II his gallantry and daring attracted attention when he brought the destroyer "Kelly" to port twice after it was damaged, first by a mine and the second time, apparently hopelessly, by a torpedo. In April 1942 it was announced that he had become head of the Commandos; his title was chief of combined operations. At the first Roosevelt-Churchill parley at Quebec, Aug. 1943, Mountbatten was made commander in chief of the newly created Southeast Asia command, and the following month he was made acting admiral. Mountbatten directed the successful Allied operations against the Japanese in Burma (1944-45). He flew to Berlin for conferences with the Big Three during the Berlin conference, it was disclosed July 25, 1945. After the victory over Japan, Mountbatten accepted the surrender at Singapore, Sept. 12, of all Japan's southern armies. On Sept. 28, it was disclosed that Lord Mountbatten had dispatched British troops to Java and French Indo-China where natives were revolting against the colonial authorities.

**Mount Holyoke College.** An institution for the higher education of women in liberal arts, founded in 1837 by Mary Lyon and situated at South Hadley, Mass. The campus covers nearly 500 acres with more than 70 buildings. Registration figures for the 1944-45 session included 1,107 undergraduates and 45 graduate students, representing 41 states, 3 territories and 5 foreign countries. (For statistics of student enrolment, faculty, endowment, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (R. G. HA.)

**Mozambique:** see PORTUGUESE COLONIAL EMPIRE.

**Mules:** see HORSES.

**Municipal Government.** The most immediate problem of municipal government in the United States in 1945 appeared toward the close of the year in the form of an acute housing crisis, expected to reach its peak in 1946. The prospective inadequacy of local revenues to meet the accumulated and expanding postwar demands on local government services was possibly the most frequently mentioned problem of the year. Increased emphasis on the significance of



intergovernmental relations was likewise notable.

**The Housing Crisis.**—The closing months of 1945 found the U.S. faced by a housing deficit of about 2,000,000 family accommodations for 1946, additional to the current deficit of 1,200,000 family units. The prewar housing shortage, limitations on wartime construction, increase in civilian families, and precipitous release of veterans from the armed services after V-J day, plus the unready condition of the central or local governments in the housing field, were the root causes of the crisis. Temporary emergency expedients were called for, pending the completion of a permanent housing program by congress. National Housing Administrator Blandford urged the appointment in congested cities of a mayor's emergency committee on housing, representative of local government, industry, labour, and the public, inclusive of all groups concerned with housing, to establish or expand veteran housing services, speed housing production, and combat inflation. The problem was diagnosed as primarily local. On Dec. 12, President Truman appointed Wilson Wyatt, former mayor of Louisville and president of the American Municipal association in 1945, as housing expediter under the Office of War Mobilization and Reconversion, to co-ordinate and expedite the housing program involving "many industries, many agencies of the government and countless communities."

Meanwhile, the Wagner-Ellender-Taft senate bill, embodying an extensive public housing and urban redevelopment program, as well as important provisions to encourage private investment in middle- and low-cost housing, remained under consideration by congress.

**Intergovernmental Relations.**—Significantly, of the 19 listed recommendations adopted at the American Municipal association's annual conference in November, 15 pertained to federal-local relations, one to the international sphere, two to state-local relations, and but one to the purely municipal field. Federal action in the fields of housing, urban redevelopment, public works, public works planning, airports, and training for the public service was urgently recommended. The United States Conference of Mayors in December similarly stressed the importance of federal-local relations, commenting that "this new relationship between cities and the federal government has proved a mutually harmonious, salutary and happy circumstance."

A Pacific Coast Board of Intergovernmental Co-operation—composed of representatives of the cities of Washington, Oregon and California and of the county, state and federal governments—was formed at Portland, Ore., in June 1945, to improve the working relationship between different levels of government concerned with the same groups of people. The board—a purely advisory group meeting quarterly—was an outgrowth of the Ninth Regional Civilian Defense board set up during the war to meet Pacific coast mutual defense problems.

The Blue Earth County (Minnesota) Council on Intergovernmental Relations, established under the sponsorship of the Council on Intergovernmental Relations at Washington and composed of representatives of selected local governmental units, issued a progress report on its two-year study of the impact of increased federal and state activity on the vitality of local government. Similar projects, designed to preserve the balance between the federal, state and local levels, were also under way in Henry county, Indiana, and Colquitt county, Georgia.

The committee on state-local relations of the Council of State Governments was also at work on problems raised by the fiscal, functional, legal and other relationships between the localities and the states.

**Personnel.**—The number of city employees, excluding teachers, tended to stabilize in 1945 after a consistently downward trend—except for seasonal fluctuations—throughout the war years. The increase in municipal pay rolls, on the other hand, continued unabated, with the end by no means in sight. On an index basis of the two-year average 1940-41=100, the

number of nonschool city employees as of the month of April in 1942, 1943, 1944 and 1945 was 101, 99, 95 and 95, respectively. The corresponding pay roll dollar figures were 102, 105, 112 and 118, respectively. (Figures for 1945 are preliminary.)

**Finances.**—The end of the war found the cities for the most part in favourable fiscal position but facing the ominous prospect of greatly increased outlays, without correspondingly increased revenues, for the resumption of capital expenditures, the purchase of supplies and equipment unprocured during the war, the assumption of new and expansion of old municipal services, possible relief costs in unpredictable amounts, and the restoration of depleted personnel to full strength at steadily rising salary rates. This picture gave rise to an undercurrent of anxiety throughout the year, reflected in several state fiscal studies looking to the readjustment of state-local finances, notably in Michigan, Massachusetts, Pennsylvania, Maryland and New York. Similar studies were under way in a number of other states.

As for local revenues other than the property tax, state-shared taxes were the most important source; ten states in 1945 increased the municipal share of state-collected taxes, while four states—New York, Washington, Pennsylvania and Florida—extended new or additional direct aid to localities. Probably the outstanding legislative development was the action of the state of Maryland which granted the city of Baltimore the same general taxing powers as the state itself for the years 1946 and 1947.

Tax delinquencies continued the decline maintained continuously from 1933. As of the close of 1944 the median tax delinquency for 150 United States cities of more than 50,000 population had reached a low of 3.9%. Tax collection records, on the whole, stood higher even than in the pre-depression decade. At the same time municipal property tax rates increased for the second successive year after Pearl Harbor, by an average of \$0.22 per \$1,000 of assessed valuation; mounting municipal pay rolls were again the responsible factor. A small average increase of 1.3% over 1944 in assessed values was in line with similar slight increases in the three preceding years.

According to the *Bond Buyer*, state and municipal bond issues for the first ten months of the year 1945 aggregated \$688,000,000—an amount exceeding by more than 20% that of 1944 and by more than 50% that of 1943, when the lowest point in municipal borrowing after World War I was reached. Of the \$264,000,000 of proposed issues voted on in the Nov. 1945 elections, approximately 90% were approved. The largest single municipal item adopted was San Francisco's \$20,000,000 airport bond issue. Higher prices and lower interest rates for municipal bonds prevailed in the closing months of the year. Rates rose to 1.72% on Oct. 1, 1945, and dropped to 1.56% and 1.51% in November and December, respectively. (Figures based on the *Bond Buyer's* index of average yields of bonds of 20 large cities.) Local debt outstanding continued its downward trend from the high of \$16,812,000,000 in 1941 to \$14,164,000,000 in 1945. On an index basis of 1940=100, the annual volume for each of the five years 1941 through 1945 was: 100.6, 98.6, 94.4, 87.9, and 84.7, respectively.

**Public Works Planning and Construction.**—The cities were greatly hampered in their public works planning programs by lack of an official federal aid policy and program. Actually, the federal government appropriated \$17,500,000—as compared with \$500,000,000 requested—to be advanced to local governments through the Federal Works agency for the preparation of detailed public works plans and specifications. The inadequacy of this sum was widely recognized, but cities were urged to file applications for their full planning needs so as to impress upon congress the extent of additional aid that would be necessary. Toward the close of the year, a further \$12,500,000 were voted by the house. By December, FWA had received 3,402 requests for advances totalling \$36,312,862. Requests were arriving at the rate of \$7,000,000 monthly. All but 14 states had exhausted their allocations. The president had recognized the need and recommended increasing the total amount of the revolving fund to \$50,000,000. On the whole, the prospects of additional federal aid for state and local public works planning appeared good.

The Colmer (house) committee in its 7th report to congress in July, while opposing the use of federal aid funds for normal local public works, went on record as favouring advances to state and local governments which might undertake to speed up their normal construction programs for the purpose of providing unemployment relief, though themselves unable to finance the speeded program; it also recommended temporary aid to communities disorganized by the federal war effort, and federal advances to state and local governments for the planning of the backlog of public works. While no general program of federal aid for public works construction was adopted in 1945, funds were about to be released to cities for the start of the three-year federal aid highway program authorized in 1944, and both the senate and house bills granting federal aid for airports were passed and sent to conference.

In the state-local field, it was estimated by the Council of State Governments that from one-third to one-half of the states—as contrasted with four in 1944—were providing subsidies to the localities for local public works planning. Subsidies for construction, however, were the exception. Here again the inadequacy of the planning programs, both on the state and local levels, was attributed to the uncertainty of the federal policy and program.

**Council-Manager Cities; Proportional Representation; Miscellaneous.**—The International City Managers' association reported that the total of manager governed cities in continental United States increased to 607 in 1945. There were 24 new adoptions. Toledo voted for the third time to retain proportional representation; eight other United States cities held proportional representation elections.

Other highlights of the year included: the widespread establishment of veteran information centres by the municipalities, financed either wholly or in part by municipal funds; considerable development in municipal airport planning, in anticipation of greatly expanded postwar airline needs; a traffic and parking crisis in many cities, with the return of the automobile to everyday use; and the exit from office of colourful Mayor La Guardia of New York city, after a 12-year reform administration unique in the city's history. (See also HOUSING.) (A. M. Ds.; L. Gu.)

## 500 MUNITIONS ASSIGNMENT BOARD—MUNITIONS OF WAR

**Munitions Assignment Board (U.S. and Great Britain):** see BRITISH-U.S. WAR BOARDS.

**Munitions of War.** Army.—In the last year of the war, it was evident to the world that the United States had taken the lead in munitions production. U.S. ordnance experts led in design and planning of new weapons of war; U.S. factories had stepped up their production to the demands of the battlefields; and its supply system was putting the desired munitions where they were needed and at the time they were needed.

With peace achieved, the ordnance department of the United States army was committed to continuing research and development projects to design and produce more modern and more efficient means of waging war should necessity again arise. One such line of work was being carried on at White Sands Proving Grounds, Alamogordo, N.Mex., where ordnance technicians were in 1945 studying the German V-2 rocket. This investigation was not for the purpose of improving the German weapon but to evaluate its design in relation to U.S. manufactures. For this purpose, rockets and parts of rockets to the amount of 100 were gathered near Nordhausen, Germany, and shipped back to the United States.

Through the ordnance department, compiled production statistics were released to cover some of the major munitions items. They are:

### Ammunition Production Jan. 1, 1940 to Aug. 1, 1945

Artillery . . . . .	10,958,454 tons
Mortar . . . . .	476,312 "
Grenades, pyrotechnics, mines, explosive charges . . . . .	462,029 "
Bombs and rockets . . . . .	5,989,603 "
Calibre .30, .45, .50. . . . .	38,866,000,000 rounds

### Small Arms Production July 1, 1940 to July 1, 1945

Rifles, carbines, pistols, revolvers, Browning automatic rifles . . . . .	15,668,869	Bayonets, bayonet knives, french knives . . . . .	9,200,107
Bazookas . . . . .	476,628	Grenade launchers . . . . .	1,588,140
Submachine guns, calibre .30 and .50 machine guns and mounts . . . . .	5,293,981	Helmets . . . . .	22,619,189
		Pieces of body armour . . . . .	965,702
		Metallic belt links, cal. .30 and .50 . . . . .	12,740,000,000

### Artillery Production Jan. 1, 1940 to Aug. 1, 1945

Aircraft artillery, 20-mm. through 105-mm. . . . .	182,017	Infantry weapons: mortars, guns, howitzers, recoilless rifles . . . . .	112,902
Anti-aircraft artillery, 37-mm. through 120-mm. . . . .	44,651	Field and seacoast artillery, 75-mm. through 16-inch . . . . .	17,537
Tank, antitank, and self-propelled artillery, 37-mm. through 240-mm. . . . .	183,110	Rocket launchers, all types except bazookas . . . . .	215,163

### Tank and Automotive Production July 1, 1940 to August 1, 1945

Tanks, self-propelled weapons, miscellaneous combat vehicles . . . . .	271,165	Light and medium tanks; light-heavy trucks; heavy trucks . . . . .	2,358,655
		Other vehicles . . . . .	1,130,406
		Remanufacture and modification . . . . .	27,914
The above represented, collectively, the following dollar volumes:			
Ammunition production (except small-arms) . . . . .			\$ 9,766,166,000
Small-arms production (including ammunition) . . . . .			3,600,000,000
Artillery production . . . . .			5,167,000,000
Tank and automotive production . . . . .			19,599,000,000
Total . . . . .			\$38,132,166,000

Some of the year's munitions items follow; the list is by no means complete.

**Altimeter.**—Formerly, altimeters indicated only the altitude above sea level. The new altimeter is absolute, furnishing information as to the distance to the nearest solid object, no matter what, in a range from 0 to 4,000 ft. For close-up work, 10 to 400 ft., it is accurate to within 5 ft. of actual distance.

**Armour.**—Exceedingly tough glass fibres, woven into fabric and impregnated with a hard plastic, form a new type of armour. Weight for weight, plates of glass armour give better protection than steel and, when struck by exploding fragments of projectiles, unlike steel, the glass plates do not throw off injurious splinters.

**Artillery Weapons; Self-Propelled.**—To augment mobility and increase firepower of the ground forces, three new field artillery pieces were put into the field during the closing months of the war. These were the 155-mm. howitzer motor carriage M-41, a fast-travelling weapon with low silhouette; the 8-in. howitzer motor carriage T-89; and the 155-mm. gun motor carriage M-40.

**Bazooka.**—The army designed a new super-bazooka, an M-12 rocket launcher. It fires a 38-lb., 4.5 in. rocket having destructive force of a

105-mm. high-explosive shell. Weighing 22 lb., this launcher and its rocket can be carried easily by one man and set up quickly on a tripod mount. A featherweight bazooka, 10½ lb., is equipped with a new "eye" sight. It is 42% lighter than the standard bazooka model and can be handled as easily as an army rifle. Its optical sight equipment is on a folding mount so constructed as to afford unrestricted vision while aiming at fast-moving targets such as tanks. An elevation adjustment eliminates the army's conventional rifle sights. It is so improved that it created the qualification, "bazooka sharpshooter." Impulse generators replace former dry-cell batteries used in firing the rocket launcher and a 2-position stock permits firing from standing, kneeling, or prone positions.

**Bomb Bowling Alley.**—The chemical warfare service designed this means of delivering 500-lb. incendiary bombs direct from freight cars to open air storage racks. This safety device made possible unloading of these bombs as easily as a pinboy returns balls in a bowling alley since its chute is so designed that a descending bomb can be made to roll any distance, 2 ft. or 200 ft., before stopping.

**Bombs.**—The British royal air force brought out a new 12,000-lb. "earthquake" bomb. Three times the size of the original blockbusters, it has an estimated blast damage sufficient to cover an area of approximately 80,000 sq.yd.

The British are also responsible for the new "Volcano" bomb weighing 22,000 lb. The first one dropped off the coast of England obliterated a small granite island. On land, a ballast-loaded dud buried itself so deep that it took 1,944 man-hours of work to dig it out. A live "Volcano" dropped on land displaced thousands of tons of earth and set off underground explosions which continued long after the bomb blast.

The incendiary bomb, M-69, was the devastating weapon used against Japan. It is 19 in. long, 6½ lb. in weight, and is loaded with a cheese-cloth sack full of a new type jellied gasoline. To retard the bomb's fall, so that mechanism be not damaged upon impact, it is equipped with trailing tail streamers which help hold the drop to about 250 ft. per second. When the bomb hits, its delayed-action fuse permits it to fall over on its side before the incendiary charge is fired. A sticky, flaming pancake of jellied gasoline, ¼-in. thick and 3 ft. across, is driven a distance of more than 100 ft. to set on fire any object to which it clings.

The JB-2 robot bomb is a copy of the German V-1 robot. It travels from 400 to 440 mi. an hour at 6,000 ft. altitude. Its range is estimated at 150 mi. The engine of this bomb is started by a spark plug in top of the combustion chamber, power coming from a battery on the ground. When fired, the robot, with its launching car, roars upwards. When a speed of 260 m.p.h. is reached, the launcher drops off and the bomb travels on its course by jet propulsion.

A lava bomb, M-74, is fashioned from a 10-lb. tube loaded with synthetic lava, one of the ingredients of which is "goop," magnesium powder coated with asphalt powder. The bomb is about 19 in. long. At one end there is a collapsible metal tail which opens when the bomb is released from its cluster. A plastic cup inside the bomb holds ½ lb. of white phosphorus, several pounds of synthetic lava, and a dome-shaped ejection mechanism. Blown open by a burster charge, the ejector works like a piston to cause the bomb to regurgitate its contents in a minor volcanic eruption, the material of which sets fire to everything it touches.

A coloured streamer smoke bomb, M-87, was designed for use with precision instruments to make possible bombing of enemy targets through clouds, smoke screens, or other atmospheric disturbances. Its coloured smoke persists in the air for at least a minute and is visible to following planes at a distance of five miles. (See also ATOMIC BOMB.)

**Boosters.**—Highly efficient ammunition boosters were developed to feed guns properly. By using these improved ejection systems, together with flexible feed chutes, the .50 calibre machine gun was given a substantial increase in its cyclic rate of fire.

**Bridge.**—A new type of floating bridge is constructed by using hollow aluminum beams so light they can be placed by hand and yet so strong they will support a weight of 50 tons.

**Bridge Builder.**—A launching device known to U.S. troops in Germany as the "Monster" places steel beams so rapidly that it was possible in bridging the Moselle river to launch six 100-ft. metre beams in 90 minutes. Ordinarily such a job would require 3 hours. In one test a completely prefabricated bridge span, 50 ft. in length, was lifted smoothly into place with one swing.

**Bullet.**—A new frangible bullet was perfected for training purposes. It is a calibre .30 machine-gun slug made from a combination of plastic and lead. The bullet is hard enough to withstand firing from a machine gun but soft enough to splatter into a fine, harmless powder upon impact with the armour plate of planes against which it strikes in firing manoeuvres. It is possible for gunnery students on air firing missions in training to fire live ammunition at another plane and check the accuracy of their aim by reading the splashes left by the crumbling frangible bullet on the armour plate of the plane attacked.

**Cameras.**—The signal corps produced several notably new and efficient cameras for combat and scientific work. One, a motion picture camera, weighed 16 lb. fully loaded, and is equipped with a gunstock base to handle like a rifle. It has four lenses of different focal lengths, all instantly interchangeable. Another, a still camera, has two lenses and uses a film pack. Construction is all metal and there are no bellows or leather fittings to be rotted by tropical humidity and fungus growths. At the request of the medical corps, the signal corps was responsible for the development of a new camera using an ultra high-speed, high-intensity, self-contained light source. The camera operates easily, taking pictures in black and white or colour, indoors or out, at distances from 6 in. to 12 ft. Except for focusing and clicking the shutter, its action is entirely automatic. Light source for the new camera is a coiled, circular quartz vapour discharge tube, designed by the General Electric company, and giving a flash of approximately 1/25,000 second duration. This camera, valuable to surgeons for recording steps in the course of difficult operations, is fast enough to "freeze" the whirring of a moving fan blade.

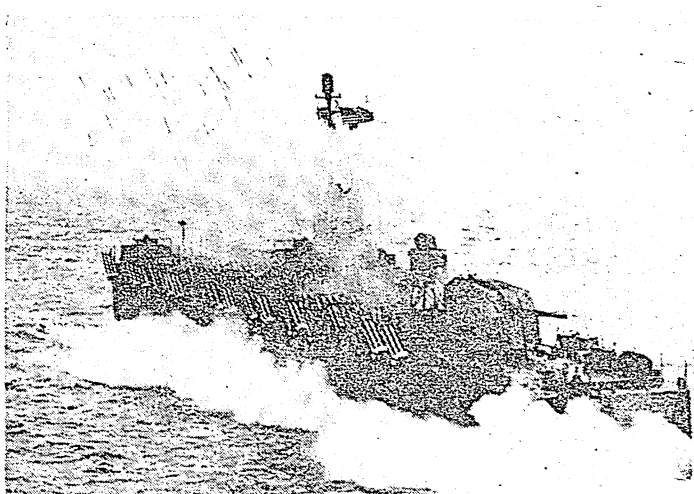
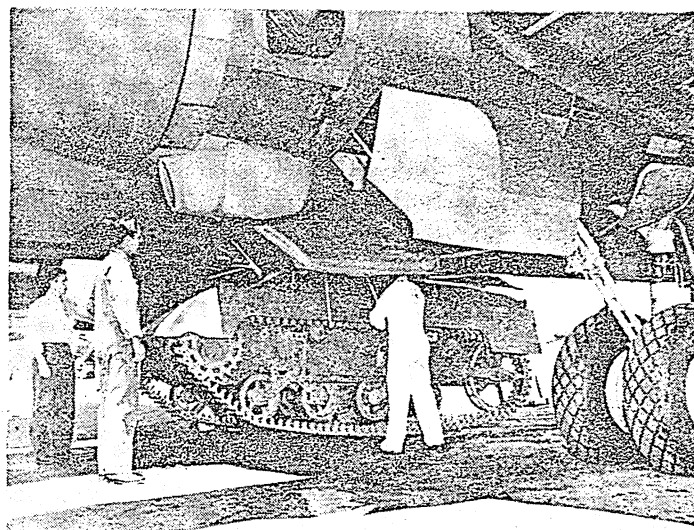


Above: RADIO-CONTROLLED PQ plane, being directed by the pilot in its mother plane. He took over after the plane reached the air by remote ground control. Developed by the Control Equipment branch of the ATSC, details of the plane were released by the U.S. navy on Oct. 12, 1945

Below: THE M18, new 57 mm. recoilless rifle provided for U.S. infantrymen in 1945. It has the striking power of field artillery and can be handled by one man

Right: T-9 ARMY TANK being slung under the fuselage of a C-54 "Skymaster," U.S. transport plane which speeded tank deliveries to war fronts during 1945

Lower right: ROCKET BARRAGE being fired from a navy landing craft during an invasion operation in 1945. The navy's vast \$2,000,000,000 rocket program indicates the fire-power value of these self-propelled weapons





**Carbine Stock.**—A new collapsible stock for M-1, calibre .30 carbine was designed at Springfield armory. It can be collapsed or extended quickly, yet remains rigidly fixed when in firing position. This stock makes the M-1 an ideal weapon for jungle fighting or airborne operations, because it lightens an already light weapon—a decided asset in combat.

**Carrier.**—A new hand grenade carrier was made large enough to carry six pineapple type grenades, three large, or three smoke grenades. It was made of olive-drab hard texture duck and fastened to the soldier's cartridge belt with a brass hook.

**Charger.**—General Electric developed an automatic charger consisting of three principal units—charging, firing and timing. It operates through high air pressure furnished by a turret-mounted compressor. This charger seems to think for itself. Initially it cocks the gun, recognizes an ammunition failure, helps dispose of a defective round of ammunition and insert and fire a new one. If the gun fails for eight successive rounds, the charger automatically stops all further firing from that piece.

**Cream (Protective).**—The quartermaster corps adopted a flash-burn protective cream for use by tank crews and soldiers using bazookas and flame throwers. It has no medical properties and will not cure burns. Its job is to provide fire-proof protection for exposed parts of the body against burns from sudden flashes of flame.

**Detector Kit.**—A chemical agent detector kit, M-9, a miniature gas-analysis set, is packed into a 2½ lb. cotton duck carrier which is slung by a strap over the soldier's shoulder. It is extremely sensitive and will register the presence of persistent and nonpersistent chemicals. The assembly includes an air-sampling pump, chemical reagents, and detector tubes which contain varying chemical combinations, each reacting characteristically in definite colour patterns in the presence of varying gases.

**Detonator.**—A new radio-controlled detonator was demonstrated that will fire mines by remote control as far as 20 mi. away, on land or sea, by dialing a combination as in making a telephone call.

**Fuse.**—A new proximity fuse was widely acclaimed as one of the definite factors which hastened the end of the war. It consists of a small, rugged radio transmitter and receiver, about the size of a man's fist. Placed in a bomb or projectile, it sends out high-frequency radio waves which cause the detonation of an explosive charge when they bounce back from enemy aircraft, vehicles or the earth itself. Originally, power was provided for the minute radio by development of a tiny dry-cell battery, no larger than the cap of a fountain pen. This limited source of power was subsequently replaced by a generator motivated by a small windmill propeller, recessed in the nose of the projectile. This tiny wind-driven generator, evolved in perfection of the proximity fuse, was no larger than a watch and was so designed as to fit either into the nose of an aerial bomb or rocket projectile. At 100,000 revolutions per minute, this windmill supplies power enough to create continuous emanation of radio waves from the bomb or projectile. To prevent the proximity fuse from detonating the explosive charge upon receipt of wave echoes from the aircraft which launched it or from other nearby friendly planes, connection between fuse and detonator is left open until after the projectile has been launched, after which it closes automatically.

**Grenade.**—Army M.P.'s and occupation troops are furnished with a newly developed tear gas grenade. It is shaped like a baseball. To fire, the safety pin is pulled while holding a finger over a release plug; then the grenade is thrown just like a baseball. This forces the plug out, the thin plastic coating of the sphere bursts, and a fine, tear-producing powder spray is scattered broadcast with immediate lachrymatory effect.

**Gun, Antitank.**—A new 90-mm. antitank gun was developed capable of piercing 8-in. armour and of destroying a Panther-type tank at 6¼ mi. range.

**Gun, Mobile Anti-aircraft.**—This new weapon, largest of its kind using fixed ammunition (105-mm.) has a muzzle velocity of 3,000 ft. per second and can fire a shell to a height of 46,000 ft. This weapon can be controlled manually or by the anti-aircraft detector.

**Gun sight Lamp.**—Enables a gunner to aim directly into the sun and fire with deadly accuracy. This walnut-size lamp provides 30 times more light than previously used lamps. It eliminates the dreaded blind spot, and with its sight lines, or "reticle," are visible, even against a glaring sun. No dark filter, with its partial obscuring effect, is any longer necessary.

**Ingolin.**—A new fuel developed by the Germans to launch their V series of bombs. A high concentrate of hydrogen peroxide in water, it can be used either as a fuel or as a source of stored oxygen. Its inventor claimed it could provide an aeroplane with speed of 650 m.p.h. for one hour or 450 m.p.h. for three hours. Germans planned to use it in submarines to power the main engines while running submerged.

**Life Preserver.**—A new yoke-type preserver was designed to be worn with full infantry equipment and allow removal of soldier's pack without removing the yoke. Made of kapok.

**Locator.**—A new, electronically operated locator was adapted to anti-aircraft searchlights so as to keep the beam automatically trained steadily on any enemy plane.

**"Mattress Fire."**—This type of fire is used to lay down a heavy barrage in a concentrated area. It is fired by highly mobile rocket units usually firing the 4.5 rocket which weighs 38.4 lb. and has an explosive charge of 4.3 lb.

**Mortar.**—A new 10-in. mortar was perfected with a firing rate of one round every two minutes and with a range of more than five miles. Another mortar, "Little David," the most destructive weapon of its kind, is the epitome of present-day mortar construction. Its official name is 914 mm. (36¼") mobile mortar. It hurls a 3,650 lb. shell a distance of six miles, firing through a 22-ft., muzzle-loading rifled tube. This tube, with its firing mechanism, and other parts of the assembly make up a total weight of 80,000 lb. Base assembly for the huge weapon is a metal box weighing 93,000 lb. Tube and base assembly travel separately and the complete unit also includes a bull-dozer and crane with bucket-shovel to dig the necessary emplacement. Even though this weapon is larger than the German 820 mm. weapon, it can be emplaced in 12 hours, where the German gun, travelling on 24 railway cars, required three weeks to put it into firing position.

**Periscope Gun Sight.**—The periscope tube of this sight passes completely through the fuselage of a plane and has sight heads at both top and bottom. It is linked by remote control with the gun turrets so that gun turret and periscope sight move in unison. Its placement enables a plane gunner to search the skies above, below, or on either side of his plane. A flip-over mirror transfers the image from one end of the periscope to the other should the plane climb or dive rapidly and reverse positions. Electrical devices called selsyns make possible the synchronized movement of gun sight and gun turret. The optical system for this sight was designed originally by Bausch and Lomb and later modified by the Eastman Kodak company. The General Electrical company was responsible for over-all design and construction of the complete unit.

**Projectiles.**—Hardest material ever made by man, tungsten carbide, was placed in projectiles used in closing months of war. Such shells sometimes stopped tanks with a single shot at ranges up to 3,000 yd.

**Radar.**—See RADAR.

**Radio.**—Communication problems gave birth to two new radio sets used successfully in both theatres of war—the AN/VRC-1 and AN/TRC-7. The first-named, designed for operation from a jeep, is a combination of high-frequency and very-high-frequency radio with a variable distance range of 20 mi. for voice, 40 mi. for tone, and 60 mi. for continuous wave when high-frequency transmitter is used. The AN/TRC-7 is a portable set, carried by dismounted troops to maintain contact with aircraft. The set weighs 100 lb. and can be dropped by parachute to ground troops. It is a very-high-frequency transmitter and receiver and can be operated from a hand-operated generator or from dry cells.

**Rifles.**—Two new recoilless rifles were designed and tested successfully in actual combat conditions. They are 57-mm. and 75-mm. calibre and were used both in the European and the Asiatic theatres. Their use gives the infantryman the striking power of artillery. The smaller of the two rifles weighs 45 lb., is 61 in. long and fires a high-explosive shell, weighing nearly 3 lb., a distance of 2 mi. The larger weapon, the 75-mm., is 82 in. long, fires a 14-lb. high-explosive shell more than 4 mi. and both weapons shoot with the accuracy of a sniper's weapon.

**Rocket Launchers.**—Three new multiple-tube rocket launchers were especially efficacious in the last year of World War II. For rocket battalions an 8-tube, 4.5-in. rocket launcher was devised. It was used both as a ground weapon and mounted on trucks or jeeps. It was nicknamed the "Xylophone." This launcher can be disassembled into two-man loads for easy transportation. It fires a rocket 30 in. long, weighing 38 lb., and having the striking power of a 105-mm. shell. The 60-tube, 4.5-in. rocket launcher was known as the "Calliope." It was built to be mounted on a tank turret so that it could be rotated with the turret and elevated with the gun. If necessary, this rocket launcher can be jettisoned by operating a lever inside the tank without exposing members of the tank crew. The 20-tube, 7.2-in. rocket launcher, "Whizbang," throws a rocket equivalent in firepower to a 155-mm. shell. This launcher is 5 ft. long, weighs 115 lb., and has a maximum range of between 2 to 3 mi. It is armoured to protect its load from small-arms fire and, like the "Calliope," is mounted atop a tank.

These three new launchers, plus the single-tube, one-man, 4.5-in. launcher (M-12) and the triple-tube, underwing aircraft launcher (M-10), constitute the important members of the army's rocket launcher family. All these launchers are simple in design and construction and easy to maintain. Their electric firing system is no more complicated than the lighting mechanism of an ordinary flashlight. On the multiple-tube launchers, firing is done electrically by a selector switch which can be set to fire rockets individually or at any desired rate. Usual rate of barrage fire is at half-second intervals.

**Rockets.**—A spinner rocket was put into use against the Japs on Iwo Jima in Feb. 1945. Its design admitted of firing from multiple-tube launchers mounted either on ships or land vehicles. It is stabilized by rotation in flight instead of by the customary projecting fins. Spinning motion is achieved by angle discharge of gasses from the motor's end piece.

The Germans' third secret weapon was uncovered at Mimoyecques, near Calais, France, where there were batteries of long-range guns capable of hurling rocket shells 100 mi. This installation was designed to handle the new V-3 rockets and could have fired 600 shells an hour on London. Firing battery consisted of 50 smoothbore barrels, each 400 ft. long, sunk 350 ft. into the hills at an angle of 55 degrees. The whole installation, spread over several acres, was protected by concrete armour 18 ft. thick.

Yankee ingenuity devised means for using bazooka rockets for cutting wire entanglements. A standard rocket fuse will detonate only against hard surfaces such as brick walls, sides of tanks and the like. But, by lowering the tension of the fuse spring, U.S. soldiers so altered the rocket's explosive incidence that it fired upon hitting even one string of wire.

**Shell Loading.**—The ammunition division of the ordnance department developed two new machines to supplant the slow hand-loading method of packing T.N.T. into shells. One of these looks like a milking machine and is called the "mechanical cow." It cools the exact amount of T.N.T. to correct temperature, then pours it through nozzles into 24 shells mounted on a carriage. After further cooling, the second machine, known as "hot bayonets," comes into operation. Twenty-four round rods, slung under a steel bar, are steam-heated and plunged clear to the bottom of the partially loaded shells to eliminate air cavities, a frequent cause of premature explosions. When the "hot bayonets" have finished explorations, shells are carried back to the "cow" and molten T.N.T. is added to complete the loading.

**Shop (Floating).**—In the Southwest Pacific in 1945 a floating repair shop went directly to any broken equipment needing repair. Huge, concrete, ocean-going barges were transformed into floating shops that were operative within 24 hours of reaching the place where needed. These barges are 269 ft. long and 48 ft. wide. There are eight holds providing over 10,000 cu.ft. of storage space and there are more than 8,000 sq.ft. of covered deck space for shop installations. Electric cranes on the floating shop pick the waiting repair jobs off the dock and set them aboard the shop for necessary work. Protection is afforded by deck-mounted anti-aircraft guns. The barges are equipped to recondition engines, rebuild

power train and electrical assemblies, retread, vulcanize and repair tires, or any other type of repair and rebuilding.

**Snow Cruiser.**—New, full-track snow cruiser devised for the air forces to use in deep-snow country for towing and light cargo handling. Weighs  $2\frac{1}{2}$  tons loaded and has a speed of 20 m.p.h. Its ground pressure is only .84 lb. per sq.in. and its cruising range is 100 mi. Equipped with suspension type running gear with 14 wheels, endless 6-ply fabric belt, the cruiser is powered with a 90-h.p. gasoline engine and can negotiate snow 50 ft. deep.

**Tank Howitzer, 95-mm.**—The British, shortly after D-day in Normandy, used this new weapon as part of their tank armament to replace the obsolete 3-in. guns. The new howitzer fires high-velocity shells, using either explosive or smoke and, in addition to its other advantages, it adds high trajectory employment at close ranges.

**Tanks.**—Among the new weapons displayed at Fort Myer, Va., was the new 43-ton M-26 General Pershing tank with a long-barrelled 90-mm. gun, firing a shell with a muzzle velocity of 3,750 ft. per second. Striking power of this shell is sufficient to penetrate 14 in. of armour at 300 yd.

**Tester.**—The Evansville ordnance plant, Chrysler corporation, made a machine for testing waterproof qualities of metal containers for calibre .30 and .45 ammunition. This "Vacuveyor" can test 780 metal cartridge containers an hour. Imperfect containers emanate bubbles as they pass through the water channel of the machine and these are quickly spotted by an operator watching the test through strong plastic windows in the side of the machine.

**Tire.**—The Goodyear company built a giant tire capable of bearing the entire weight of a fully loaded B-29. Made of 36-ply nylon and rubber its outside diameter is 110 in., with 44-in. cross section. One-third of its 1,500-lb. weight is nylon and in hydrostatic test it withstood pressures up to 375 lb. to the square inch.

**Trailer (Amphibious).**—For combat units a new all-steel, flat-bed, cargo-type of trailer was devised. Body of the trailer is watertight and can be towed by a jeep or by an amphibious truck. The unit weighs 1,050 lb. and can take care of a payload of 500 lb.

**Weapon Case.**—A new weapon case was devised for paratroopers. It is made of olive-drab canvas and webbing, and is padded with felt should the paratrooper land with the weapon beneath him.

**Welder.**—On a specially designed and equipped jeep, a perfected arc welder was mounted. The  $\frac{3}{4}$ -ton jeep replaced a 5-ton truck and a  $1\frac{1}{2}$ -ton welding trailer formerly used. The whole assembly may be loaded on a transport plane. General Electric co-operated with army engineers in its production and it proved its worth in keeping front-line equipment in fighting condition.

**Wrapping.**—A time and labour-saving machine was developed by the ordnance department to wrap infantry rifles dipped in rust-preventive compound. In this machine, the rifle revolves while the operator feeds the greaseproof paper wrapping. By this method, more than 400 rifles can be wrapped in a day by four men; formerly, it required eight men to wrap 300 rifles in the same time.

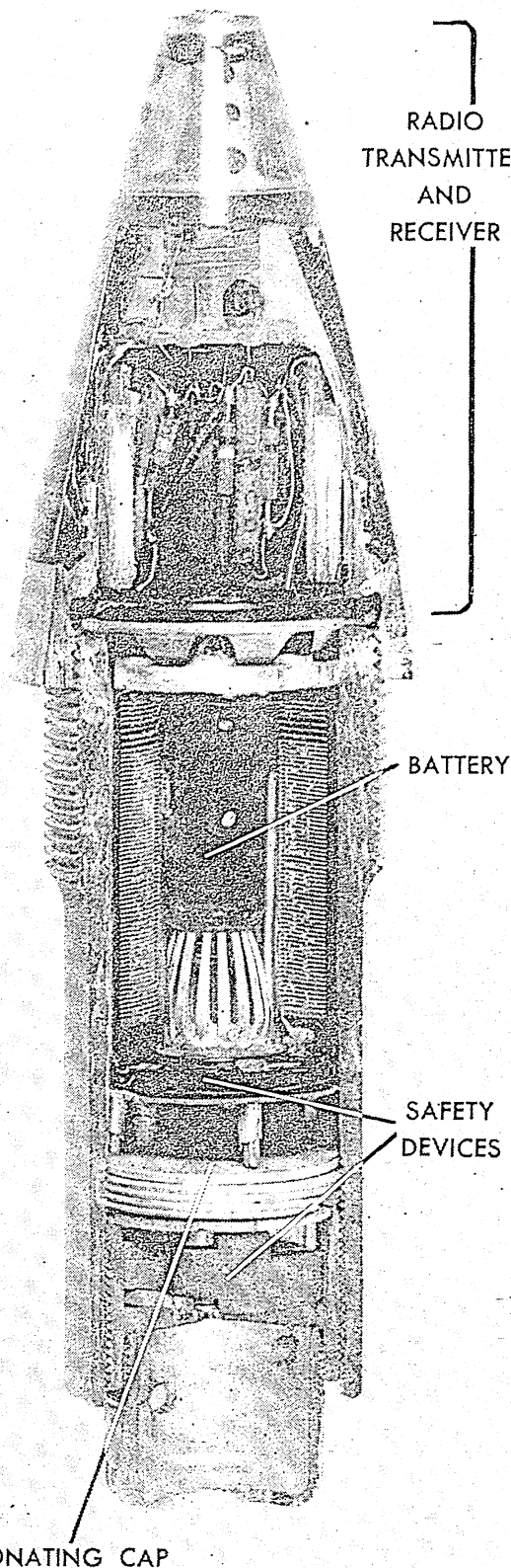
**X-Ray.**—The Westinghouse company designed a new X-ray unit taking a picture as short as one-millionth of a second. Rapidly moving projectiles can be photographed while passing through a gun barrel in firing, to determine location of the projectile with respect to curve of gas pressure. By use of the new unit, rapid acceleration in course of firing can be studied to note effect on component parts of composite projectiles such as explosive bullets. Progression of a bullet through armour can be studied and the new method eliminates recordings of luminous fragments of impact shown formerly as splashes on the film. This new X-ray method showed for the first time that explosive shells swell to nearly twice their normal diameter before bursting. To operate the unit there are required 2,000 amperes at 300 kv., or 600,000 kw. for a microsecond.

**BIBLIOGRAPHY.**—*Army and Navy Register; Army and Navy Journal; Army Ordnance; Command and General Staff School Military Review; Time; Newsweek; War Department press releases; Life; The Illustrated London News; Chemical Warfare Bulletin; The Military Surgeon; The Field Artillery Journal; New York Times; Army Motors.* (R. S. T.)

**Navy.**—The beginning of 1945 saw the U.S. navy's shipbuilding program continuing according to schedule with maximum emphasis placed on the APA (assault transport) program being carried on by the Maritime commission in commercial shipyards. These ships, already tried in amphibious warfare, were designed with their companions, the AKAs (assault cargo ships), so that they might be unloaded in the course of a landing operation with assurance that men and material would be disembarked in the order and at the time needed. The programs were brought to a successful conclusion in time to meet the requirements of the later stages of the war in the Pacific. The continuation of the combatant ship program brought the commissioning during 1945 of 5 aircraft carriers of the "Essex" class, the first 2 of the CVBs (large aircraft carriers)—the 45,000-ton "Midway" and "Franklin D. Roosevelt"—13 escort carriers, 7 light cruisers, 8 heavy cruisers, 74 destroyers, and 37 submarines. In the case of some destroyers, alterations were made in their armament to make them more effective against prevailing enemy tactics.

Landing craft previously developed and tried in action continued to be produced and in many instances basic types were converted to meet specialized needs. Notable among this group were the LSM (R)s—the landing ships medium—rockets—in which conventional types of armament were replaced by rapid-fire rocket launchers.

The cessation of active resistance by both Germany and Japan permitted the revelation of various weapons which had been in use for many months—some for years—although closely guarded as military secrets. Of these the most spectacular was the VT or variable time fuse. Essentially a miniature self-powered radio sending and receiving set, so small as to be seated in the nose of a projectile and rugged enough to stand the shocks of gunfire, this device received the signals echoed from a target and used them to initiate the detonation of the projectile at the most advantageous point for maximum destruction. The VT fuse was used initially in the U.S. navy's 5-in. A.A. guns and later in the 3-in. A.A. guns,



CUTAWAY VIEW of the radio proximity (VT) fuse developed by the U.S. and first revealed on Sept. 20, 1945. The fuse, containing a radio transmitter and receiver, is fitted into the nose of a projectile. When the projectile is fired, the transmitter sends out a continuous wave. As it moves within effective range of a target, part of the wave is reflected back to the receiver, and an electronic device explodes the missile

increasing the effectiveness of both very markedly. The fuse was developed by section T of the Office of Scientific Research and Development and its reduction to a mass-produced item represented a real triumph over technical difficulties in both the development and the production phases. In the fleet it provided an effective defense against Japanese planes, whether they were making normal attacks or their last-stand Kamikaze or suicide attacks. It was supplied to the British, who used it with a vital effect in the ultimate defeat of the German buzz-bomb or V-1 rocket projectile, and to the U.S. army, where it was given credit for a large part in the turning of the tide in the Battle of the Bulge. Each application of the VT fuse to a particular gun and projectile combination required special engineering, but the whole project, involving a large group of parts manufacturers and fuse assemblers as well as the thousands of naval and mili-

tary personnel concerned with its supply and use, was a remarkably well-kept secret.

The high-capacity (thin walled, large bursting charge) projectile which had been used in the amphibious operations of 1944 was produced in greatly increased quantities in 1945. Used by the main batteries of battleships, both old and new, heavy cruisers and light cruisers, these projectiles were a major factor in the success of the landings in Lingayen gulf, at Iwo Jima, and at Okinawa, where close-range pounding of shore targets by capital ships beat down enemy resistance so as to make landings feasible and then to support the troops established on the beaches.

Laboratories under the direction of the Office of Scientific Research and Development developed rockets for both the army and the navy. Furnished by each service to the other, rockets became potent weapons for air attack against ship and ground targets. They were used effectively by the carrier-based planes of the Pacific fleet's carrier task forces and by planes of the army air forces in both the European and Pacific theatres. In the final stages of landing operations, when the close approach of the landing craft to the beaches made it necessary for supporting destroyers and heavier ships to cease firing, rockets launched from specially armed landing craft provided a final and effective cover immediately before the troops hit the beach.

The introduction of more violent explosives, to replace the conventional T.N.T. and ammonium picrate, provided for greater destructive effect with weapons already standard in the navy. Another development revealed was the electric torpedo used extensively and effectively by U.S. submarines in the Pacific. This torpedo, which was basically a copy of a German torpedo, was produced in quantity by a commercial source. Its most valuable feature was the absence of a tell-tale wake which marks the track and the firing point of a compressed air or steam torpedo. The extensive mining operations of the 20th air force, U.S. army, carried out in Japanese home waters from bases in the Marianas, used U.S. navy mines, many of them developed and produced after the beginning of the war.

The outstanding weapons used by the Japanese against U.S. naval task forces were the Kamikaze or suicide technique, in which conventional aircraft either with or without bomb loads were flown into collision with U.S. ships, resulting in fires and heavy casualties and in some cases serious damage; and the Baka bomb, a glider with rocket power, which could be carried under a twin-engined bomber or torpedo plane, and when released was flown into its target by a human pilot. Against these two types of attack the anti-aircraft batteries of the ships, particularly with VT fuses, provided an adequate defense from those planes which succeeded in eluding the combat air patrol of the U.S. fighter aircraft. Even so the Kamikaze attack was a menace.

Against the Japanese homeland the fast carrier task forces and their attached battleships delivered telling blows with bombardments of vital targets from surface ships and a long series of air attacks using both incendiary and demolition bombs of types common to both the army and navy and supplied to both services by the former.

The extent of the use of ammunition may be indicated by the expenditure of 23,000 tons of navy gun ammunition and aircraft bombs against the Japanese positions on the tiny island of Iwo Jima in the bombardments which preceded the landing and continued in support until the island was secured.

The most potent single attribute of the U.S. fleet was its mobility. This was assured by the development of techniques for replenishing fuel and supplies underway in the open sea, which Admiral Nimitz described as his "secret weapon."

**Air.—Aircraft Bombs.**—Outstanding development in large bombs during 1945 was the full operational use by the R.A.F. of the 12,000-lb. "Tall Boy," 22,000-lb. "Grand Slam," and by the A.A.F. of the 4,500-lb. "Disney," a rocket-assisted concrete piercing bomb. Of the three, "Tall Boy" had the most extensive combat testing, and it proved highly successful against special targets such as battleships, ground installations protected by 16 ft. or more of reinforced concrete, underground installations consisting of tunnels, factories, storage, etc., heavy bridges and viaducts, dams and canal dykes, etc. An even larger bomb was required against submarine pens, hence "Grand Slam" was developed and its effectiveness proved in a limited number of operational tests. Both were used by highly trained Lancaster crews, and extraordinary accuracy was attained. The degree of damage caused by near misses was especially notable. Because of its great size, "Grand Slam" was carried externally, with the bomb-bay doors completely removed. "Disney" was used by the 8th air force in four combat missions against E-boat pens in Holland and U-boat pens in Germany. Excellent accuracy was obtained, and in the case of direct hits, substantial damage inflicted. At the time of the surrender of Japan, plans were well under way to use "Tall Boy" and "Grand Slam" with B-29s against Japanese cave and tunnel ground defenses and what capital ships were left afloat.

The M-69 fire bomb, composed of an incendiary cluster containing a jelly-gasoline compound, was actually developed prior to 1945, but its tactical use by the 21st bomber command constituted it a prime factor in the collapse of Japanese resistance. As a result of a daring decision by Major General Curtis LeMay, the B-29s were switched from their traditional role of high-altitude precision bombing to low-level (5,000 to 8,000 ft.) night attacks carrying 100% of incendiaries. Missions averaged 300 B-29s carrying from 6 to 8 tons, mostly the new M-69s. In the ten days beginning March 9-10 with the surprise attack on Tokyo, five missions were run, and more than 29 sq.mi. of Japan's chief industrial centres were burned out beneath a rain of bombs that totalled 10,100 tons. Losses dropped to around 1% of aircraft over the target, and in the coming weeks to much lower than that. Within five months Japan's war economy was ruined, even without the atomic bomb.

Another important development was the Napalm fire bomb. This was simply the old jettisonable fuel tank filled with Napalm gel and equipped with igniters. Dropped from a fighter aircraft it became a fire bomb which caused 20,000 to 30,000 sq.ft. of devastating conflagration. Napalm gel is a rubbery, sticky substance consisting of 94% gasoline and 6% Napalm, an inert aluminum soap powder which cleaned out enemy positions by pinning down the intense heat of the burning gasoline. Shooting

into crannies and crevices, it was highly effective against supply dumps, ammunition stores, pillboxes, gun positions and troops entrenched in caves.

**Aircraft Rockets.**—Military use of the rocket was one of the major armament developments of World War II. First used as ground weapons, the Russians had the "Katusha," the U.S. army the "Bazooka," and they were also employed by the British and Germans. They were first used from aircraft by the Russians and the British with rail-like runways, and from the fall of 1943 by German fighters against U.S. daylight bombing missions. After that they were widely used by the U.S. navy and A.A.F. The rocket and aeroplane are natural partners, offering a maximum of firepower with a minimum of added weight, and no recoil. The air-borne rocket was a major factor in transforming the fighter plane from a weapon of defense to a devastating weapon of attack. The latest development in 1945 to see widespread use was the 5-in. HVAR (high velocity aircraft rocket) developed by the National Defense Research committee at the California Institute of Technology for the U.S. navy and army air forces. When available in quantity, it supplanted the 4.5 rocket fired from clusters of three rocket-launcher tubes under each wing, which were practically air-borne bazookas. The 5-in. rocket was 6 ft. long, weighed 140 lb., carried 8 lb. of HE in the head; velocity was 1,300 ft. per second plus the speed of the aircraft. Maximum accurate range was 1,000 yd., at which it would penetrate nearly 2 in. of armour and 3 ft. of reinforced concrete. They were fired from "zero length" launchers consisting of two streamlined posts or studs, holding the rockets about 6 in. below the wing. HVAR objectives included oil storage tanks, A.A. positions, boats, hangars, warehouses, revetted fuel tanks or dumps, trains and locomotives, tanks and other armoured vehicles, ammunition dumps and dispersed aircraft. A still lighter 115-mm. rocket was under tests before the end of the war, with two carried by each post, doubling the effective rocket power of each aeroplane. On the other hand, a much larger rocket, the 11.75-in. "Tiny Tim," was just coming into operational use by the U.S. navy at the time of the Japanese surrender. "Tiny Tim" weighed 1,288 lb., used a 500-lb. SAP (semi-armour piercing) bomb for a head, carried 148 lb. of ballistite and measured 123 in. in length. Two of these big rockets, plus eight 5-in. HVARs gave carrier fighters truly devastating firepower.

**Aerial Mines.**—The aircraft-laid parachute mine, practically unknown when World War II started, proved its effectiveness during the last year of the conflict. Used against enemy shipping, submarines and warships, these aerial mines were similar to bombs except that they were equipped with a parachute instead of fins. The 1,000-lb. mine was used for water up to 15 fathoms, and the 2,000-lb. for water up to 25 fathoms. They were mostly of the magnetic type, sinking to the bottom and exploding when influenced by the metal in the enemy ship passing overhead. Acoustic mines were also used. The greatest aerial mining operation in history, planned to complete the blockade of Japan started by the submarine, was known as operation "Starvation" (strategic mining of Japanese waters by B-29s). Extending from March 27 to Aug. 15, 1945, the campaign was carried out in five phases, beginning with the mining of the great ports, naval bases and the highly important Shimonoseki strait. Some 1,528 B-29s of the 313th wing (21st bomber command) laid 12,053 mines in the targets, with a loss of but 15 aircraft.

**Guided Missiles.**—Although too late to affect the final results of the war, the German drive for new techniques in air warfare brought forth some startling developments which would have caused considerable damage if the war had continued another few months. These included an improved FZG76 flying bomb (V-1) fitted with long-range fuel tanks, and A9 and A10 long-range rocket projects; A9 was the regular A4 (V-2) which was operational in the autumn of 1944, but with wings enabling it to glide, increasing its range; A10 was an A9 attached to the A10 unit which acted as a giant booster rocket, to be jettisoned after carrying the A9 far into the stratosphere. The Bachem BP 20 Natter (Viper) was launched vertically from a rocket platform by two solid-fuel rockets which were jettisoned at 3,000 ft. at which point the Walter HWK 109-509 bi-fuel rocket motor provided sufficient thrust to carry the projectile to 36,000 ft. at a rate of 600 mi. per hour. The climb was ground-controlled but the pilot in the nose took over for the actual interception. After attacking the hostile bomber formation with 24 Fohn 7.3 calibre rockets in one salvo, the pilot and rocket motor descended to earth by parachute. A formidable air-to-air weapon, in quantity production by the spring of 1945, was the X4, a wire-controlled, rocket-propelled gyro-stabilized missile launched from Focke-Wulf 190 fighters at a speed of 620 m.p.h. The nose section of the well streamlined fuselage contained the 110-lb. warhead; the centre section housed the liquid propellant fuel, while the rear section contained the gyroscope, battery and electrical services. There were many other similar projects in various stages of development.

Examples of U.S. developments in guided missiles include the U.S. navy's "Glomb" (glide bomb), "Gorgon" and "Gargoyle," and the army air force "Azon," "Razon," television bombs, jet-bombs, heat-seekers, light-seekers, etc. "Glomb" was a pilotless glider which carried a 4,000-lb. bomb (LBE-1); "Gorgon," a jet-propelled missile carried by a bomber and guided to the target by radio or by its own target-seeking device at 550 m.p.h. (100-lb. bomb); "Gargoyle" (LBD-1) was a jet-propelled missile which carried a 1,000-lb. bomb at 600 m.p.h. and automatically sought its target. "Azon" (VB-1—vertical bomb) was a 1,000-lb. bomb with gyro and radio control unit for azimuth only (hence az-on); it was used with great success in knocking out hard-to-hit key bridges in Burma. "Razon" goes one step further, being controllable in range as well as azimuth; tests were completed in the spring of 1945, and a few of the production bombs were used in combat action before the end of the war. JB-2 (jet bomb) was an A.A.F. "Chinese copy" of Germany's V-1 buzz bomb, but with improved control. Television bombs included the GB-4 and ROC, launched and controlled from aircraft. Japan's main contribution in the field of special weapons was the piloted glide bomb Baka, used as a desperate "kamikaze" (Divine Wind) suicide defense measure in the spring of 1945. Details of British developments in the guided missile field were not released during 1945.

(See also ATOMIC BOMB; AVIATION, MILITARY; NAVIES OF THE WORLD; RADAR; SUBMARINE WARFARE; WARFARE, INCENDIARY.) (N. F. S.)



**Murphy, Robert Daniel** (1894– ), U.S. foreign service official, was born Oct. 28 in Milwaukee. He entered the foreign service in 1917 and in 1930 was transferred to the Paris embassy as consul and later first secretary. After the collapse of French armies in June 1940, he followed the Pétain government to Vichy, there becoming a counsellor in the U.S. embassy and chief U.S. representative in French North Africa. Murphy was credited with having played an important role in preparing the groundwork for the U.S. invasion of French North Africa in Nov. 1942. For this work he was given the D.S.M. and was raised to the rank of minister. During the early part of 1943, under a storm of criticism from the U.S., Murphy worked toward a settlement of Giraud-De Gaulle differences, his goal being French unity and the establishment of a governing body that the U.S. would be willing to recognize. When the advisory council to the Allied Control Commission for Italy was formed in Nov. 1943, Murphy was appointed as the U.S. member with the personal rank of ambassador. In Aug. 1944 Murphy was made political advisor to Gen. Eisenhower to help set up and operate the machinery for the Allied military government of the reich. During the occupation of Germany in 1945, Murphy was again criticized in the United States, allegedly because he objected to imposing stringent peace terms on the defeated reich.

Murphy was believed to have state department concurrence for his views.

**Murray, Philip** (1886– ), U.S. labour leader. A native of Scotland, he was born in Blantyre May 25 and emigrated to the United States in 1902. Naturalized in 1911, he became a member of the international board of the United Mine Workers of America the next year, president of the union's fifth district in 1916, and international vice-president in 1920. In 1935 he was named to the National Industrial Recovery board and to the advisory council of the National Recovery administration. Murray, choice of John L. Lewis, succeeded him as C.I.O. president, Nov. 22, 1940, when Lewis fulfilled his pledge to quit if Roosevelt were re-elected. But Murray did not follow Lewis in his bitter opposition to Roosevelt's foreign policy. A split developed in May 1942, when Lewis ousted Murray as U.M.W.A. vice-president. Murray fought back, and the C.I.O. went along with him; Lewis and the mine workers walked out. In 1943 Murray fought to maintain the no-strike policy, to use manpower more efficiently, to streamline the War Labor board, to stabilize prices, etc. When congress refused to go along and instead enacted the Smith-Connally antistrike bill, the C.I.O. set up a Political Action committee which supported President Roosevelt for re-election in 1944. Immediately following conclusion of World War II, the C.I.O., under Murray's guidance, launched its campaign for continued high wages and better working conditions. Murray's program was to secure enactment of the full employment and unemployment compensations measures. He also advocated broader social security benefits, immediate wage adjustments, a minimum 65-cents-an-hour wage and establishment of fair employment practices on a permanent basis. In sponsoring the full employment bill (Aug. 22, 1945), he warned that if the U.S. people failed to get well-paid jobs, they would demand government operation of industry. During the wave of strikes that spread over the United States in late 1945, Murray attacked Pres. Truman (Dec. 4), declaring that the latter, in setting up fact-finding boards to investigate industrial disputes and make recommendations for their settlement, had yielded "in abject cowardice" to industry's rejection of collective bargaining.

**Museums of Art:** see ART GALLERIES AND ART MUSEUMS.

**Music.** Music was for the masses of people a most needed release from the tension of struggle and dread of fear. In Italy, France, Austria, Germany and the Low Countries concert halls were packed as never before and the numbers of performances increased. The quality of performance was unusually high for the performer realized and rose to the challenge. Not infrequently concerts were a method of resistance. An Austrian critic, living in Switzerland, writes in *Modern Music* (Vol. XXII, No. 4) of how the young musicians of Vienna sabotaged the cultural *Gleichschaltung* imposed by the Germans. The staff of the Vienna state opera, after its nazi director, Heinrich Strohm, suffered a nervous breakdown, produced the *Entartete Kunst* opera *Johanna Balk* by Rudolf Wagner-Regeny causing a political-cultural scandal. Goebbels himself issued a ban on performances of this work and tightened the nazi grip on musical affairs in Vienna by the appointment of Karl Bohn of Dresden as director of the Vienna state opera. A scandal was also caused when it became obvious that young musicians were attending the propaganda exhibit largely to listen to the recordings of "decadent music" which included examples from Arnold Schönberg's *Pierrot Lunaire* and songs from Bert Brecht and Kurt Weill's *Dreigroschenoper*. Secret performances of prewar Viennese composers were organized. Every young violinist learned the Mendelssohn-Bartholdi concerto even though the music was banned. It was reported that a German censor admitting that he must bar the work from a program suggested that if it were listed as *Concerto* by Bartholdi, then he too could attend the concert and enjoy the music. Vienna felt bitterly the loss of such great conductors as Bruno Walter and its great opera singers such as Lotte Lehmann, Elizabeth Schumann, Margit Bokor and Kolomon Pataky.

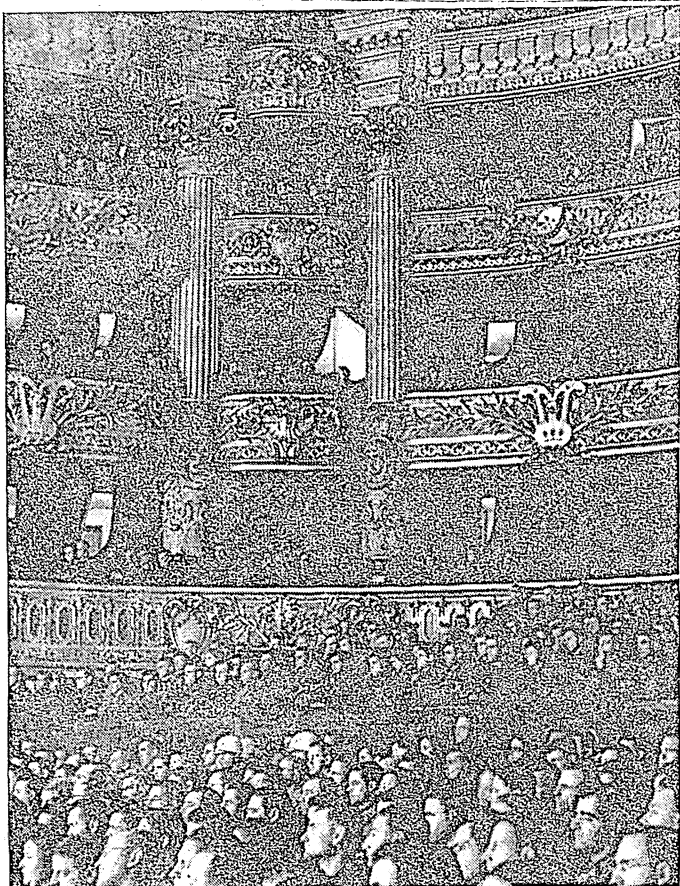
Belgium and France were particularly successful in resisting the propaganda efforts of the Germans. Concerts given by the conservatoires in both countries and by organizations of long tradition were constantly crowded, but only German soldiers and the diplomatic corps attended the gala occasions organized by the German *Propaganda Abteilung*.

Musical activity in Russia continued to demand attention. The composer who produced the most striking new works during the year was Serge Prokofiev. His opera *War and Peace* based on the great Tolstoy novel was scheduled for performance in Leningrad. His *Fifth Symphony*, performed in Moscow in January, was recognized as one of his greatest works. He was working on a *Sixth Symphony* which was scheduled for early performance in 1946. Both the seventh and the eighth *Piano Sonatas* were widely performed and were important contributions to piano literature. Besides these major works, he turned out several pieces inspired by World War II, the latest of which was *Ode on the End of War*.

Benjamin Britten's opera *Peter Grimes*, performed June 7 at the Sadler's Wells theatre, was not only this composer's most ambitious work so far, but the outstanding work of the English season and the first native opera to be performed in a good many years.

Bohuslav Martinu, who lived in the United States for five years, was appointed head of the state conservatory of music in Prague just 50 years after Anton Dvořák left the U.S. to fill the same position. Martinu's *Third Sonata for Violin and Piano* and *Quintet for Piano and Strings* were given their first performance during 1945. It was reported that European composers such as Darius Milhaud (whose new opera *Bolivar* was scheduled for performance in 1946) and Jerzy Fitelberg were planning to return soon to their native homes.

The birthdays of two great modern European composers were celebrated by festivals in the United States during 1945. Arnold Schönberg was feted on his 70th birthday with many perform-



SERVICEMEN LISTENING to the *Ave Maria* in 1945 during a concert at the Paris Opera house

ances of his music. His *Ode to Napoleon* and his *Piano Concerto* were given first performances and were recognized as works which must rank with the greatest that this unusual figure has contributed during his long career. Paul Hindemith was honoured on his 50th birthday with a festival of his music sponsored by the Juilliard school in New York city. This composer had been particularly productive during his exile in the United States. His *Symphonic Metamorphosis on Themes by C. M. von Weber*, a *Violin Concerto* and a *Quartet for Clarinet, Strings and Piano* were heard for the first time during 1945.

In the U.S. such a great quantity of new music was produced that it is quite impossible to report it all. New symphonies were written by Howard Hanson (*Third Symphony*), Robert Ward (*Second Symphony*), Paul Creston (*Second Symphony*), Lukas Foss (*First Symphony*), George Antheil (*Fourth Symphony*), Jerome Moross (*First Symphony*), John Verrall (*Second Symphony*), Walter Piston (*Second Symphony*), Ross Lee Finney (*Symphony Communique*), Norman Dello Joio (*Symphony for Voices and Orchestra*) and Ernst Levy (*Ninth Symphony*). Shorter orchestral pieces were written by Virgil Thomson (*Suite for Orchestra*), William Grant Still (*Old California* and *Poem for Orchestra*), Morton Gould (*Concerto for Orchestra*), E. B. Hill (*Music for English Horn and Orchestra*), Douglas Moore (*Village Music*), William Schuman (*Side Show for Orchestra*), Hugo Weisgall (*American Comedy '43*), Frederick Jacobi (*Night Piece*), John Alden Carpenter (*The Seven Ages*), Bernard Wagenaar (*Song of Mourning*), Robert Ward (*Adagio and Allegro*), David Diamond (*Rounds for String Orchestra*) and Aaron Copland (*Appalachian Spring*) to mention only a few. Concerti of various sorts by Louis Gruenberg (*Violin Concerto*), Lukas Foss (*Piano Concerto*), Nicolai Berezowsky (*Violin Concerto*), Ernest Gold (*Piano Concerto*), Nikolai Lopatnikoff (*Violin Concerto*) and a *Concerto for Theremin and Orchestra* by Anis Fuleihan were performed. Large choral works by Lukas Foss (*The Prairie*), Robert Delaney (*Western Star*) and Randall Thompson (*The Testament of Freedom*) made significant contribution to music in this field. A few of the interesting chamber music

works were Copland's *Violin Sonata*, Artur Schnabel's *Sonata for Violin and Piano*, Leo Sowerby's *Violin Sonata*, Igor Stravinsky's *Sonata for Two Pianos*, Ross Lee Finney's *Third Piano Sonata* and *Duo for Violin and Piano*, Elliot Carter's *Pastoral for English Horn and Piano*, Vittorio Rieti's *Piano Sonata in A flat*, Jacobi's *Rhapsody for Harp*, *Double String Quartet* and *Contrabass* and Otto Luening's *String Quartet*.

Leonard Bernstein's music for the Broadway show *On the Town* was a most refreshing new development in the interesting career of this young composer-conductor who was made director of the New York City Music Center. (R. L. Fy.)

**Popular Music.**—During 1945 the two most popular composers in the U.S. were Frederic Chopin and Richard Rodgers. The former became known to an entirely new audience, first through the biographical film, *A Song to Remember*, and then through the song, "Till the End of Time," derived from the "Polonaise in A-flat," with some help also from the stage musical, *Polonaise*, and a number of "simplified" publications of the Chopin music.

"Till the End of Time" must be considered the hit of the year. The writer of the words, Buddy Kaye, claimed a sale of more than 1,000,000 copies of the sheet music and about 2,000,000 records. It appeared on the Hit Parade for 19 consecutive weeks, seven times at the top. A most encouraging angle of this extraordinary success was that while the sentimental fox trot version of Chopin's heroic masterpiece was the country's number one popular song, the "Polonaise" itself, as originally composed, ranked as number 15, with an apparently inexhaustible demand for its piano recordings. Chopin's "Fantasie Impromptu in C# minor" also had a screen revival through the old Harry Carroll version, "I'm Always Chasing Rainbows" (now credited to Harry Fox) and his "Minute Waltz" and other pieces enjoyed considerable popularity.

The consistent success of Richard Rodgers and his new song-writing partner, Oscar Hammerstein II, gave further evidence of the U.S. improved taste in popular music. Their great musical comedy *Oklahoma!* continued to sell out on Broadway, with *Carousel* keeping pace and adding another smash hit to their collection in "If I Loved You," a song far above the general standards of Tin Pan alley. This number made the Hit Parade 18 times, heading the list for three weeks.

The Rodgers-Hammerstein motion picture, *State Fair*, was unquestionably the best film musical of the year, containing several good songs, of which two became national hits: "It Might as Well be Spring" and "That's for Me." A new record was established when these two numbers appeared simultaneously with "If I Loved You" on the Hit Parade, making a total of three out of nine by the same writers, never before equalled in the history of this popular radio program.

The musical standards of Chopin and Rodgers were not seriously challenged by any other composers of the year's popular music. Most of the material was either commonplace or obviously derivative, and in many cases the words were more effective than the music. Johnny Mercer showed his skill as a lyricist by successfully spoofing the psychiatric lingo in "Ac-cent-tchu-ate the Positive," whose tune merely revamped "Praise the Lord and Pass the Ammunition," with "The Old Grey Mare" as a common ancestor. The lyrics were also exceedingly helpful to the conventionally catchy music of "Sentimental Journey" and the latest railroad paean, "The Atchison, Topeka and the Santa Fe."

The good old subject of dreams received more than its share of attention from the song writers, with rather surprising success. Early in the year there was a run on "My Dreams are Getting Better All the Time," and a little later a song called merely "Dream" headed the Hit Parade five times and equalled

the year's record of 19 appearances on that highly regarded list. "I'll Buy that Dream," another new twist to a hackneyed idea, won considerable popularity toward the end of 1945. The weekly guidebook of show business, *Variety*, listed 35 songs among the best sellers of 1945. Of these the pseudo cowboy "Don't Fence Me In" carried on the vogue established in 1944, with Lawrence Tibbett succeeding Frank Sinatra as its high priest. A melody somewhat above the commonplace, combined with the appeal of a popular film title, brought success to "Laura." The psychology of the returning soldiers and sailors found expression in "It's Been a Long, Long Time" (still going strong at the end of 1945) and "I'm Gonna Love that Guy," whose physical import was unmistakable. The navy had its own tribute in a revival of the ancient "Bell Bottom Trousers;" with the words cleaned up.

"Rum and Coca-Cola" (with radio and some records substituting "lime" for the stronger mixture) came directly from the Calypso music of Trinidad and was also the subject of violent litigation. The milder "Candy," apparently lacking in all the necessary qualifications for popularity, had a mysterious career that even its publishers failed to explain. "Chickery Chick" made a feeble attempt to capture the nonsense prize for the year with practically no competition. A late arrival, marked for increasing popularity, was the foreign importation, "Symphony," whose authorship was also hotly disputed. (S. Sr.)

Cole Porter's "Don't Fence Me In" led the ten ranking song hits of the 1944-45 season, according to the annual survey of the radio division of the office of research. The results of the survey were based on the size of the "listening audience" to which the tunes were played. Other hits, in order, were: "I Dream Of You," "Trolley Song," "Ac-cent-tchu-ate the Positive," "There Goes that Song Again," "I'll Walk Alone," "A Little On the Lonely Side," "I'm Beginning to See the Light" and "More and More." Favourite standard songs were led by Cole Porter's "Begin the Beguine." Top patriotic favourite was "Anchors Aweigh" followed by "The Army Air Corps Song" and "The Marines' Hymn." "The Army Air Corps Song" was the only one of the three written during World War II. (X.)

**Music in Industry.**—Use of music as a palliative to weariness is as old as history. In the United States the work songs of the Negro of the south are a striking example. Similarly, the sea chantey for many generations lightened the task of the sailor. Music in industry merely reverses the process; the worker does not sing, he is sung to.

Many thousands of plants in England and the United States were in 1945 equipped to distribute music to their various departments. Similarly, commercial enterprises introduced music into their accounting rooms to counteract the boredom of concentration upon figures. There were instances of banks, insurance companies and other similar enterprises whose employees accomplish their daily tasks to the accompaniment of subdued music.

There also appeared to be a growing enthusiasm among the workers for this attractive new element in the daily routine. Music often was extended beyond the work period into lunch hours and rest periods on the theory that the worker, diverted by music, returns to his task with renewed spirit.

The general use of music in industry is a direct result of the British government's concern with the welfare of war workers. The British Broadcasting company, which unlike the U.S. networks is a government operation, was called upon by the government to broadcast at certain hours music suitable for use in industrial plants, it having been found that these plants through lack of familiarity with the problems involved were defeating the purposes of "music-while-you-work" through basic mistakes, chiefly faulty programming. Beginning in the summer of 1940, the project spread through virtually all English plants in war work and rapidly was taken up by other English industries.

United States industry soon adopted the plan.

The claim was made that programming could be standardized to meet the varying requirements of almost all industry. Certain fundamentals were known. Fast music does not mean fast work. A sharply defined melody is preferable to rich orchestration. A slow waltz tempo is favoured a few minutes before the usual midmorning or midafternoon fatigue period. Instrumental music is preferred, for the listener often is distracted in an effort to follow the spoken word. (See also RADIO.)

**Music in Industry:** see MUSIC.

**Music Library Association:** see SOCIETIES AND ASSOCIATIONS.

**Mussolini, Benito** (1883-1945), Italian leader and dictator, was born July 29 at Dovia, Forlì province. For his earlier career see *Encyclopædia Britannica*. Il Duce brought Italy into World War II as an axis partner on June 10, 1940, when the defeat of France was a *fait accompli*. In the realm of military leadership, Mussolini was a failure. His armies were soundly thrashed in North Africa and Greece. He frequently shuffled his high command in the hope of finding a winning combination, but without success, and the Italian army remained a model of corruption and ineptitude.

After the Allied landings in Sicily in 1943, Mussolini's prestige among the Italian people had fallen so low that there was little protest when he was ousted, July 25, from the office of premier which he had held for 20 years. He was imprisoned by Marshal Pietro Badoglio, the new premier, but was spirited away by German paratroopers. In Sept. 1943 he formed a new "Republican fascist" government in northern Italy under German protection. Mussolini made occasional speeches in which he voiced his ultimate faith in an axis victory, but as the axis stumbled from defeat to defeat, it was obvious that the erstwhile dictator was "whistling in the dark."

Toward the end of April 1945, when the United Nations armies were overrunning all of Europe, strong partisan forces rose up in northern Italy and Mussolini, panic-stricken, fled northward from Milan, presumably toward neutral Switzerland or to Adolf Hitler's redoubt in Bavaria. With him were his mistress, Clara Petacci, and several high fascist officials. But the duce and his party were intercepted by a body of Italian partisans near Dongo, a village near Lake Como. The partisans held a trial and sentenced him to die before a firing squad, and Mussolini, 16 of his fascist henchmen and Signorina Petacci were executed on April 28. Their bodies were brought to Milan by truck and dumped into the Piazza Loretto (where Mussolini's agents had previously executed 15 Italian partisans) for public display. The corpses of the fallen dictator and his mistress were later strung up by their heels in the square, but were finally taken down and buried in the pauper's section of the Cimitero Maggiore in Milan, May 1.

**Mustard Seed:** see SPICES.

**Mutton:** see MEAT.

**Narcotics:** see DRUGS AND DRUG TRAFFIC.

**National Academy of Sciences:** see SOCIETIES AND ASSOCIATIONS.

**National Archives:** see ARCHIVES, NATIONAL.

## National Association of Evangelicals.

An association of Protestant denominations in the U.S. formed in May 1943, to provide a means of co-operation in fields of common interest. Its membership, as of Dec. 1945, included 20 denominations, a large number of single churches of other



denominations, mission boards, educational institutions and other evangelical organizations. Its operations are carried on largely through nine affiliated corporations and commissions including Evangelical Foreign Missions association, National Radio Broadcasters, National Sunday School association, Chaplain Counselors for Industry, Commission for Evangelism, Commission for War Relief, Commission for Christian Educational Institutions, National Youth commission, Commission for Chaplaincies. Its doctrinal position is strongly conservative. The official organ is *United Evangelical Action*, published semi-monthly at 903 St. Paul building, 111 East Fourth St., Cincinnati. It is not endowed. Offices are maintained in New York city; Newark, N.J.; Washington, D.C.; Buffalo, N.Y.; Detroit, Mich.; Cincinnati, O.; Chicago, Ill.; Los Angeles, Calif.; and Portland, Ore. Its principal office is at 120 Tremont St., Boston, Mass. The officers in 1945 were: Bishop Leslie R. Marston, president; Rev. R. L. Decker, 1st vice-president; Dr. J. Alvin Orr, 2nd vice-president; J. Willison Smith, Jr., secretary; H. J. Taylor, treasurer. Dr. J. Elwin Wright was the national executive secretary. (J. E. Wt.)

**National Association of Manufacturers:** see SOCIETIES AND ASSOCIATIONS.

**National Budget:** see BUDGET, NATIONAL.

**National Catholic Community Service:** see SOCIETIES AND ASSOCIATIONS.

**National Catholic Rural Life Conference:** see CATHOLIC RURAL LIFE CONFERENCE, NATIONAL.

**National Catholic Welfare Conference:** see CATHOLIC WELFARE CONFERENCE, NATIONAL.

**National Congress of Parents and Teachers:** see PARENTS AND TEACHERS, NATIONAL CONGRESS OF.

**National Debt:** see DEBT, NATIONAL.

**National Defense Research Committee:** see SCIENTIFIC RESEARCH AND DEVELOPMENT, OFFICE OF.

**National Education Association** of the United States during 1945, the second year of its program of unification, expansion and development, made the greatest growth in its history. It had an important part in securing a place for education in the United Nations charter. Association leaders had a part in the London conference which drafted the charter for the United Nations Educational, Scientific and Cultural organization. N.E.A. added three new service divisions to its headquarters staff to deal with adult education, audio-visual instruction and travel. The *Journal of the N.E.A.* more than doubled in size after the removal of wartime restrictions made it possible to obtain more paper. The campaign for federal aid made more progress toward agreement in both house and senate than during the 25 years the proposal was before congress. "How To Promote The General Welfare" was the theme for American Education week Nov. 11-17, 1945. Because of travel restrictions, regional conferences were substituted for the 1945 conventions and association officers continued for another year. Among new publications inaugurated by the association during the year were the *N.E.A. Handbook*, the *N.E.A. History* and a bulletin for laymen entitled *The Public and Education*. The association also made and distributed its first moving picture on the schools entitled, *Assignment: Tomorrow*. The association was organized in Philadelphia in 1857. It had, in 1945, a membership of 331,429 and its affiliated state associations had a membership of 757,265. The official organ is *The Journal of the N.E.A.*, edited in 1945 by Joy Elmer Morgan, and issued to all members monthly except June, July and August. The president for 1944-46 was Dr. F. L. Schlagle, superintendent of schools,

Kansas City, Kan.; executive secretary, Willard E. Givens. (See also EDUCATION.) (J. E. Mo.)

**National Foundation for Infantile Paralysis:** see INFANTILE PARALYSIS.

**National Gallery of Art:** see ART GALLERIES AND ART MUSEUMS; SMITHSONIAN INSTITUTION.

**National Geographic Society.** Organized in 1888 by a small group of professional geographers resident in Washington, D.C., this society's purpose was set forth in its charter as that of "increasing and diffusing geographic knowledge." Gilbert Grosvenor, president in 1945, assumed the direction of the organization's activities in 1899 and broadened the scope of its researches to appeal to the layman interested in scientific accomplishments. The membership of the society, which was less than 1,000 in 1899, was 1,300,000 in 1945.

As one method for carrying out the purpose for which it was established, the society issues monthly its official publication, the illustrated *National Geographic Magazine*. During the 57 years of its existence, the society sent numerous expeditions to various parts of the earth to gather data in the fields of geography, geology, volcanology, glaciology, archaeology, astronomy, meteorology and other sciences associated with geography. The scientific results of these expeditions were recorded in a series of published monographs.

In 1945 the National Geographic society, under the leadership of Dr. Arthur A. Allen, sent its second annual expedition for the study of North American bird life. Investigations were made along the north shore of the Gulf of St. Lawrence (Quebec province, Canada) and at Canadian bird sanctuaries on the offshore islands. Natural colour photographs were made of murre, cormorants, eiders, puffins, auks and red-throated loons in their nesting areas.

During the year studies of the aurora borealis were continued by the society and Cornell university under the direction of Dr. C. W. Gartlein. Headquarters of the project were at Ithaca, N.Y., and supplemental bases at Hamilton and Geneva in the same state. With the co-operation of 25 stations scattered from eastern Canada to Oregon and from Ithaca to a point north of Lake Superior, visual observations of auroras were made from some of the stations when the displays were obscured by clouds elsewhere. By the development of photoelectric instruments the project's observers also detected and recorded automatically the presence of auroras hidden by heavy clouds.

In pursuing its archaeological investigations into the Olmec culture, the society, in co-operation with the Smithsonian institution, carried on field work in 1945 in the highlands of the state of Chiapas, Mex., near Tuxtla Gutierrez. A series of eight mounds was excavated and explorations were conducted in a number of caves which had been used as dwellings or refuges. The party also blocked out for future study a new site on the Rio Chiquito in southern Veracruz state, rich in gigantic carved stone heads, altars, monuments and other art objects.

During 1945 four 10-colour wall maps were produced by the society's cartographic department. More than 5,000,000 of these maps were issued to members as supplements to the *National Geographic Magazine*. The map of the Philippine Islands appeared while military activities were still in progress in those islands. Incorporated in this chart were data assembled over a period of 40 years by the U.S. coast and geodetic survey and the army map service, and saved from loss to the Japanese invaders only by shipment from Corregidor in a submarine. The map of China includes Outer Mongolia, whose independence was recognized in Aug. 1945, and Manchuria, scene of post-V-J day

civil strife. Numerous Chinese dialects were sifted in order to arrive at the spellings of the thousands of place names used on the map. The map of Japan and Korea is a large-scale representation of the home islands of the once sprawling Japanese empire and the peninsula which was its closest and most important mainland possession. Insets show Karafuto, which is the southern portion of Sakhalin Island, Formosa, the Ryukyu and Kurile Island chains, Okinawa and Tokyo and its surroundings. The map of northeastern U.S. embraces only 12% of the area of the union but nearly half its total population and nearly three-fourths of its factory production. The part of Canada included holds two-thirds of the total population and nearly three-fourths of the factories of the dominion. The chart contains 10,437 place names, a greater number than had appeared on any other map published by the National Geographic society.

Franklin L. Burr prizes, each carrying an award of \$1,000, were granted to Dr. Lyman J. Briggs, for outstanding work in directing field expeditions of the society; and to Dr. Thomas A. Jaggar for developing the first "duck" or amphibian mobile boat in 1927. The latter was a combination boat and automobile used for coastal explorations near Pavlof volcano in Alaska.

The National Geographic society's headquarters are at 1146 Sixteenth St. N.W., Washington 6, D.C. Officers in 1945: president and editor, Gilbert Grosvenor; vice-president and associate editor, John Oliver La Gorce; secretary, Thomas W. McKnew; and treasurer, Robert V. Fleming. (G. Gr.)

**National Guard.** It was possible at the end of 1945 to summarize to the end of World War II. Upon induction into federal service in 1940-41, the guard furnished 300,000 officers and enlisted men to the war mobilization. During the war large numbers of these were transferred to new duties to furnish seasoned personnel to new units being formed. A high proportion of its enlisted men were commissioned. It was estimated that the guard furnished 100,000 officers to the general military effort. Statistics were not available regarding the later records of enlisted categories, but Table II concerning the original officer personnel is significant.

Table I is the war record of the national guard divisions. It does not include the records of many national guard non-divisional units which served as artillery headquarters, as separate artillery, anti-aircraft and tank destroyer battalions, and as other combat and supporting organizations, the number

Table II.—Original Officer Personnel

Number of officers inducted	20,920
Officers promoted after induction	20,069
Awarded decorations	1,339
Still in federal service (May 8, 1945)	16,580
Still in federal service (Aug. 14, 1945)	16,169
Still in federal service (Dec. 31, 1945)	15,066
Killed in action	334
Died of wounds	64
Retired for physical disability	489

of which is too great for detailed inclusion here.

During 1945 the war department established new policies for the organization of the postwar-national guard in order to integrate it more fully into the peacetime defense scheme as an efficient first line force.

Under the act of congress approved Oct. 21, 1940, the various states continued to maintain state guard units for local security while their national guard units were absent in federal service. In Aug. 1945, this force had a strength of 149,348 officers and men. After hostilities ceased, this strength declined to 140,205 on Nov. 30th. In support of these units, the states appropriated for 1945 the sum of \$17,943,056.80. Summer training camp attendance during the year was 61,000, and special part-time schools extended training to reach nearly every state guardsman. New transportation and communications equipment issued to the state guard in 1945 increased its field efficiency.

(J. F. Ws.)

**National Housing Agency:** see HOUSING.

**National Income and National Product:** see INCOME AND PRODUCT, U.S.

**National Insurance:** see SOCIAL SECURITY.

**National Labor Relations Board.** On July 5, 1935, President Roosevelt signed into law the National Labor Relations act protecting the workers' right to organize and bargain collectively in the United States.

Popularly known as the Wagner act, it is a simple law. It applies to interstate industries only; government, agricultural and domestic workers are exempted from its provisions.

The act established a National Labor Relations board and entrusted its three-member board with two basic functions: (1) to conduct secret ballot elections; and (2) to eliminate and remedy those practices by employers which discriminate against employees in any manner because of union membership or activity.

Section 8 of the act specifies those unfair acts of employers

Table I.—War Record of National Guard Divisions in World War II

Units - Inf. Div.	Inducted	Service	At End of War	Returned to U.S.	Units - Inf. Div.	Inducted	Service	At End of War	Returned to U.S.
26th	Jan. 16, '41	France Belgium Luxembourg Germany	3rd army (Austria)	Dec. 28, '45	36th	Nov. 25, '40	Italy France Germany Austria	7th army (Austria)	Dec. 15, '45
27th	Oct. 15, '40	Gilbert Is. Marshall Is. Marianas Ryukyus Japan	10th army (Okinawa & Ie Shima)	Dec. 31, '45	37th	Oct. 15, '40	Munda Bougainville Philippines	8th army (Luzon, P.I.)	Dec. 15, '45
28th	Feb. 17, '41	France Belgium Luxembourg Germany	3rd army (Germany)	Aug. 2, '45	38th	Jan. 17, '41	New Guinea Philippines	8th army (Luzon, P.I.)	Nov. 9, '45
29th	Feb. 3, '41	France Holland Germany	9th army (Germany)	Jan. 16, '46	40th	March 3, '41	New Britain Philippines Korea	6th army (Luzon, P.I.)	—
30th	Sept. 16, '40	France Belgium Holland Germany	9th army (Germany)	Aug. 21, '45	41st	Sept. 16, '40	New Guinea Philippines Neth. I.	6th army (Mindanao, P.I.)	—
31st	Nov. 25, '40	New Guinea Morotai Philippines	8th army (Mindanao, P.I.)	Dec. 18, '45	43rd	Feb. 24, '41	Russell Is. New Guinea Solomons Philippines	6th army (Luzon, P.I.)	Oct. 9, '45
32nd	Oct. 15, '40	Same	8th army (Luzon, P.I.)	—	44th	Sept. 16, '40	Japan France Austria Germany	7th army (Austria)	July 20, '45
33rd	March 5, '41	Same	6th army (Luzon, P.I.)	—	45th	Sept. 16, '40	Sicily Italy France Germany	7th army (Germany)	Aug. 3, '45
34th	Feb. 10, '41	Tunisia Italy	5th army (Italy)	Nov. 3, '45	Americal Div. Organized in Pacific Theatre				
35th	Dec. 23, '41	France Luxembourg Germany	9th army (Germany)	Sept. 10, '45					
							Bougainville Philippines Japan	6th army (Cebu, P.I.)	Dec. 9, '45



THE NATIONAL LABOR RELATIONS board conducting a strike poll under the Smith-Connally act, at the request of Chicago teamsters' unions on June 15, 1945

which deny, abridge or interfere with the employees' right to bargain collectively. Under this section, employers are specifically prohibited from interfering with, restraining or coercing employees in the exercise of their rights to organize and bargain collectively; dominating or interfering with the formation of any labour organization; discriminating against any employee to discourage or encourage membership in a labour organization; discharging or otherwise discriminating against an employee because he has filed charges or given testimony under the act; and, lastly, employers are prohibited from refusing to bargain with the representatives selected by a majority of employees in an appropriate bargaining unit.

In the ten years after the act appeared on the statute books, 77,231 cases were filed with the board. Of these, 37,306 involved unfair labour practice charges and 39,925 concerned questions of representation.

The board endorses and stresses the use of informal procedures for the achievement of results consistent with national policy. Thus, of the total of 77,231 cases handled, 62,712 or 81.2% of them, were disposed of informally, without the necessity of hearings, decisions or subsequent court litigation. Taken separately, more than 90% of the unfair labour practice cases handled were so settled; of the representation cases, 72.6% were so adjusted.

In the 1945 fiscal year, as in the preceding 12 months, more election cases were filed with the board than in any single year of the board's history. Of the 9,737 cases that came before it, only 2,427, or less than 25%, involved questions of unfair labour practices; the remaining 75.1%, or 7,310 asked for board resolution of questions concerning union representation.

The magnitude of the board's election job and the workers' interest in it can best be seen by the fact that in the first ten years of the board's existence more than 6,000,000 workers went to the polls to vote in board-conducted elections. Approximately 24,000 such elections were held during that period.

In 20,000 elections a majority of employees voted for a union; in 9,545 polls the Congress of Industrial Organizations was successful in obtaining representation rights; American Federation of Labor affiliates scored in 7,945; unaffiliated unions were chosen in 2,510; and no union was selected in the remaining 3,850 balloting.

The returning serviceman, when viewed through the operations of the act, is considered in the same light as a civilian worker; he is treated as an employee who temporarily finds himself in his country's uniform and who, upon his return to his bench, will be entitled to the same rights as he always enjoyed.

Inasmuch as the board's basic functions impinge upon the serviceman, the board has had occasion to hand down rulings to the effect that: Individuals who are in uniform do not cease to be employees of their last employer before they entered the armed forces. Employees who have been discriminatorily discharged prior to their military service must be offered full reinstatement upon their return to civilian status. Employees who are in the armed forces, whenever administratively feasible, will be permitted to cast their ballots in elections for the determination of representatives to act as bargaining agents. Whenever a labour organization is certified by the board as exclusive bargaining agent, the certification is made subject to review when a sufficient number of employees have returned from military service.

Before the board can certify a representative it must first ascertain which employees comprise an appropriate unit for collective bargaining purposes. Under the act, the employer, craft, plant unit or subdivision thereof may be found appropriate. An appropriate unit also may be composed of employees of one plant, several plants or all the plants of one employer. Similarly, employees of one or more crafts or departments may form an appropriate unit.

Among the more important factors considered by the board in arriving at a unit determination are the following: the history, extent and type of organization of the employees; the history of their collective bargaining; the history, extent and type of organization of employees in other plants of the same employer, or other employers in the same industry; the skill, wages, work and working conditions of the employees; the desires of the employees; eligibility of the employees for membership in the union or unions involved; and the relationship between the unit or units proposed and the employer's organization, management and operation.

Only 6,900 of the 24,000 elections held during the 1935-45 period were conducted pursuant to orders of the board; the remainder, or 72% of all elections, were based and conducted on the complete agreement and mutual arrangement of the parties.

In Nov. 1945, with 2,100 bargaining elections on its docket, the board adopted a new policy to expedite the disposition of reconversion representation issues. This policy, in the form of an addition to the board's existing rules and regulations, made it possible for representation elections to be conducted in certain types of cases without awaiting a formal direction of election by the board in Washington; any necessary hearings were held after the conduct of the election by the board's agents. The board's purpose was to remove quickly any simple questions of majority representation from the area of industrial strife since many of the cases pending before it were and would continue to be tied in with industrial reconversion efforts. In making the change the board noted: To the extent that these representation questions are promptly answered, that the employer knows with whom he is to bargain and that employees realize that they can designate representation to settle



shop problems, to that extent will the board have furthered reconversion to full-time production of civilian goods.

To correct unfair labour practices, the board is authorized to issue cease and desist orders and to take such affirmative action, including reinstatement with or without pay, as will effectuate the policies of the act. Of the 11,000 formal decisions issued from 1935 to 1945, comprising more than 60 bound volumes, 2,600 concerned employer unfair labour practices. To remedy illegal practices the board ordered the reinstatement of 300,000 employees, 30,000 of whom received back pay. These compensatory pay awards totalled \$9,000,000. More than 2,000 company unions were ordered disestablished. In 5,000 cases collective bargaining was ordered, while in 7,000 cases notices of compliance with board decisions were directed to be posted. These posted notices informed employees that they were free to engage in collective activity without interference, as guaranteed by the act.

Decisions and orders of the board are not self-enforceable. There are no penalties or fines. Either the company or the board may petition the appropriate circuit court of appeals for enforcement. Following this, either party may petition the supreme court for review. It is only after a court has upheld a board order and an employer has refused to comply that he may be held in contempt of court and subject to court penalties.

As of Oct. 1, 1945, more than 600 board cases had been litigated in the various circuit courts of appeals and in the supreme court. In the circuit courts, 343 of these were upheld in full, 78 were set aside and 167 modified. Of the 55 that reached the supreme court, board orders were enforced in full in 52 cases; in only 2, or less than 4%, were board orders set aside.

An additional duty was given the board by congress during 1943. This was the conduct of strike votes in accordance with Section 8 of the War Labor Disputes act. From the date of the passage of this act, June 25, 1943, up to Dec. 1, 1945, a total of 4,260 dispute notices were filed. Of these, 2,293 were withdrawn before the end of the 30-day period stipulated by the statute. Strike polls were conducted by the board in 1,306 instances, and on Dec. 1, 1945, 606 such cases were pending before the board.

In Nov. 1945 alone, 578 of these strike petitions were filed. This influx of strike vote petitions caused the board to protest to congress that the conduct of such votes had become administratively impossible. The board pointed out that its work of conducting NLRA elections, intimately tied in with orderly reconversion of industry to peacetime production, was being neglected because of the time and money required for the handling of War Labor Dispute act cases, and called upon congress to repeal the section requiring the board to conduct the strike votes. (See also LABOUR UNIONS; LAW; STRIKES AND LOCK-OUTS.)

(P. M. Hg.)

**National Lawyers Guild:** see SOCIETIES AND ASSOCIATIONS.

**National League of Women Voters:** see SOCIETIES AND ASSOCIATIONS.

**National Mediation Board.** The National Mediation board, an independent federal labour agency in the United States, operates under the Railway Labor act, passed in 1926 and amended in 1934. The principal function of the board and its field staff is to settle, through mediation, disputes between rail or air carriers and their employees over changes in wages and working conditions. The board is also charged with investigation and certification of disputes arising among employees as to who are the representatives designed to act as the bargaining agency for a craft or

class of employees. During 1945, the board disposed of 617 cases, 227 representation disputes and 390 disputes involving changes in rates of pay, rules or working conditions. It received during the year 457 cases.

Where disputes over changes in wages and hours are not resolved by mediation, and the board's proffer of arbitration is declined, the board is required to advise the president of the United States of such disputes which threaten substantially to interrupt interstate commerce. The president may, in his discretion, appoint a fact-finding emergency board to investigate the controversy. During the year 13 such emergency boards were created and recommended settlements to the president.

The U.S. supreme court in a 5-4 decision (*Elgin, Joliet and Eastern Railway Company v. G. W. Burley, et al.*) in June 1945 held that for union representatives of railroad employees to handle grievance cases arising over the application of existing agreements it was necessary for such representatives to obtain adequate authorization from each individual aggrieved employee. This decision ran contrary to customary union procedures and largely because of the resultant widespread dissatisfaction, the court reheard the case in December. No decision had been announced by the end of the year.

**National Railway Labor Panel.**—This agency, created by executive order of the president for the World War II period, provides a means whereby disputes involving air or rail carriers and their employees which may interfere with the war effort and which are not settled by mediation or arbitration may be heard by emergency fact-finding boards if employees refrain from threatening strike action. Such boards are appointed by the chairman of the panel from a roster of about 30 outstanding individuals who have no connection with the industry or the employee unions. Seventeen panel emergency boards were appointed in 1945. The chairman also is authorized to determine the permissibility, under the government's wage stabilization program, of voluntary (nondispute) applications for wage changes involving employees covered by the Railway Labor act. (See also RAILROADS.)

(N. M. Bz.)

**National Museum:** see SMITHSONIAN INSTITUTION.

**National Parks and Monuments.** The end of World War II found the national park areas in the U.S. relatively undamaged by the demands of war. The national park service policy of protecting the parks, and refusing permits for exploitation of the natural resources within the parks unless national necessity demanded, successfully averted threatened damage from mining, logging and grazing.

Lifting of gasoline rationing caused an upward surge in travel to the parks. In several instances, fall travel surpassed previous travel for any similar periods and Labour day week end in the major parks brought crowds comparable to the peak period in a normal prewar year. Total travel for the 1945 travel year (ending Sept. 30) was more than 10,000,000, about half of the prewar high figure of 21,000,000 in 1941. Because of the wartime curtailment of park appropriations, and emphasis on minimum essential maintenance only, these visitors did not find accommodations and services similar to those maintained before the war. With additional funds expected in postwar budgets, the national park service was expected to resume normal service as rapidly as possible to repair and rebuild deteriorated roads, reopen campgrounds and trails and repair park buildings. The operators of hotels and cabin camps in the parks faced a similar problem of rehabilitation since most of these facilities had not been opened during war years.

On May 8, 1945, the "Statue of Liberty" was relighted after



FORT FREDERICA, Georgia, was established as a U.S. national monument on Aug. 30, 1945

a black-out lasting more than three years. This symbol of democracy again stood as a beacon of welcome to men returning from the battlefields of Europe.

One new area was added to the park system during 1945 with the establishment of Fort Frederica national monument, Georgia, on Aug. 30. This is one of the early southern outposts of the Georgia colonists, built for military protection against the Spanish in Florida.

Artificial feeding of bears in Yellowstone and Yosemite was eliminated during the year, better to portray the wildlife of the parks in a wholly natural setting. This move was expected to help eliminate unnatural concentrations of the bear population, would permit them to fend for their own food and was expected to reduce accidents to visitors resulting from unwise familiarity with the bears.

More than 300 acres of virgin timber in Mt. Rainier national park was purchased for addition to the park during the year. This timber was in imminent danger of logging operations, and its acquisition was another step forward in the land acquisition program of the national park service which planned the ultimate acquisition of all of the 600,000 acres of privately owned lands within the park boundaries.

Unusually severe dry lightning storms during late August threatened the northwestern parks with the worst fire season in many years, but prompt action kept total acreage burned well below average. In general, man-caused fires in the parks decreased during the war years.

FILMS.—*Northwestern States* (Encyclopædia Britannica Films Inc.). (N. B. D.)

**National Railway Labor Panel:** see NATIONAL MEDIATION BOARD.

**National War Fund:** see WAR RELIEF, U.S.

**National War Labor Board:** see WAR LABOR BOARD, NATIONAL.

**National Wealth:** see WEALTH AND INCOME, U.S. DISTRIBUTION OF.

**Natural Gas:** see GAS, NATURAL.

**Nauru:** see MANDATES; PACIFIC ISLANDS, MANDATED.

**Naval Academy, U.S.** The United States Naval academy, at Annapolis, Md., was founded in 1845, and is maintained by the government, under the immediate supervision of the bureau of naval personnel of the navy department, for the training of young men for the naval service. The students at this institution are called midshipmen. They are given a general and professional education of collegiate grade, and sufficient basic naval and military training to enable them to enter upon the duties of ensigns in the navy or second lieutenants in the U.S. marine corps. All students pursue the same course, and upon graduation the midshipmen are awarded the degree of bachelor of science.

Midshipmen are appointed to the Naval academy from civil life after being nominated by a senator, representative, or delegate in congress, and after meeting all mental and physical entrance requirements. In addition, there are certain appointments from the United States at large, the District of Columbia, and the naval service, made by the president, the vice-president and the secretary of the navy.

Complete details regarding scholastic admission requirements are contained in the pamphlet entitled "Regulations Governing the Admission of Candidates into the U.S. Naval Academy as Midshipmen," copies of which may be obtained direct from the Office of the Superintendent, U.S. Naval Academy, Annapolis, Md., or from the Bureau of Naval Personnel, Navy Department, Washington 25, D.C.

Candidates for appointment as midshipmen must be citizens of the United States, not less than 17 years of age nor more than 21 years of age on April 1 of the calendar year in which they enter the Naval academy. They are required to have a good moral character and to be physically sound.

Upon admission to the Naval academy all candidates are required to make an entrance deposit of \$100, to be used as part payment to cover cost of uniforms, clothing, textbooks and incidentals. Midshipmen are allowed 5 cents a mile for travelling expenses from their homes to the Naval academy. This money is credited to their accounts after they have actually become midshipmen. The pay of a midshipman is \$780 a year, commencing at the date of his admission, and is sufficient to meet all his expenses while at the Naval academy.

The membership of the regiment of midshipmen at the beginning of the academic year 1944-45 was 3,043. (For statistics of enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (Ro. M.)

**Navies of the World.** Development of naval weapons and equipment, as well as of warship design and tactics was greatly stimulated by World War II. Quite the most far-reaching of these developments was radar, the official term which replaced the former expression, radio-location. It is no exaggeration to say that radar completely changed the face of naval warfare. Victory at the battle of Matapan could hardly have been achieved without its aid, though at that time radar was still at a comparatively elementary stage.

Other inventions which can receive but brief mention include the human torpedo, used in different forms by both the Allies and the enemy; this reference applies equally to midget submarines, and to the electric torpedo which leaves no track. Mines of magnetic and acoustic types, and ingenious combinations of both principles were first used by the Germans, but were greatly improved by the Allies. Another device employed by the former was the acoustic homing torpedo, attracted to a ship by the propeller's vibration, but means to counteract this were soon found. Radio was also the subject of many improvements, which it would take too long to detail. Anti-submarine equipment was considerably improved, though details remained in 1945 mainly confidential.

Aircraft carrier design was modified to a notable extent. Small carriers of the escort type, which could be built quickly, were an important factor in winning the battle of the Atlantic, enabling the mid-ocean gap between the extreme ranges of shore-based aircraft on either side to be bridged. At the other end of the scale were the three immense aircraft carriers "Midway," "Coral Sea," and "Franklin D. Roosevelt," displacing 45,000 tons and carrying exceptionally heavy bombers, completed for the United States navy in 1945-46.

Escort vessels of special design, known as destroyer-escorts, frigates and corvettes, greatly aided victory in the battle of the Atlantic. For the invasion of enemy territories, sundry special types of landing craft were designed, ranging from the huge L.S.D. (landing ship, dock) to the little L.C.A. (leading craft, assault). One of the most useful of these, employed for covering a landing, was the L.C.T. (R.), or landing craft, tank (rocket). One of these vessels could project a very large number of rockets at a single discharge, giving a concentrated volume of fire equal roughly to that of 30 light cruisers each armed with 12 guns of 6-in. calibre.

Attack on vessels from the air, either by torpedo or bomb, reached a high stage of development, producing a corresponding enhancement of the anti-aircraft armament of warships. Immense numbers of 20-mm. and 40-mm. guns were turned out by U.S. naval arsenals for this purpose, the number of such weapons

carried in the latest U.S. battleships ranging in 1945 from 100 to 150.

With the approaching completion of the fifth ship of the "Iowa" class, the U.S. navy would possess 24 battleships. It was proposed to retain 18 of these in the postwar fleet, 7 of which would be kept in reserve. There were also at the end of 1945 two battle cruisers and a third completing for service. This would give a postwar total of 21 capital ships, as compared with the prewar figure of 15, which showed a 50% margin of superiority over Japan.

For practical purposes the axis navies had been eliminated. At the close of the war two cruisers were the only undamaged ships of any size left to the Germans, while the Japanese could muster only a single cruiser completely intact, with a few other units more or less disabled. Though at the end of 1945 the future of the Italian navy had still to be announced, it seemed improbable that Italy would be permitted to keep under its control the five battleships and nine cruisers that remained afloat; for this would make it the strongest continental naval power in Europe.

Defeat of the three axis countries can be attributed mainly to the superior sea power, correctly employed, of the British and United States navies. Germany voluntarily devoted all its resources to the prosecution of the submarine campaign against shipping. While this constituted for a considerable time a very dangerous menace, it was essentially a gamble which, in the absence of strong support from a surface fleet, was ultimately defeated by the combined resources of the United Nations. Italy's share in operations was that of a minor and almost completely subservient partner, whose aid became of less and less consequence as the struggle became more intense.

Japan's entry into the war threatened for some months to disrupt communications between Britain and the United States on the one hand and India on the other. Such scanty sea forces as were available in the Indian ocean were temporarily withdrawn to a remote base at Mombasa, in East Africa; but after one critical moment in April 1942 the Japanese seem to have relinquished any schemes they may have had for seizing control of the seas beyond the Straits of Malacca. This gave both the principal Allies breathing space in which to restore the situation; and the battle of Midway, in which the Japanese lost four of their best aircraft carriers, proved the turning point of the eastern war.

A very important factor in the defeat of Japan was the destruction caused by U.S., and at a later period, British submarines. Not only was the Japanese mercantile marine reduced to such inferiority that it could no longer maintain communication between the scattered territories held by the enemy, but also quite a considerable number of warships fell victims to Allied submarine attacks. These included 1 battleship, 9 aircraft carriers and 14 cruisers. Unable any longer to maintain control over its sea communications, Japan was in a plight which made surrender inevitable. Its industrial resources were so greatly inferior that it was impossible to replace more than a fraction of the maritime losses suffered; in this respect the contrast with the position of the U.S. after Pearl Harbor could hardly be more striking.

**United States Naval Strength.**—One of the results of World War II was to make the United States navy the largest in the world. As reconstituted at the end of 1945 it comprised 18 battleships; 2 battle cruisers (with a third building); 37 fleet aircraft carriers; 79 escort carriers; 31 heavy cruisers; 48 light cruisers; 367 destroyers; 200 submarines; 296 destroyer-escorts; and a large but not precisely specified number of minelayers, minesweepers, patrol vessels and miscellaneous auxiliaries of all kinds. Of this total, it was intended to lay up in reserve 7 of



the older battleships; 22 fleet carriers and 58 escort carriers, all built after 1940; 14 heavy and 19 light cruisers; 191 destroyers; 256 destroyer-escorts; and 110 submarines, together with a substantial proportion of the other categories mentioned above. This would comprise about 60% of the entire fleet. Moreover, a certain number of the ships maintained in commission would be kept in the ready reserve, with nucleus crews amounting to about one-third of full peacetime strength. Thus the fully manned ships in service would amount to about 28% of the whole fleet.

Losses during the war totalled about 700 vessels, including 2 battleships, 5 fleet aircraft carriers, 6 escort carriers, 7 heavy cruisers, 3 light cruisers, 71 destroyers, 11 destroyer-escorts and 52 submarines.

Total personnel at the end of 1944 reached the figure of 3,870,039, including the marine corps and coast guard. It was planned to reduce this figure to 550,000 by the summer of 1946.

**British Naval Strength.**—At the end of 1945 the strength of the royal navy was 13 battleships and 1 battle cruiser. Four of the battleships had been relegated to harbour training duties. One battleship was known to be under construction. There were 14 first-line aircraft carriers, with about the same number building; and 42 carriers of the maintenance or escort types, including 35 built in U.S. shipyards under the lend-lease scheme. There were 63 cruisers, including 11 old ships overdue for replacement, with 4 more under construction. Other vessels included 300 destroyers, of which 25% were earmarked for scrapping; 150 submarines; 4 minelayers; 70 sloops; 245 frigates; 250 corvettes, many of which were likely to be discarded; 290 fleet minesweepers; 4 monitors; 2 netlayers; and a large number of coastal craft, trawlers and auxiliaries of all kinds. No progress appears to have been made with the construction of four battleships of the "Lion" class, of more than 40,000 tons, that were authorized before the war. Losses during the war included 3 battleships; 2 battle cruisers; 5 fleet aircraft carriers; 3 escort carriers; 30 cruisers; 3 minelayers; 138 destroyers; 73 submarines (excluding midgets); 16 sloops; 12 frigates; 33 corvettes; 35 fleet minesweepers; 1 monitor; 11 gunboats; 16 armed merchant cruisers; 170 coastal craft; 1 coastal minelayer; 43 coastal minesweepers; 15 armed yachts; 270 trawlers and whalers; 50 drifters; 4 boom defense vessels; 17 oilers; 10 tugs; 46 miscellaneous auxiliaries; and an unreported number of landing craft, etc. The total amounted to well over 1,000 vessels.

In the above figures are incorporated the naval forces of the dominions, the strength of which was largely increased during the war. Thus the royal Canadian navy reached a total personnel of 90,000; the royal Australian navy, of 35,000; and the royal Indian navy, of 30,000. These figures would naturally be much reduced under postwar reorganization, that of the R.C.N., for example, having been tentatively fixed at 10,000.

**Japanese Naval Strength.**—At the close of hostilities Japan could dispose of only one seaworthy battleship, and that in somewhat damaged condition. Three others remained in port in a wrecked state. There were 4 disabled aircraft carriers, 4 cruisers (only one of which was undamaged), 38 destroyers (many of them damaged), 51 submarines, 5 coast defense and training ships and 93 small coastal craft. Ships totally lost comprised 8 battleships, 19 aircraft carriers, 35 cruisers and a coast defense ship, besides large numbers of destroyers, submarines and vessels of less importance.

**France.**—At the conclusion of the war the French navy was left with 3 battleships (one of them under refit); 1 escort carrier; 9 cruisers; 28 destroyers and large torpedo boats; 28 submarines; 5 sloops; 6 frigates; 9 corvettes; and 12 fleet minesweepers. Total losses during the war amounted to 6 battleships; 10 cruisers; at least 35 destroyers and large torpedo boats; 44 or more submarines; 3 sloops; 3 corvettes; 5 fleet

Navies of the World as of December 1945

Country	Battleships and battle cruisers	Fleet aircraft carriers	Escort aircraft carriers	Cruisers	Destroyers and large torpedo boats	Submarines
U.S.A.	20	37	79	79	367	200
British Empire	14	14	42	63	300	150
Japan*	4	4	—	4	38	51
Italy*	5	—	—	9	36	35
France	3	—	1	9	28	28
Germany*	—	—	—	6	25?	150
Russia	4	—	—	8	50?	100
Turkey	1	—	—	2	6	9
Spain	—	—	—	6	16	8
Sweden	—	—	—	2	27	26
Netherlands	—	—	—	2	5	12
Greece	—	—	—	1	13	5
Poland	—	—	—	1	6	6
Norway	—	—	—	—	7	3
Denmark	—	—	—	—	7	—
Finland	—	—	—	—	—	5
Portugal	—	—	—	—	5	3
Rumania	—	—	—	—	3	3
Yugoslavia	—	—	—	—	1	2?
Argentina	2	—	—	3	11	3
Brazil	2	—	—	1	12	4
Chile	1	—	—	2	8	9
Peru	—	—	—	2	2	4
Colombia	—	—	—	—	2	—
Siam*	—	—	—	—	1	3

\*Figures relating to the Japanese, German, Italian and Siamese navies must be taken as approximate. Ships formerly belonging to these countries would possibly be divided among the United Nations except in the case of submarines, which were likely to be scrapped. Precise information concerning the soviet and Yugoslav navies was not available, but the above details are believed to be accurate.

minesweepers; and more than 100 other vessels, including patrol craft, coastal craft, trawlers, oilers and miscellaneous auxiliaries. A cruiser, 7 submarines and 4 fleet minesweepers were under construction.

**Germany.**—Ships remaining, which it was understood were to be divided between the victorious Allies, comprised 6 cruisers, most of them more or less damaged, more than 20 destroyers and about 150 submarines, besides a great many minesweepers and other small craft.

**Italy.**—There were left in Italian hands at the end of the war 5 battleships; 9 cruisers; 36 destroyers and large torpedo boats; 35 submarines; 25 corvettes; and a considerable number of other vessels. Disposal of these ships would be covered by the treaty of peace between the United Nations and Italy.

**U.S.S.R.**—Information concerning the soviet navy was very scanty, owing to the strict secrecy maintained on the subject; but it is believed that at the end of 1945 the fleet included 4 battleships, 8 cruisers, more than 50 destroyers and fully 100 submarines, with considerable flotillas of coastal craft, patrol vessels, minesweepers, etc.

**Other European Countries.**—In the Netherlands fleet were included 2 cruisers, 5 destroyers, 12 submarines, 3 sloops, 1 frigate and 4 fleet minesweepers. It was hoped in addition to acquire a cruiser and an escort carrier from the British navy.

In the Norwegian navy there were 7 destroyers and large torpedo boats, 3 submarines, 4 corvettes, 3 minelayers, 2 old coast defense ships and a number of smaller craft. A new destroyer was nearing completion.

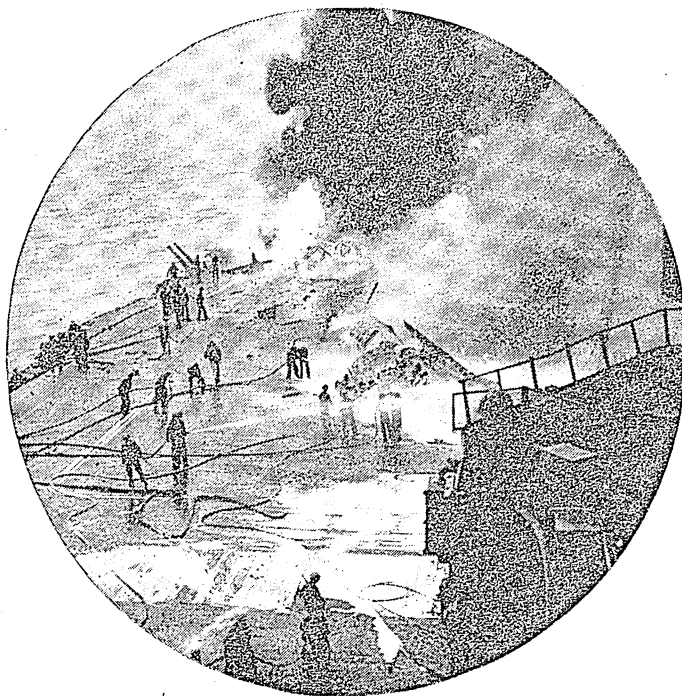
Denmark had remaining out of the fleet it possessed before being attacked by Germany 2 frigates, 2 corvettes, 7 torpedo boats and an assortment of smaller craft, many of them badly damaged. Two destroyers were under construction.

Sweden had 2 cruisers, 7 coast defense ships, 27 destroyers and large torpedo boats, 26 submarines, 2 minelayers and numerous minesweepers and patrol craft. Two cruisers and two destroyers were nearing completion.

Finland possessed 1 coast defense ship, 5 submarines and a number of small craft such as minesweepers and launches.

Poland had under Allied operational control 1 cruiser, 6 destroyers and 3 submarines, besides some smaller craft. Disposal of 3 submarines in Swedish waters was under discussion late in 1945.

Spain had 6 cruisers, 16 destroyers, 8 submarines, 6 minelayers and 3 sloops. Under construction or completing were 20 destroyers, 8 sloops and 7 fleet minesweepers.



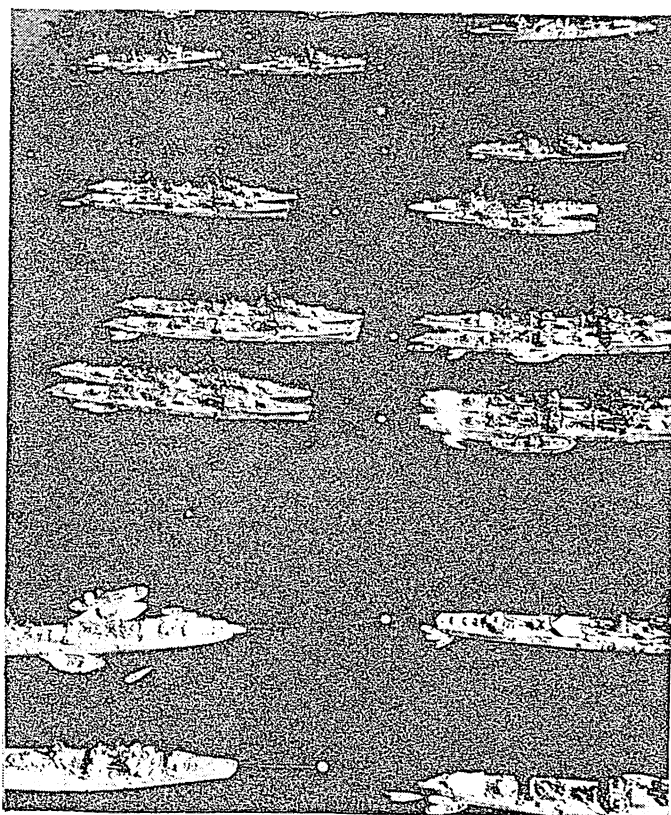
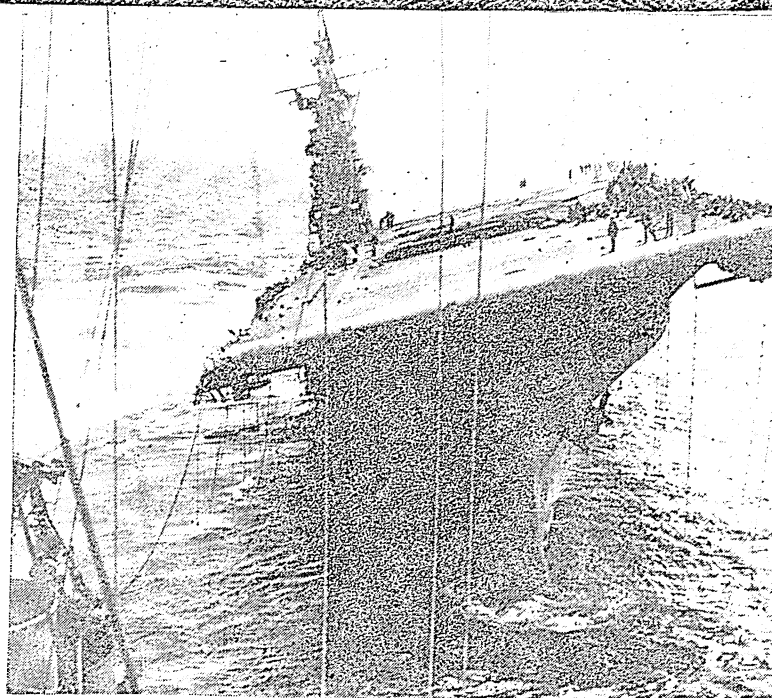
Above: FIREFIGHTERS aboard the oldest and largest navy aircraft carrier, U.S.S. "Saratoga," work to stem the damage of seven direct hits from Japanese bombers during operations off Iwo Jima on Feb. 21, 1945. She returned to duty after a record repair job at the Puget Sound navy yard, Wash.

Upper right: U.S. AIRCRAFT CARRIER "Franklin," listing badly, starts home under her own power. Two hits from a Japanese dive bomber on March 19, 1945, touched off explosives and fuel, turning the carrier into a furnace. Casualties exceeded 1,000

Right: NAVY LANDING CRAFT, supported by battleships, cruisers and destroyers, deliver supplies to the beaches of western Okinawa in April 1945

Below: PART of the surrendered Japanese fleet, photographed at anchor in Kure Bay, south of Hiroshima, in Sept. 1945

Lower right: TAKING OFF from a coast guard-manned LST, a Duck carries marines of the 5th amphibious corps to the southeastern shore of Iwo Jima during the invasion of Feb. 1945



Portugal possessed 5 destroyers, 3 submarines and 6 sloops, with sundry ancillary vessels. Turkey had 1 old battle cruiser, 6 destroyers, 9 submarines and 5 minelayers, besides 2 old cruisers used for training and some other ships of less importance. In the Hellenic navy were 1 old cruiser, 13 destroyers, 5 submarines, 4 corvettes and some smaller vessels.

Rumania had, so far as could be ascertained, 3 destroyers, 3 submarines, 1 minelayer and some minor war vessels. Bulgaria had only a few small craft. In the Yugoslav fleet there were believed still to be one destroyer, a submarine or two and a corvette.

**South and Central America.**—In the Argentine navy at the end of 1945 were 2 old battleships, 3 cruisers, 11 destroyers, 3 submarines, 4 coast defense ships and 14 minesweepers. Two small sloops were under construction.

Brazil had 2 old battleships, 1 old cruiser, 12 destroyers, 4 submarines, 6 corvettes and some smaller craft. Six destroyers were being completed at Rio.

Chile had 1 battleship, 2 cruisers, 8 destroyers, 9 submarines, 2 coast defense ships and a sloop.

Other South and Central American states possessed navies of relatively small importance. Peru had 2 cruisers, 2 destroyers and 4 submarines; Colombia, 2 destroyers; Mexico, 5 sloops; Cuba, 2 sloops; Uruguay, a sloop; Venezuela, Ecuador, Paraguay, Haiti, the Dominican Republic, Costa Rica and Nicaragua, a few small craft each.

**Asia.**—China appeared to have emerged from eight years of war with 2 small cruisers and a number of river gunboats at its disposal; but negotiations were reported to be on foot for the acquisition of other ships from the British and United States navies.

The Siamese navy included 4 coast defense ships, 1 destroyer, 3 submarines, 2 sloops and some smaller craft, the disposal of which had still to be settled. Two cruisers which were under construction in Italy were still unfinished. An old destroyer and some river craft owned by Manchuria would presumably be taken over by the Allies. Iran and Iraq each possessed a few small craft of insignificant fighting value. (See also MUNITIONS OF WAR.)

(F. E. McM.)

**Navy, U.S. Department of:** see GOVERNMENT DEPARTMENTS AND BUREAUS.

## Nazimova, Alla

(1879-1945), U.S. actress, was born June 4 in Yalta, the Crimea. She attended school in Switzerland and then studied violin at the Philharmonic Music academy in Odessa, U.S.S.R. At 17 she gave up the violin, studied acting at the Philharmonic Dramatic school (which later became the Moscow Art theatre) and toured the continent with a stock company. She went to New York in 1905, where she performed the leading role in the Russian language version of *The Chosen People* at a small theatre on the east side. Mme. Nazimova's fiery temperament and exuberant vitality were soon discovered by the dramatic critics, and within a few months she was signed up for Broadway productions. She easily fulfilled the contract provision that she learn English within six months, and was an immediate success in her debut as Hedda in Ibsen's *Hedda Gabler* in 1906. Thereafter, her rise was meteoric and she became an outstanding interpreter of roles in plays of Ibsen, Chekhov, Tolstoy, Dostoevski and Eugene O'Neill. Mme. Nazimova became a U.S. citizen in 1927. She duplicated her stage success in the silent motion pictures, but the tendency of the Hollywood producers to cast her in "vampire" roles led her to forsake the screen in 1928 and to return to the New York stage. She played various roles with Eva Le Gallienne's Civic Repertory theatre and later with the

Theatre Guild. She returned to motion pictures for several roles and appeared in a feature part in *The Good Earth*. She died in Hollywood, Calif., on July 13.

**Nazis:** see ANTI-SEMITISM; GERMANY.

**N.E.A.:** see NATIONAL EDUCATION ASSOCIATION.

## Nebraska.

One of the states formed from the territory of the Louisiana Purchase, Nebraska lies in the lower Missouri valley in the west north central part of the United States; admitted to the union in 1867; land area, 76,653 sq.mi.; water area, 584 sq.mi.; pop. (1940) 1,315,834; capital, Lincoln (81,984). In 1940, 39.1% of the population was urban. About 1% of the total population is Negro and about 8% foreign-born, principally German and Scandinavian. On July 1, 1944, the bureau of the census estimated the civilian population at 1,213,792.

**History.**—Dwight Griswold, Republican, was re-elected governor Nov. 7, 1944, for the term 1945-47. Other state officers in 1945 were: lieutenant governor, Roy W. Johnson; auditor, Ray C. Johnson; secretary of state, Frank Marsh; treasurer, Edward Gillette; state superintendent of public instruction, Wayne O. Reed; chief justice, Robert G. Simmons. Alone among the 48 states, Nebraska has a one-house legislature, the 43 members of which are chosen biennially on a nonpartisan ballot.

The legislature of 1945 enacted laws providing for more liberal unemployment benefits, introducing retirement systems for municipal and school employees, adjusting county salaries, and setting up machinery for the comprehensive regulation of aviation. The legislative council was authorized to initiate or continue extensive investigations of electric power, irrigation and water utilization, public school organization and finance, municipal financial practices, and the legal status of life insurance companies.

**Education.**—Elementary and secondary education is largely under the control of local school districts, of which there were about 7,000 in 1945, with some supervision by the state superintendent. More than 1,400 rural school districts were not operating schools, though legally in existence. The total enrolment in elementary and secondary schools in 1944 was 237,589, and the teaching staff numbered 12,252. Expenditures for 1943-44 amounted to \$23,845,259.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—The state appropriation for public assistance for 1945-47 was \$20,187,000. In July 1945 the number of persons receiving general relief was 1,964, and the amount spent for the year ending June 30, 1945, was \$613,210. At the same time, recipients of aid to dependent children numbered 5,089 and received during 1944-45 \$949,843; 442 blind persons received \$152,031. The state maintained six correctional institutions with a total of 983 inmates on July 1, 1945, and ten others for dependents, with a population of 6,608; 3,499 inmates were on parole at the same date. These 16 institutions were under the supervision of an appointed board of control to which was appropriated \$4,969,000 for 1945-47.

**Communications.**—The total highway mileage of the state in 1945 was 101,042. Of this, 9,167 mi. had been designated as part of the state system of highways and were maintained by the state. Of this latter figure, 4,015 mi. were hard surfaced, 4,904 gravelled, and 258 earth. State expenditures for highway purposes during 1943-45 amounted to \$13,925,387 while the budget for 1945-47 carried \$9,748,000 including estimated federal funds of about \$1,500,000. In 1945 there were 68 airports in the state, 32 of which were managed by municipalities, in addition to 5 civil airways intermediate fields and an undisclosed number of federally maintained auxiliary landing fields. Total railway mileage in the state in 1945 was 6,478. Fifteen radio stations operated within the state in Nov. 1945, seven of which were located in Omaha and Lincoln.

**Banking and Finance.**—State banks numbered 279 in 1945, an increase of one over 1944. Total assets were \$278,379,583. There were also 46 building and loan associations with assets of \$65,203,121, and 144



co-operative credit associations and credit unions with assets of \$8,611,067. National banks at the same date numbered 130 with resources of \$877,781,000.

The total assessed value of the state in 1945 was \$2,149,553,886. The tax rate for state purposes was set at 2.84 mills, calculated to produce \$6,104,732. Receipts for the biennium 1943-45 amounted to \$68,325,114, including \$17,358,085 of federal funds. Expenditures were \$61,041,635. Total appropriations for 1945-47 were \$57,926,458, including estimated federal funds of \$14,603,000. There was no state tax on personal or corporate incomes or on sales except of gasoline. The state had no bonded debt, though that of local subdivisions in 1944 amounted to \$57,198,416. This figure did not include the indebtedness of public power districts which in 1944 amounted to \$88,000,000.

Leading Agricultural Products of Nebraska, 1945 and 1944

Crop	1945	1944
Corn, bu. . . . .	261,019,000	329,855,000
Wheat, bu. . . . .	86,366,000	35,944,000
Oats, bu. . . . .	74,522,000	35,586,000
Barley, bu. . . . .	13,179,000	8,928,000
Potatoes, bu. . . . .	11,520,000	8,400,000
Sugar beets, tons . . . . .	708,000	490,000
Alfalfa hay, tons . . . . .	1,767,000	1,674,000

\*Estimated Nov. 1, 1945.

**Agriculture.**—The total acreage harvested for the crops listed in the table above in 1945 was 16,141,000. In addition, the estimated production of wild hay for 1945 was 2,774,000 tons. The total farm income for 1944 was \$644,833,000, divided as follows: crops \$145,393,000; livestock \$477,893,000; government payments \$21,547,000. Agricultural income for 1945 was estimated Nov. 1 at \$700,000,000, including government payments.

**Manufacturing.**—Manufacturing is of comparatively minor importance in the economy of Nebraska. Most manufacturing establishments are engaged in the processing of farm products. No comprehensive figures of production were available after the federal census of manufactures in 1939. At that date 1,161 establishments employed 22,452 persons and paid salaries and wages amounting to \$28,135,500. There was a considerable increase in manufacturing activity during World War II but no figures were available in 1945.

**Mineral Production.**—Aside from clay, sand and gravel which for the most part are locally consumed, the state has no mineral wealth of consequence. Petroleum was discovered late in 1939 and there were in 1945 72 active wells. Total production to Nov. 1 was about 5,000,000 bbl., an insignificant part of the national output. (L. W. L.)

**Necrology:** see OBITUARIES.

**Negroes (American).** The Negro and World War II.—The end of World War II found the Negro furnishing a close approximation to his population quota in the U.S. army, 8.67% (695,264), with more than two-thirds of these (475,950) in overseas service, and with officer strength of 7,768 in all branches; and within a year of the unrestricted use of Negroes in the navy, an enlisted personnel of 165,397 men, 60 WAVES and 50 commissioned officers. The 92nd division in the European theatre and the 93rd division in the Pacific, in spite of morale handicaps over the policy of army segregation, earned over-all creditable service and combat records, with numerous instances of unit and individual citations. In the last stages of the European campaign, especially in the 1st and 7th armies, combat integration of white and Negro troops was successfully tried, involving 2,600 Negro volunteers for dangerous engagements of the battle of the Bulge, the siege of Bastogne, where a Negro, Capt. Charles I. Thomas of Detroit, Mich., received the distinguished service cross medal and the 614th tank destroyer battalion a special unit citation, and in the rapid advances of these armies across the Rhine as far as Nuernberg. Thirty-two Negro units received the amphibious invasion award. The 99th pursuit squadron and the 332nd fighter squadron, with a record of 261 enemy planes, received unit citations, many individual awards, with seven distinguished flying crosses, while the 92nd division sustained 5,752 casualties and received a total of 12,096 awards. The consensus of official opinion about the Negro's war efficiency was favourable, and Negro army re-enlistments, at 18%, far exceeded both army and population quotas. Col. B. J. Davis, Jr., after successful command of the Negro air force units in Italy, was returned, with a merit award, to command the new 477th composite group at Godman field, Ky.

**Legal and Political.**—In civil rights decisions, a Florida

court outlawed the restricted white primary, Judge Hoyt Davis in Macon, Ga., ruled that Negroes were entitled to vote in the Democratic "white" primaries, and in Los Angeles Co., Calif., superior court, Judge Thurman Clark ruled that restrictive residence covenants were unconstitutional. The New York State Commission Against Discrimination started functioning July 1, with a Negro member, Elmer C. Carter, and moves for state Fair Employment Practices commission bodies spread, along with increased agitation for a federal F.E.P.C. As a result of congressional fund curtailments, however, ten district offices of the national F.E.P.C. were forced to close. The city of Chicago, Ill., became the first municipality to pass an antidiscrimination ordinance for city employment and city contracts. Irving Molli-son, a Chicago attorney, was appointed judge of the federal customs court of New York; Charles W. Anderson became the first Negro to be elected to the state legislature in Kentucky. Ralph Bunche, a former official of the Office of Strategic Services, was appointed a member of the Anglo-American Caribbean commission and became, also, assistant director of the division of dependent areas of the U.S. state department. Benjamin Davis was re-elected to the New York city council with the largest Manhattan vote; Rev. David W. Harris was elected Episcopal Bishop of Liberia, and Horace Mann Bond the first Negro president of Lincoln university, Pa.

On the industrial front, where F.E.P.C. legislation was enacted, there was immediate improvement in the upgraded inclusion of Negroes in large concerns, like the Metropolitan Insurance Co., N.Y., office, the Edison and Bell Telephone and other utilities, as well as in state and municipal civil service. Industrial leaders, however, expressed deep concern over the Negro's economic chances in reconversion cutbacks, especially in view of seniority rights. Union organization of Negroes increased rapidly, especially in C.I.O. organizations.

**Educational and Cultural.**—The *Crisis* survey reported 4,829 Negro college graduates for 1945, an increase of more than 200 in spite of war, with 423 of these degrees professional, 244 of master's rank and 16 doctoral. There was heavily increased registration in both Negro and mixed colleges, and a marked increase in the appointment of Negro teachers on mixed college faculties, both in permanent and visiting appointments, including Smith college, Northampton, Mass., Wayne university, Detroit, Mich., Vassar, Poughkeepsie, N.Y., Olivet, Olivet, Mich., University of Wisconsin, Madison, Wis., and others. The Trenton, N.J. city school system abolished separate high schools; although tension broke out over similar segregation in several cities, notably Gary, Ind.

American College of Surgeons opened its membership to Negro physicians, and Dr. Douglass Stubbs was elected to the International College of Surgeons. Booker T. Washington was elected to the National Hall of Fame, and Paul Robeson became the 30th Spingarn medalist. Joe Louis was awarded the army legion of merit for his work for the service relief funds and Negro camp morale tours. Pres. Branch Rickey, of the Brooklyn baseball team, signed Jackie Robinson to the Montreal branch squad, the first Negro in big-league organized baseball. Two successful Broadway productions, with mixed casts, were the drama version of Lillian Smith's *Strange Fruit*, and a problem play of Southern discrimination against returning war veterans, *Deep Are the Roots*, by James Gow and Arnaud D'Usseau. The St. Emma Industrial school (Va.), a Catholic institution, received a \$1,000,000 bequest. Gwendolyn Brooks, a young Negro poet, received critical acclaim for her first book of verse, *A Street in Bronzeville*. (See also LYNCHING.)

**BIBLIOGRAPHY.**—Walter White, *A Rising Wind*; St. Clair Drake and Horace Cayton, *Black Metropolis*; W. E. B. DuBois, *Color and Democracy*; B. A. Botkin, ed., *Lay My Burden Down* (slave narratives); Gwendolyn Brooks, *A Street in Bronzeville*, *Bucklin Moon*, *A Primer for*

*White Folks*; Arna Bontemps and Jack Conroy, *They Seek a City* (Negro migration); Eslanda Robeson, *African Journey*; and U.S. Office of Education, *Post-War Education of Negroes*. (A. LeR. L.)

**Nepal.** An independent kingdom (area c. 54,000 sq.mi., est. pop. 5,600,000) lying between India and Tibet—and including Mt. Everest—ruled in fact by the prime minister, Maharaja Sir Joodha Shum Shere Jung Bahadur Rana. Capital: Kathmandu (pop. c. 108,800).

Tens of thousands of Gurkhas who had fought magnificently through the Burma campaign returned to Nepal in the autumn of 1945. Their contribution to victory was acknowledged by Field Marshal Viscount Wavell, viceroy of India, in his reply to the victory greetings of the maharaja of Nepal. "The friendship of Nepal," he said, "and the courage of the Nepal warriors has contributed considerably to this glorious victory." The regular Gurkha regiments had been doubled, trebled and quadrupled during the war and Gurkhas had formed the great bulk of the Assam rifles, the Assam regiment and the Burma rifles.

Maharaja Sir Joodha Shum Shere Jung Bahadur Rana, prime minister and supreme commander-in-chief, retired on Nov. 29 after a 13-years' tenure of office. He was succeeded by his nephew, General Sir Padma Shum Shere Jung Bahadur Rana.

Various reforms introduced during the office of the retiring premier had included improvements in civil and military administration, the judicial system, education, communications and trade. The country's electricity supply was extended by the opening in 1933 of a second hydro-electric plant, and financial progress was marked by the establishment of the Bank of Nepal at Kathmandu in 1937 and later by the first circulation of Nepalese currency notes. (J. R.A.)

**Nervous System.** Investigations and studies of the nervous system in 1945 were continued along the line of previous research. There were no new discoveries. Penicillin continued to be the drug of extreme usefulness in infectious diseases of the central nervous system. In certain types of syphilitic disease of the brain and spinal cord penicillin was found to be helpful.

**Muscles and Nerves.**—L. J. Pollock and his associates described the results of experimental work obtained from the examination of muscles whose nerves were cut (deafferented). Their results showed that this new method of electrical examination of muscles indicated potential recovery of the involved muscle long before the patient was able to move the paralyzed muscle or muscles or even feel pin prick or touch sensation. This work was of tremendous value and carried important implications to the neurologist because it permitted accurate determination of the ultimate outcome in cases of muscle and nerve injuries.

**Graduate Medical Instruction.**—Practically all medical schools made intensive plans for graduate medical instruction for the medical officer who went into the armed services before he had received a full internship, residency or postgraduate studies. The schools also planned for short refresher courses for the older medical officers. Finally arrangements were made for those returning medical officers who desired sufficient graduate education so that they could become neurological specialists and be certified as such by the American Board of Neurology. In a study made by Northwestern University Medical school 90% of 400 responses indicated their intention of obtaining graduate training immediately after World War II. Many of these desired graduate education, while some wanted postgraduate or short refresher courses of six months or less. Northwestern University Medical school planned to accept students for graduate education while another school, already organized for that purpose, agreed to

give short refresher courses in postgraduate education in neurology.

**BIBLIOGRAPHY.**—L. J. Pollock, J. G. Golseth, A. J. Arieff, I. C. Sherman, M. A. Schiller and E. L. Tigay, "Reaction of Degeneration in Electrodiagnosis of Experimental Peripheral Nerve Lesions," *War Med.*, 7:275-283 (May 1945); Arthur R. Colwell, "Principles of Graduate Medical Instruction, with Specific Plan of Application in a Medical School," *J.A.M.A.*, 127:741-746 (March 31, 1945).

**FILMS.**—*Nervous System* (Encyclopædia Britannica Films Inc.). (T. T. S.)

**Netherlands.** A kingdom of northwest Europe, bounded N. and W. by the North sea, E. by Germany and S. by Belgium. Occupied by German armed forces in May 1940 and liberated in May 1945. National flag, red, white and blue, in equal horizontal stripes. Area 12,742 sq.mi.; pop. (est. Dec. 31, 1942) 9,076,250. Chief towns (pop. est. Dec. 31, 1942): Amsterdam (cap., 790,900); Rotterdam (616,910); The Hague (prewar seat of the government, 507,351). Language: Dutch; religion: Christian (1930 census, Dutch Reformed church 2,732,333; Roman Catholic 2,890,022). Ruler: Queen Wilhelmina; prime minister (1945): W. Schermerhorn.

**History.**—The famine which had threatened the western provinces of the Netherlands at the end of 1944 increased in intensity up to the moment of liberation in 1945. During the final few weeks, the population of the western provinces, about 4,000,000 people, were subsisting on between 300 and 400 calories per day, consisting mostly of sugar beets and tulip bulbs. On April 29 the delivery of food to the big towns by air began. Bread had already been sent by ship from Sweden. On April 18 the 50,000 ac. of the Wieringermeer polder were flooded, involving the loss of fertile farm land and about 500 farms. The German army in the Netherlands capitulated on May 5, and on May 23 the Dutch cabinet met once more in The Hague. This was a *démis-sionnaire* cabinet, as, in accordance with declared policy, it had tendered its resignation to Queen Wilhelmina immediately after the total liberation of the country. The Queen charged W. Schermerhorn, leader of the Netherlands Peoples movement, and W. Drees, leader of the Dutch Social Democrats, with the formation of a new cabinet, the composition of which was announced on June 23. Schermerhorn became prime minister, Drees took the portfolio of social affairs, and Dr. E. N. van Kleffens continued as minister for foreign affairs. With the exception of J. M. de Booy, minister for shipping, the other ministers were drawn from men who had remained in the country during the occupation. On July 20 a national advisory council was set up to tide over the period before a parliament could be elected.

Immediately after the liberation, arrangements were made for the establishment of a fighting force of 200,000 men, to take part in the liberation of the Netherlands Indies and the occupation of Germany. On the capitulation of Japan contact was established with the governor of the Netherlands Indies, Jhr. Tjarda van Starkenborgh Stachouwer, who had been imprisoned in Mukden. (G. J. R.)

**Education.**—In 1938: elementary schools 7,812, scholars 1,242,778; secondary schools 288, scholars 62,301; high schools (1937-38) 4, scholars 3,037; universities (1937-38) 6, scholars 9,471.

**Finance.**—Revenue, ordinary (est. 1940), \$394,000,000; expenditure, ordinary (est. 1940), \$393,800,000; public debt (March 1944), \$5,680,000,000; notes in circulation (Aug. 28, 1944), \$2,377,000,000; gold reserve (Sept. 1944) \$496,000,000; exchange rate (average 1944), 1 florin=53.19 U.S. cents.

**Trade and Communication.**—Trade (merchandise): imports (1938) \$751,000,000, (1939) \$804,000,000; exports (1938) \$551,000,000, (1939) \$512,000,000. Communications and transport (1938): roads suitable for motor traffic, 8,534 mi.; railways open to traffic, 2,278 mi.; rivers and canals, navigable,



DUTCH CHILDREN, housed at Hoensbroek castle, Holland, in charge of nuns, promenading the grounds in national costume with some of the U.S. soldiers who assisted in their care during 1945

4,817 mi.; airways, distance flown, 6,629,000 mi.; shipping (June 30), 2,855,400 gross tons; launched (July 1938-June 1939), 246,400 gross tons; entered with cargoes, 27,606,524 net tons; cleared with cargoes, 23,151,428 net tons. Motor vehicles licensed (Aug. 1, 1938): cars 94,000; buses 4,088; trucks 50,988; cycles 55,140; wireless (June 30, 1939): registered receiving sets 839,542; connections with radio-distributing systems 368,710.

**Agriculture, Manufactures, Mineral Production.**—In short tons (1939 actual figures): wheat 458,175; rye 663,885; barley 160,645; oats 494,165; pulse 204,480; sugar beets 1,887,657; flax 167,736; cotton goods (1938) \$72,800,000; machinery (1938) \$53,150,000; coal 14,147,000; salt 219,780; pig iron and ferroalloys (1938) 304,260; zinc 22,550. (See also CURAÇAO; NETHERLANDS COLONIAL EMPIRE; NETHERLANDS INDIES; SURINAM.)

**Netherlands Colonial Empire.** Total area excluding mother country (approx.) 789,700 sq.mi.; total pop. excluding Netherlands (est. Dec. 31, 1940) 70,760,000. The accompanying table lists the overseas territories of the Netherlands, together with statistics appropriate to each of them.

**History.**—With the military defeat of the Japanese empire drawing near, the Japanese regime in the Netherlands Indies accelerated its political rearguard action. In March 1945 the Japanese commander in chief in Java established a "committee for preparing independence," and a campaign was launched by Japanese propagandists to raise popular support. On Aug. 11, after the Japanese offer of surrender to the United Nations, a meeting took place at Singapore between the Japanese commander in chief, southern area, Field Marshal Terauchi, and representatives of the "Independence Committee." The latter included R. I. Soekarno and Dr. Mohamad Hatta who, on their return to Java on Aug. 19, proclaimed the "Republic of Indonesia," and took office as president and vice-president respectively.

Meanwhile responsibility for military operations in this area had been transferred from the U.S. Southwest Pacific area command to the British commander in chief in Southeast Asia, Lord Louis Mountbatten. The Netherlands Indies, therefore, were to

be liberated mainly by British forces; the Dutch share in this task was of necessity limited, since the liberated mother country had few trained troops available, while Dutch shipping remained tied up in the United Nations shipping pool. An agreement was concluded between the British and Netherlands governments whereby it was agreed that during the first phase of operations in the Netherlands Indies the supreme Allied commander in Southeast Asia would exercise full authority and bear responsibility for the civil administration. A body of trained Dutch civil servants (Netherlands Indies Civil Affairs, or N.I.C.A.) were to be put at his disposal for the execution of this task.

The sudden collapse of Japan in August found the British commander in chief insufficiently equipped for immediate action in the Netherlands Indies as a result of widely scattered commitments of a similar nature in Burma, Malaya and French Indo-China. For the time being, therefore, the Japanese military authorities were charged with the duty of maintaining law and order and providing facilities for the relief of prisoners of war and European civil internees. These, numbering more than 100,000, had been herded together in prisons and concentration camps for years under appalling conditions. A special organization (Relief, Allied P.O.W. and Internees, or "RAPWI") was commissioned for this task.

This enforced interregnum resulted in considerable confusion, during which the "Republican" regime succeeded in seizing control of large parts of Java, including public services and buildings in the cities. The movement was supported mainly by thousands of young men, who had been inculcated with Japanese propaganda and had received arms from them; it spread by terrorism and by the prestige of initial success, but deteriorated rapidly into anarchy, violence and looting, and seriously hampered the activities of "RAPWI."

On his return to Batavia on Oct. 4, the lieutenant-governor-general of the Netherlands Indies, Dr. H. J. van Mook, initiated discussions with a group of representatives of the Indonesian nationalist movements on the subject of political reforms to be carried out on the basis of Queen Wilhelmina's broadcast of Dec. 6, 1942. Simultaneously, a debate took place in the Dutch parliament at The Hague, which resulted in support at home for the government's proposals for reform. The "Republican" leaders, whose position between the group of constructive Indo-



## NETHERLANDS INDIES

## Overseas Territories of the Netherlands and Essential Statistics

Country and Area, sq.mi. (approx.)	Population est. Dec. 31, 1940 (000's omitted)	Capital	Status	Governors, Premiers, etc.	
ASIA					
Netherlands Indies, including Java and Madura, Sumatra, Celebes, Borneo (D.), New Guinea (D.), Timor (D.), etc. . . . .	735,300	70,476	Batavia	Autonomous parts of the state of the Netherlands	Lieutenant-Governor-General Dr. H. J. van Mook
AMERICA					
Curaçao . . . . .	403	106	Willemstad		Governor: Dr. P. A. Kasteel
Surinam (Dutch Guiana), etc. . . . .	54,000	178	Paramaribo		Governor: Dr. J. C. Brons

nesian nationalists and armed extremists had become embarrassing, looked for a way out in the direction of political intervention by the Pacific powers.

By Oct. 31 the situation in Java was officially described as "almost war" and from then until the end of the year it continued to deteriorate. Attempts at negotiation failed because the Dutch said they could not hold political discussions until order was restored, while the Indonesians felt that if once they handed over their arms they would have lost their cause.

From the British point of view the objective was to restore order as quickly as possible and leave the field clear for negotiations between Dutch and Indonesians. Accordingly, at a conference of Allied commanders held at Singapore on Dec. 5, the commander in chief was fully empowered to restore law and order as far as his military resources allowed. The British attitude was made clear at a conference between Dutch and British ministers (including Dr. van Mook) held at Chequers on Dec. 27. The British prime minister announced on Dec. 28 that his government reaffirmed their obligation to the Dutch to establish without delay conditions of security in which it would be possible to continue negotiations. This was an essential contribution toward the completion of the task entrusted to Great Britain by the Allied supreme command. On Dec. 28 the Indonesian "government" stated that it was prepared to co-operate to seek the accomplishment of the task entrusted by the United Nations to the British forces. (See also CURAÇAO; NETHERLANDS INDIES; SURINAM; WORLD WAR II.) (W. G. P.)

**Netherlands Indies.** The Netherlands Indies is a huge archipelago, with several very large islands, Java, Sumatra, Celebes, Borneo, New Guinea (part of Borneo is British and the eastern half of New Guinea is under Australian administration) and many smaller ones. The archipelago lies between 6° N. and 10° S. lat., and the climate is tropical. Area, 735,000 sq.mi.; pop. (census of 1930) 60,727,233; (est. 1940) 70,476,000, of whom 48,416,000 lived in densely settled Java and the adjacent small island of Madura, while 22,060,000 lived in the so-called Outer Islands, which are more sparsely settled and less developed economically. Capital, Batavia, pop. 1930 (435,184). Other large cities, Surabaya (341,675); Bandung (166,815). The great majority of the natives are Moslems, although an admixture of pagan and Hindu practices is found in some regions. There are about 2,500,000 Christians, and a number of Animists. Governor-General (appointed 1945), Dr. Hubertus van Mook.

**History.**—Japan overran the Netherlands Indies in the spring of 1942 and remained in military occupation of the archipelago (except for outlying points in New Guinea and Borneo which were recovered by the United Nations forces) until the Japanese empire accepted the terms of unconditional surrender in Aug. 1945.

The "cease fire" order to Japanese forces in Java was issued on Aug. 19. "It is understood," the official announcement stated, "that in view of this development the military administration in Java has decided that it will henceforth dissociate itself entirely from the movement for the independence of Indonesia. Imperial Japanese forces stationed in Java will undertake, for as long a time as is deemed necessary, to maintain peace and order."

There was a long interval between the Japanese surrender and the arrival of British forces of occupation, which landed in

the port of Batavia on Sept. 29. Because of the lack of shipping and the absence of available forces, Dutch troops played a minor part in this occupying force, which was largely composed of British Indian troops under the command of Lieut. Gen. Sir Philip Christison.

Meanwhile a self-styled Indonesian republic, headed by Achmed Soekarno, had been set up and laid claim to administrative authority. Soekarno was an Indonesian nationalist who had opposed Dutch rule in the past and had co-operated with the nominally self-governing native administration set up by the Japanese. The Dutch authorities refused to negotiate with him. Later another nationalist with a vaguely socialist program, Sutan Sjahrir, took over the leadership in the nationalist movement.

At first General Christison indicated unwillingness to interfere in the local administrative situation. He proposed to restrict the occupation to a few of the larger towns in Java and Sumatra and to concentrate on the rescue of some 200,000 Dutch and Eurasians who had been placed in internment camps by the Japanese. However, clashes between the forces of occupation and Indonesian armed units broke out and there was heavy fighting in Surabaya in the last days of October. This was finally stopped by mutual agreement between the British authorities and Soekarno.

The situation remained troubled and confused until the end of 1945, with sporadic outbursts of violence and a failure to reach an agreement between the Dutch authorities and the Indonesian nationalists. Governor-General van Mook declined a suggestion that the conflict be referred to the United Nations and expressed preference for direct Dutch-Indonesian discussions. General Christison issued a statement toward the end of December stating that British troops were in the Indies only for the purpose of disarming and repatriating Japanese troops and rescuing European and Eurasian war prisoners and internees. The statement referred to "most horrible outrages," committed by terrorists and extremist organizations and concluded:

I am compelled to take more active measures to insure law and order, to enable peaceful inhabitants once more to go about their business without fear and intimidation in the areas for which I am responsible.

The U.S. state department in December put out a statement suggesting negotiations between the Dutch and Indonesian leaders "in harmony with the principles and ideals of the U.N.O. charter."

**Government.**—A representative assembly with limited powers, the Volksraad, existed in the Netherlands Indies before the Japanese occupation. It was composed of 60 members, 30 natives, 25 Europeans and 5 foreign orientals, usually Chinese. More than half were selected by a system of indirect ballot; others were appointed by the governor-general. A system of indirect rule through native sultans was practised in some parts of the archipelago. The Japanese tried to stir up Indonesian feeling against everything Dutch and sometimes changed Dutch place names to Indonesian. They also encouraged the formation of local administrative councils, although Japanese military authority was supreme until the surrender.

**Education.**—In Aug. 1943 there were 12,000 elementary schools in the Netherlands Indies, with 1,900,000 pupils, besides 32 secondary schools, 5 high schools, 20 vocational schools,



"WELCOME HOME." Return of Dutch colonial rule in Java was marked in 1945 by a flare-up of Indonesian nationalists who demanded independence. Cartoon was by Jensen of the *Chicago Daily News*

1 agricultural college, 7 fine arts schools for girls, 1 normal college, 1 medical college and 1 technical college, according to the Japanese Domei news agency. According to Dutch sources, there were more than 20,000 native schools, with more than 2,500,000 pupils, under the Netherlands administration, besides 628 western style schools, with 150,000 students; 7.2% of the population was literate in 1930.

**Finance.**—The Japanese yen was introduced into the Netherlands Indies as the unit of currency after the conquest of the archipelago. It was given parity with the former unit, the Dutch guilder; formerly the ratio was one yen for .44 guilders. Various Japanese banks established branches in the Netherlands Indies and a Southern Regions Development bank was set up to finance the production of raw materials. Dutch currency would presumably be restored in the Indies as soon as political and economic conditions became more stable. The last Dutch budget, in 1942, anticipated revenue of 750,918,773 guilders and expenditures of 813,802,815 guilders.

**Trade and Communication.**—Imports in 1940 were 444,300,000 guilders (value of the guilder 53 U.S. cents); exports were 873,500,000 guilders. Principal exports in 1940 were rubber (328,254,000 guilders); oil and petroleum products (169,577,000 guilders); tin and tin ore (72,218,000 guilders); sugar (52,041,000 guilders); tea (50,925,000 guilders). It was announced on Nov. 2, 1945, that the first shipment of tin after the Japanese capitulation had been sold in Singapore.

In 1940, there were 43,450 mi. of highways and 4,620 mi. of railways, 3,387 in Java and 1,233 in Sumatra. There were 94,000 motor vehicles of all types in 1941; 10,870 steamers, with a total tonnage of 12,456,664, cleared from the ports of the archipelago in 1939. The Royal Netherlands Airways was formerly one of the three principal lines of air communication between Europe and the orient.

**Agriculture.**—Figures of production, for some of the principal crops in 1940 were as follows: sugar 1,587,364 tons; rubber

546,021 tons; palm oil 241,702 tons; tea 81,986 tons; coffee 77,647 tons; tobacco 27,414 tons; quinine 16,371 tons; cocoa 1,553 tons. It was believed in 1945 that there was a considerable stock of sugar in the archipelago, as production for the years 1942, 1943 and 1944 was estimated respectively at 1,500,000 tons, 1,000,000 tons and 1,000,000 tons. Local consumption did not exceed 325,000 tons annually and the Japanese were able to export very little sugar. The sugar mills, however, were neglected. Only one out of 80 remained in continuous operation. Some of the others were converted to the manufacture of alcohol, ammunition and vitamins for the Japanese. Tea was also neglected by the Japanese. Resumption of production of rubber and tea on the prewar scale was hampered because of the unsettled political conditions in the archipelago.

**Manufactures and Minerals.**—Output of principal mineral products in 1939 was as follows: oil 62,087,000 bbl.; tin 31,000 tons; coal 1,963,200 short tons; gold 81,183 oz.; silver 618,023 oz. (See also JAPAN; NETHERLANDS COLONIAL EMPIRE.)

(W. H. CH.)

**Neutrality:** see INTERNATIONAL LAW.

**Neutrons:** see ATOMIC BOMB; CHEMISTRY.

**Nevada.** One of the mountain group in western United States, Nevada, popularly called the "Battle born" state, entered the union as the 36th state, on Oct. 31, 1864. Area 110,540 sq.mi. with 738 sq.mi. of water; it ranks 6th in size. Pop. (1940 census) 110,247, of which 66,956 were rural and 43,291 were urban. Native white inhabitants numbered 93,431, and foreign-born white 10,599. There were 664 Negroes and 5,553 were of other races. Capital, Carson City (2,478). Reno (21,317), Las Vegas (8,422), Sparks (5,318), Ely (4,140) and Elko (4,094) are the chief cities. On July 1, 1944, the bureau of the census estimated the civilian population of the state at 156,445.

**History.**—The 1945 session of the Nevada legislature passed many important laws; outstanding was the legislation imposing a gross business tax of 1% on gambling. This levy created widespread interest throughout Nevada and resulted in collections, during the period July 1, 1945, to Dec. 31, 1945, of \$98,066.55. Many bills were approved increasing the salaries of elective, appointive and general employees of the state; the salary raises averaged 15%. Legislation completely reorganizing the governing board of the state hospital for mental diseases was passed and resulted in improved conditions at the hospital.

Many outstanding changes occurred in the political setup. First in order of importance was the death of U.S. Senator James G. Scrugham, on June 23, 1945; this was followed by the resignation of Governor E. P. Carville on July 24, Lieutenant Governor Vail Pittman being elevated to the position of governor. Pittman later appointed E. P. Carville as junior U.S. senator. Other appointments were: Gilbert C. Ross to succeed Albert L. McGinty, who resigned as director of the state employment security department; Charles Lee Horsey as supreme court justice to succeed William E. Orr, who was named to the U.S. circuit court of appeals; Roger Foley to succeed federal judge Frank H. Norcross, who retired.

On Jan. 1, 1946, state officers were: governor, Vail Pittman; lieutenant governor, vacant; secretary of state, Malcolm McEachin; state controller, Henry C. Schmidt; superintendent of public instruction, Miss Mildred Bray; chief justice of the supreme court, E. J. L. Taber.

**Education.**—On Jan. 1, 1946, Nevada had 190 elementary schools with a total enrolment of 17,604; teachers numbered 602. High schools totalled 36, with an enrolment of 5,510 pupils, staffed by 237 teachers. The total school enrolment was 23,114.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—The amount spent for social security and old age assistance was \$951,244.84 for the fiscal year ending June 30, 1945. Aid to the blind expense

was \$6,260, and \$1,945,004.33 was spent for unemployment compensation benefits. On Jan. 1, 1946, the state prison had 220 inmates including 4 women; total expenditures for the fiscal year ending June 30, 1945, were \$120,936.64. The state industrial home had 24 boys and 6 girls on Jan. 1, 1946, and 18 boys on parole; support of the school for the fiscal year was \$23,709.44. The state hospital for mental diseases had 393 inmates; expenditures were \$138,495.23. The orphans home had 50 children; expenditures for the fiscal year were \$46,916.77.

**Communications.**—During 1945 no regular construction projects were let on the main state highway system. Two contracts involving an expense of \$391,000, let in 1944, were completed in 1945. Two contracts for special maintenance were let at a cost of \$75,331. Five access roads to sources of raw materials with a length of 90.7 mi. were completed at a cost of \$108,000. Minor routes added to the state highway system by the 1945 legislature made the total state designated highway system mileage 5,641 of which 3,113 were hard surfaced and 2,528 were semi-improved or fair country roads.

Railroad mileage in Nevada, including main line, tracks and sidings, totalled 2,331.45 on Jan. 1, 1946; of this, main line mileage was 1,819.08. On Jan. 1, 1946, there were 12 standard airports and 25 secondary airports in Nevada; no airport construction was undertaken during 1945.

**Banking and Finance.**—On Jan. 1, 1946, there were 24 banks in Nevada, total assets exceeding \$165,000,000. Three state banks with four branches had total deposits of \$16,446,559.46 and resources of \$17,323,439.88. The First National Bank of Nevada had 11 branches and on Dec. 31, 1945, had deposits of \$115,507,482 and resources of \$121,064,051. In addition the following national banks operated in the state: the Security National at Reno; the First National of Ely; the First National of Lovelock; and the Ely National bank with a branch at McGill. State receipts for the fiscal year ending June 30, 1945, were \$11,263,192.27; expenditures were \$6,844,145.45; cash balance was \$3,834,255.52. There was no state gross or net debt on Jan. 1, 1946. Total securities held by the state treasury on June 30, 1945, were \$19,071,064.00. Nevada's Postwar Reserve fund totalled \$1,700,000, all in U.S. bonds.

**Agriculture.**—Farm and ranch acreage increased materially in Nevada during 1940-45 according to preliminary figures from the 1945 census of agriculture. The number of farms, however, decreased from 3,573 in 1940 to 3,480 in 1945. Acreage totals were 3,785,106 in 1940 and 4,485,263 in 1945, this increase being in line with the national average shown by the 1945 census.

An increase in the number of cattle and lambs on feed was noted in Nevada during 1945 according to the western regional office of the U.S. bureau of agriculture. Heavy precipitation during the summer of 1945 stimulated excellent forage growth on the ranges and the reserve supply of hay and home-grown feed was adequate to meet all winter needs. Cattle in Nevada, in very good condition, were slightly better than the 20-year average. Sheep were on a par with the 20-year condition average.

Table I.—Leading Agricultural Products of Nevada, 1945 and 1944

Crop	1945 (est.)	1944
Barley, bu. . . . .	640,000	781,000
Potatoes, bu. . . . .	780,000	587,000
Hay, tons . . . . .	599,000	611,000
Oats, bu. . . . .	273,000	284,000
Wheat, bu. . . . .	388,000	440,000
Corn, bu. . . . .	64,000	64,000

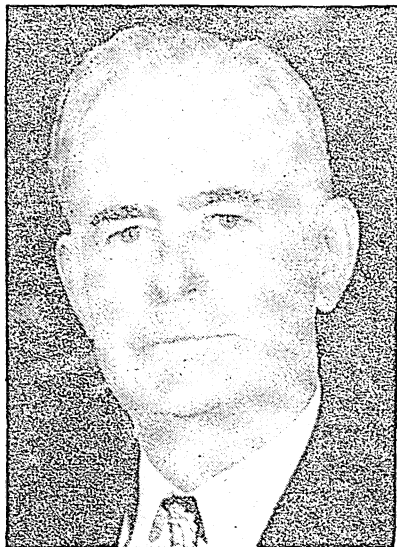
**Mineral Production.**—In 1945 minerals marked time with the transition from war to peace. The production of gold, silver, lead, copper and zinc was 11% less than in 1944, labour shortages accounting for the decreases

Table II.—Principal Mineral Products of Nevada, 1945 and 1944

Mineral	Value, 1945	Value, 1944
Gold. . . . .	\$ 3,552,500	\$ 4,166,960
Silver . . . . .	704,569	895,741
Lead. . . . .	1,126,600	1,056,800
Copper. . . . .	14,273,200	16,532,640
Zinc . . . . .	4,669,000	4,719,372

in copper and zinc; lead alone showing an increase. The production of lead, according to the preliminary annual figures was the highest from 1941. Total figures for mineral production in 1945 were given by the bureau as \$24,325,869; the total for 1944 was \$27,371,513.

(E. C. D. M.)



VAIL PITTMAN, Democrat, succeeded to the governorship of Nevada on July 31, 1945, when E. P. Carville resigned to accept an appointment to the U.S. senate

## New Brunswick.

New Brunswick is one of the three maritime provinces of Canada. It entered the union in 1867. The area is 27,985 sq.mi.; the population, 457,401 (1941 census), of which 68.64% is rural. The largest cities are St. John (51,741) and Moncton (22,763). The capital is Fredericton (10,062). Local administration is in the hands of a provincial parliament composed of a lieutenant governor, an executive council and a legislative assembly of 48 members. New Brunswick is represented at Ottawa by ten members of the house of commons, and ten senators.

**History.**—Throughout 1945, the liberal administration of J. B. McNair continued in office. At the dominion general elections of June 11, the following members were returned to the Ottawa parliament, Liberals, 7; Progressive Conservatives, 3.

**Education.**—For the school session 1941-42 enrolment in all educational institutions was 102,119; the revenues of provincially-controlled schools in 1943 were \$3,411,215. The University of New Brunswick, with its seat at Fredericton, is the provincial university. In addition, there are Mount Allison university at Sackville, St. Joseph's university at St. Joseph, and l'Université du Collège du Sacré Coeur at Bathurst.

**Agriculture and Industry.**—In 1944 the estimated gross value of agricultural production was \$61,508,000; farm income, \$32,200,000. In 1945 the value of field crops was \$34,138,000 (1944, \$37,978,000). In 1944 the value of the fisheries was \$5,389,000. For the first six months of 1945, the electrical output of the central New Brunswick electrical stations was 288,253,000 kw.hr.

FILMS.—*Maritime Provinces* (Encyclopædia Britannica Films Inc.). (J. I. C.)

**New Caledonia:** see FRENCH COLONIAL EMPIRE.

**Newfoundland and Labrador.** A British colony of North America, with suspended constitution. Area: Newfoundland 43,560 sq.mi.; Labrador 110,000 sq.mi.; total 153,560 sq.mi.; pop. (est. 1943): Newfoundland, 314,852; Labrador 5,170. Chief town and capital: St. John's (pop. est. 1943: 55,000). Governor (1945): Sir Humphrey Walwyn; language: English; religion (1935 census): Roman Catholic, 93,925; Church of England, 92,709; United Church, 76,134; Salvation Army, 18,054.

**History.**—On Jan. 30, 1945, Viscount Cranborne announced on behalf of Great Britain that the revision of the constitution which his government had hoped would take place in 1945 would have to be postponed. He pointed out that the decision of the people of Newfoundland on their constitutional future would depend largely on their economic future; any attempt at assessing the latter would be purely speculative, and it would be unfair to expect them to come to a decision on the constitutional issue in 1945. Meanwhile practical reconstruction was to proceed.

For the fourth consecutive year the budget showed a substantial surplus, and the commissioner of finance announced an increase of pensions payable to veterans of World War II, a reduction of customs duties on machinery and heavy building materials and the removal of war revenue tax from certain imported goods. In London the parliamentary under secretary to the dominions told the house of commons on Feb. 13 that Newfoundland had lent Britain about £3,000,000 free of interest during the war.

In March the commissioner of home affairs gave details of a scheme for the re-establishment of Newfoundland servicemen, which was estimated to cost £1,500,000. This proposal included a monthly maintenance of from £12 to £30 according to size of family, vocational training, assistance of individual enterprise



up to £125 and land settlement assistance up to £1,125; free medical treatment would be given to nonpensioned men and no means test would be applied. On Dec. 11 the British prime minister announced in the house of commons that in 1946 an elected national convention would examine the position of the country and make recommendations on the future form of government, which would be the subject of a national referendum.

(J. RA.)

**Education.**—In 1941: schools 1,182; scholars on rolls 67,184; average attendance 46,103.

**Banking and Finance.**—Revenue (1944-45) (in U.S. dollars) \$30,282,100; expenditure \$23,955,200; public debt (March 31, 1945) \$82,400,800; exchange rate as Canadian dollar = (1944 official parity) 90.91 U.S. cents.

**Trade and Communication.**—Overseas trade 1943-44: imports \$56,807,806, exports \$38,543,066. Communications (1943): total road mileage, 6,000; railways, government 705 mi., private 60 mi.; motor vehicles licensed (1940) 10,588.

**Mineral Production and Fisheries.**—Fish and fishery products (1943) \$4,747,603; codfish \$1,524,590; herring \$914,720; salmon (fresh and frozen) \$278,161; lobster \$238,939; fish oils \$1,481,475. Wood pulp (1943-44) \$177,080; iron \$1,245,066; lead concentrates \$2,238,648.

**New Guinea.** One of the largest islands in the world, with an estimated area of 312,329 sq.mi., stretching from the equator in the N.W. to 12° 5' S. in the S.E. and from 130° 50' E. to 151° 30' E., separated from Australia by the shallow Torres strait and Arafura sea. On its eastern side lies the Bismarck archipelago.

New Guinea is divided between three administrations: (1) Dutch New Guinea, area 151,789 sq.mi.; pop. (est.) 195,460, of whom 237 were Europeans (1940) (*see* NETHERLANDS INDIES). (2) British New Guinea (Territory of Papua), area 90,540 sq.mi.; pop. 338,822 (1940) is under the governor-general of Australia, with a lieutenant governor of its own and a centre of administration at Port Moresby. It comprises roughly the south-eastern corner of the island and is an exporter of rubber and

**SURVIVORS** T-Sgt. K. W. Decker, Cpl. Margaret Hastings and Lt. J. S. McCollom, beside the plane which rescued them 47 days after their plane crash in Hidden Valley, New Guinea, on May 13, 1945



copra, while copper is mined in the vicinity of Port Moresby. (3) Northeastern New Guinea and the adjacent islands of the Bismarck archipelago, including Bougainville and Buka in the northern Solomons, were German colonial possessions before World War I. After Dec. 17, 1920, this area was administered by Australia under a mandate from the League of Nations. Area 93,000 sq.mi.; pop. (1940) 668,871 natives, besides an unknown number in the unexplored interior; 6,498 non-natives, including 3,345 British, 2,061 Chinese, 430 Germans, 159 Dutch, 145 Americans, 38 Japanese. Administrator of the mandated territory in 1943 was Brig. Gen. Sir Walter Ramsay McNicoll (appointed Sept. 13, 1934). The headquarters of the administration are normally at Rabaul.

**History.**—In the course of their invasion of the South Pacific the Japanese occupied all the foreign settlements in the mandated territory and established their main advanced base in the South Pacific at Rabaul, where the Germans had formerly developed a good harbour, on New Britain Island. At the high tide of the Japanese advance in this area, in the autumn of 1942, their troops crossed the high Owen Stanley range, which cuts across New Guinea in a northwestern-southeastern direction, and threatened Port Moresby, the last important United Nations base north of Australia. However, U.S. and Australian troops under the command of Gen. Douglas MacArthur checked this advance and, making skilful use of airborne troops, took the offensive in turn, driving the Japanese in 1943 from such bases as Lae, Salamaua and Finschhafen and, toward the end of the year, effecting a double landing on New Britain with the apparent purpose of pressing on toward Rabaul, which was threatened from another direction by landings of U.S. forces under the command of Adm. William F. Halsey on Bougainville, in the northern Solomons. The islands were by-passed by Gen. MacArthur's advance toward the Philippines in 1944. By May 26, 1945, Australian land forces were in control of the entire coastline of British New Guinea and Papua, having sealed the remaining Japanese into the interior. Formal Japanese surrender took place on a British aircraft carrier off Rabaul on Sept. 6. The Japanese naval forces in New Guinea surrendered on Sept. 11.

**Agriculture, Mineral Production, Trade.**—As might be inferred from the small number of foreign residents, economic development had been slight. The total area under cultivation in 1940 was 276,000 ac., although it is estimated that the mandated territory contains about 34,200,000 ac. of land suitable for cultivation. Much the greatest part of the cultivated area was under coconut plantations and copra was the main product and export. The territory produced 73,716 tons of copra, of a value of £A.847,734 in 1938. Secondary crops, the output of which is of minor importance, are cocoa, coffee, rubber, kapok and tobacco. Gold, silver and platinum are mined, the first being the most important mineral product. The foreign trade of the mandated territory was £A.1,610,967 in imports, £A.2,980,360 in exports in 1938.

**Social and Economic Changes.**—Although New Guinea may still be considered one of the most remote parts of the world, the total isolation from foreign contacts in which most of the natives lived in the past began to break down under such varied pressures as the activity of the missions, the increasing area patrolled by government officials and the growing demand for native labour on the plantations. There were ten missions (three Roman Catholic, three Lutheran, two Methodist, one Anglican, one Seventh Day Adventist), with a combined staff of more than 600, in New Guinea in 1938. There were 41,849 natives in indentured service in 1938, 20,855 on plantations, 7,189 on mines, 7,511 in shipping, commerce and industry, 4,477 in domestic service, 1,747 in administration service and 70 in miscel-

## 522

was \$6,  
004.33  
employ  
benefits.  
the stat  
inmates  
en; tot  
the fise  
30, 194  
64. Th  
home h  
girls on  
18 boys  
of the s  
year wa  
state h  
diseases  
expendi  
495.23.  
had 50  
tures f  
were \$4.  
Commr

1945 n  
tion pr  
the mi  
system.  
volving  
\$391,00  
comple  
contract  
tenance  
of \$75  
roads to  
terials  
Minor  
made t  
3,113  
roads.

Rail  
totalle  
On Jai  
airport  
Bank

total  
branch  
439.88  
Dec. 31

051. In  
Securit  
of Lov  
receipt  
expend  
was no  
the st  
Postwa

Agri  
during  
of agr  
1940  
4,485;  
shown

An  
Nevad  
bureau  
stimul  
ply of  
needs.  
than t

Min  
from  
was

Gold.  
Silver  
Lead.  
Copper  
Inc.

laneous occupations. There were also 883 native members of the police force. World War II brought further changes and upheavals to this remote region; and the primitive Melanesian natives were used as bearers and for labour service by both sides. (See also WORLD WAR II.) (W. H. CH.)

## New Hampshire.

One of the New England group of states and one of the 13 original states, popularly known as the "Granite state"; area, 9,304 sq.mi., including 280 sq.mi. of water. Population (1940) was 491,524, of which 57.6% was urban and 42.4% rural. Estimated population, July 1, 1944, excluding armed forces overseas, was 457,231, representing a decrease of 7%. In 1940 there were 490,989 whites, including 422,693 native and 68,296 foreign born. Capital, Concord, with estimated population (1943), of 27,495. Other cities: Manchester 78,436; Nashua 33,914; Berlin 16,480; Dover 16,393; and Portsmouth 20,530, as of 1943. A total of 56,900 persons had entered the armed forces by Sept. 1, 1945, of whom 20,641 had been discharged by Nov. 16, 1945.

**History.**—The general court was in session from Jan. 3 to May 18, 1945. Among measures passed were acts to guarantee re-employment of veterans by towns and other political subdivisions of the state; to provide an aerial survey of the state; to abolish the special poll tax of \$3 enacted in 1943 to provide funds for the payment of veterans' bonuses; to create a retirement system for state employees; to provide temporary additional compensation for state employees and to promote the cause of soil conservation. A joint resolution authorized a referendum, by towns, on the question of United States membership in a general system of international co-operation, with police power to maintain world peace. Of 204 towns voting, 202 went on record as favouring such membership.

State officers in 1945 were governor, Charles M. Dale; secretary of state, Enoch D. Fuller; state treasurer, F. Gordon Kimball; commissary general and adjutant general, Charles F. Bowen; acting attorney general, Harold K. Davison and commissioner of education (appointed by the state board of education), James N. Pringle.

**Education.**—In 1943-44 there were 1,763 public schools, classified as follows: kindergartens 45; mixed schools 239; classified schools 1,310; junior high schools 42; senior high schools 89; opportunity schools 17; evening schools 21. The total number of elementary pupils was 48,424, with 2,065 teachers; the number of high school pupils, 17,622, with 924 teachers. Total payments for public education during year ending June 30, 1944, were \$7,706,051. In 1940 private and parochial elementary schools and secondary schools had an enrolment of 25,007.

Other state educational institutions were the University of New Hampshire, at Durham; Keene Teachers college, at Keene; and Plymouth Teachers college, at Plymouth.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—The burden of general relief continued to decline during the year ending June 30, 1945, due to war conditions, with increased opportunities for employment. In June 1945 there were 2,185 cases on general relief, with an expenditure of \$62,877, as compared with 2,654 cases in June 1944, with an expenditure of \$72,731. Expenditures for public assistance under the Social Security act were \$276,873, as compared with \$242,894 for June 1944. The total for June 1945 included \$213,512 for old-age assistance; \$54,233 for aid to dependent children, and \$9,128 for aid to needy blind. In 1944, only 2,324 persons collected unemployment compensation, payments to idle workers totalling \$163,295, the smallest amount paid in any year after unemployment compensation came into effect in 1938.

On Jan. 1, 1941, there were 262 persons in prison and in re-

formatories in New Hampshire. The appropriation for the state prison at Concord for the fiscal year ending June 30, 1946, was \$160,189; and for the Industrial School for Committed Minors at Manchester, \$109,320.

**Communications.**—Rural highways and urban extensions amounted to 3,701 mi. at the close of 1941. Disbursements from the highway fund for the fiscal year ending June 30, 1944, amounted to \$4,315,109.68. In 1941 there were 992 mi. of steam railways in the state. The number of telephone subscribers' stations in operation in 1943 was 87,116.

**Banking and Finance.**—As of June 30, 1945, there were in New Hampshire 52 national banks with deposits of \$171,475,000 and resources of \$188,294,000, as compared with deposits and resources, respectively, on June 30, 1944, of \$141,894,000, and \$158,167,000. Fifty-five state-chartered banks reported deposits of \$290,318,000 and resources of \$325,566,000 as compared with \$253,173,000 and \$282,950,000 respectively, on June 30, 1944. There were 25 state-chartered building and loan associations with resources of \$16,072,000. State-chartered savings banks and savings departments of trust companies reported deposits of \$276,122,319.46 as of June 30, 1945, representing an increase of \$34,308,151.62 over the preceding year, the largest annual increase ever reported. The number of savings accounts was 358,610, an increase of 17,011 over the preceding year. Two federal savings and loan associations reported assets of \$15,224,687, with savings deposits of \$11,888,432. It was estimated that an additional \$30,000,000 of savings were accounted for by the deposits of savings departments of national banks.

Cash receipts of the state treasury department for the fiscal year ending June 30, 1945, were \$31,969,284.25; cash disbursements \$30,875,930.28; cash balance, June 30, 1945, \$6,059,722.32. Gross fixed bond and note debt, June 30, 1945, \$11,171,000; net bond and note debt \$7,421,124.74.

**Agriculture.**—In 1945 there were 19,243 farms in New Hampshire, with a total acreage of 2,043,054. The total harvested acreage of the principal crops was estimated at 383,210 for 1945. Estimated cash income from farm crops (1944) \$8,567,000; from livestock and livestock products \$32,090,000; from government payments \$1,878,000. In 1943 the value of products consumed on farms where produced was estimated at \$5,826,000.

Leading Agricultural Products of New Hampshire, 1945 and 1944

Crop	1945 (est.)	1944
Corn, bu. . . . .	546,000	640,000
Oats, bu. . . . .	252,000	259,000
Hay, tons . . . . .	422,000	360,000
Potatoes, bu. . . . .	986,000	1,064,000
Apples, bu. (commercial) . . . . .	139,000	778,000
Maple syrup, gal. . . . .	25,000	37,000
Maple sugar, lb. . . . .	9,000	25,000

Unseasonable weather conditions reduced the apple crop and the production of maple sugar to a fraction of their normal size.

Lumber production in 1944 amounted to 281,000,000 bd.ft., as compared with 392,000,000 bd.ft. in 1943, the decrease being attributable to loss of labour to the armed services and to war industry.

**Manufacturing.**—Estimated value of manufactures in 1943 was \$393,055,000, an increase of 65% over 1939. The number of persons employed in industry (1943) was approximately 102,000. Principal manufactured products in peacetime included boots and shoes; cotton, woollen and worsted goods; wood and lumber products, including pulp and paper; and machinery. Since New Hampshire's wartime production emphasized an increased quantity of peacetime manufactures, the state did not face serious problems of conversion or reconversion.

New Hampshire enjoyed an estimated annual income of \$75,000,000 from recreational enterprises, which ranked next to

manufacturing and ahead of agriculture as a source of revenue.

**Mineral Production.**—Total value of minerals produced in 1943 was \$1,350,000. The mining of mica was resumed on a substantial scale in 1942, to aid in meeting war requirements. Other state mineral resources exploited were feldspar, sand and gravel, stone and clay products. (W. E. Ss.)

**New Hebrides:** see FRENCH COLONIAL EMPIRE; PACIFIC ISLANDS, BRITISH.

**New Jersey.** **History.**—Sometimes called the "Garden state," New Jersey is one of the three middle Atlantic states. Area, 7,836 sq.mi., including 314 sq.mi. of water; pop. (1940) 4,160,165. On July 1, 1944, the bureau of the census estimated the civilian population of the state at 4,167,840. Capital, Trenton (1940: 124,697). The largest city is Newark (429,760); second is Jersey City (301,173).

The chief political interest in 1945 centred in the legislative elections and the special election in the 4th congressional district comprising Mercer and Burlington counties. The Republican party continued its overwhelming control of both branches of the legislature. The Republicans won 42 seats in the assembly as against 18 for the Democrats, and the senate representation for the 1946 session stood at 17 Republicans to 4 Democrats.

The 4th district election also resulted in a Republican victory that kept the state's congressional delegation Republican by 12 to 2. Due primarily to an intraparty fight among the Democrats, the Republicans in the 4th district elected Frank A. Mathews, Jr., of Riverton to succeed D. Lane Powers who resigned his seat in the house to accept appointment by Governor Edge to the state board of public utility commissioners.

Mathews was opposed by Frank S. Katzenbach III of Princeton and George Pelletieri of Trenton. Katzenbach was the candidate of the Democratic state committee and had the support of the party organization headed by Mayor Frank Hague of Jersey City. Pelletieri was supported by the local Political Action committee of the C.I.O. The three contestants finished in that order with Pelletieri polling sufficient votes to ensure the election of Mathews, who was to serve until a successor was chosen to Powers at the 1946 midterm elections.

The campaign was enlivened briefly by Democratic attacks on the state racing commission, bi-partisan in makeup, over the issuance of a licence for a race track in Middlesex county near Rutgers university, New Brunswick, N.J. The projected track was opposed by Rutgers, churches and civic leaders of the county. The application for the track licence was subsequently withdrawn.

As a result of the controversy, the racing commission adopted a resolution petitioning the legislature to levy on the breakage—the odd pennies remaining in the pari-mutuel pools after each bet is settled—and which for the 50-day season at Camden amounted to more than \$600,000. The commission also granted licences for two more race tracks, one at Long Branch and the other near Atlantic City, both of which expected to begin operations in 1946. Governor Edge recommended that no more than three tracks be licensed.

The 1945 session of the legislature saw the enactment of the Fair Employment Practices act, a measure designed to outlaw racial and religious discrimination in government and industry; extension of unemployment compensation benefits to 26 weeks with a ceiling of \$22 per week; Rutgers university given the status of a state university; and the creation of a state fund to finance returning veterans up to \$3,000 in the establishment of small businesses.

**Education.**—Local costs of education to the 21 counties and school districts for the 1943-44 school year totalled \$109,538,-

924. State aid for the same period was \$16,029,429. Net bonded debt of the state's school system dropped to \$124,155,180 or \$80,556,000 less than in 1933. Enrolment in day schools was 650,052, a decrease of 26,433 from the preceding period, although increases were noted in the lower grades which reflected rises in the birth rate. There was a reduction of 530 in the number of teachers, mainly among men. Salaries of all teachers, including superintendents and those in evening and special classes, aggregated \$65,110,942 for the year. The average salary of the 27,237 day school teachers, exclusive of superintendents, was \$2,296.65, an increase of \$90.22 over the preceding year. Total value of the state's school properties was placed at \$366,-494,724.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—The average monthly grant for old-age assistance in 1945 was \$31.74 as against a national average of \$29.46; for dependent children \$58.52 as against a national average of \$47.46; and the average state-aid grant for the blind was \$33.46 compared with a national average of \$29.97. Average salaries of social case workers in 1945 totalled \$2,400, up from a previous high of \$1,800. During 1945 a permanent division of community services for juvenile delinquency prevention was added to the state department of institutions and agencies which controls New Jersey's welfare work.

**Banking and Finance.**—Deposits in 156 state banks, trust companies and savings banks under the supervision of the state department of banking and insurance reached a record high of \$2,718,858,000 as of Dec. 31, 1945. Demand deposits stood at \$1,421,749,000 and time deposits totalled \$1,297,109,000. Federal government deposits represented \$389,554,000 of the total. Government securities made up 62.5% of assets of the institutions for a total of \$2,917,222,000 as compared with 60% for 1944. Cash represented 13.3% of assets as against 14.6% at the close of 1944. The number of commercial banks as of June 30, 1945, was 134; there were 22 mutual savings banks and two especially chartered savings associations under the supervision of the state department of banking and insurance.

**Agriculture.**—Large profits accruing from wartime crops enabled New Jersey farmers by Jan. 1, 1945, to reduce by \$5,480,000 their mortgage indebtedness which on Jan. 1, 1942, stood at an all-time high of \$50,153,000. This trend followed the advice of agricultural leaders who had warned against expansion except on a cash basis. Individuals and commercial banks held 69% or \$40,880,000 of the \$44,673,000 outstanding on mortgages. The Federal Land bank, the Farm Mortgage corporation, the Farm Security administration and life insurance companies held the balance.

As of Nov. 1, 1945, estimates showed New Jersey crop production slightly higher than in 1944. Grains, hay and potatoes were largely responsible for the increase. Nearly all other crops were lighter, especially fruits and truck for processing.

Egg production for the first ten months of 1945 reached 752,000,000 which was 13% below the yield of 859,000,000 eggs produced for the corresponding period in 1944.

**Manufacturing.**—When V-J day arrived, New Jersey's diversified industry had acquired new plants to a value of \$421,300,000 from the start of World War II. Expansion of existing plants in the period from July 1, 1940, represented an investment of \$212,000,000 and an additional \$120,000,000 was spent on the conversion of other facilities to war manufacture. Combined, these expenditures totalled \$753,300,000 and put New Jersey in ninth place in the U.S. in the value of such investments.

(W. R. Ck.)

**New Mexico.** Fourth largest state in the southwestern United States, popularly known as the "Sunshine state"; admitted to the union in 1912. Area 121,666 sq.mi. (121,511 sq.mi. land, 155 sq.mi. water); pop. (1940) 531,818; rural 355,417; urban 176,401; native white 477,065; Negro 4,672; foreign-born 15,247. On July 1, 1944, the bureau of the census estimated the civilian population of the state at 532,212.

**History.**—The administration, legislature and congressional representation were Democratic in 1945. The chief officers of the state during the year were: governor, John J. Dempsey; lieutenant governor, James B. (Jawbone) Jones; secretary of state, Cecelia Tafoya Cleveland; auditor, J. D. Hannah; treasurer, John Bingham; attorney-general, Clyde C. McCulloh;



superintendent of public instruction, Georgia L. Lusk; commissioner of public lands, John E. Miles. A juvenile court was established in each county, a bounty granted on predatory animals, and Aug. 3 was declared Ernie Pyle day.

**Education.**—For the school year 1943-44, 662 rural schools, with 50,925 pupils and 1,594 teachers, cost \$4,245,837.08; 246 municipal schools, with 71,696 pupils and 1,993 teachers, cost \$5,763,595.22.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—During the calendar year 1945, \$24,251.50 was paid out for civilian unemployment benefits; for veterans \$161,969. On June 30, 1945, \$397,434.84 had been spent for old-age and survivors insurance, and \$3,583,679.34 for public assistance.

The penitentiary appropriation was \$157,500 for 504 inmates (Sept. 1); insane asylum, \$415,000 and \$138,474.47 for a three years' deficit, 952 inmates (Nov. 15); School for Mental Defectives \$48,000, 73 inmates; Industrial school \$103,980, 105 inmates (Nov.); Girls' Welfare home \$72,000, 102 inmates (Dec.).

**Communications.**—New Mexico had an estimated 62,683 mi. of roads in 1945; 9,455 mi. constituted the state highway system. For the fiscal year ending June 30, 1945, the state highway department expended \$4,467,899.32. Steam railway companies operated 2,583 mi. of main track (1944). There were 73 airports, and approximately 847 mi. of airways operated by three scheduled air carriers. There were about 53,350 telephones.

**Banking and Finance.**—On June 30, 1945, there were 22 national banks with deposits of \$163,580,000; loans \$29,140,000; investments \$84,600,000; and 19 state banks with deposits of \$56,676,000; loans \$7,759,000; investments \$30,425,000. Total resources of 11 building and loan associations in 1944 were \$4,882,397.38 and of seven federal savings and loan associations \$4,383,210.43.

The total of all state receipts for the fiscal year ending June 30, 1945, was \$35,355,509.67; expenditures \$35,858,043.98. The gross and net debt were respectively \$20,628,000 and \$20,476,579.11.

**Agriculture.**—The total value of agricultural production in 1945 was \$41,544,000; acreage harvested 1,313,000. Livestock was valued at \$97,250,000, Jan. 1, 1945.

Table I.—Leading Agricultural Products of New Mexico, 1945 and 1944

Crop	1945 (est.)	1944
Wheat, ton . . . . .	438,000	458,000
Grain sorghums, bu. . . . .	504,000	5,560,000
Wheat, bu. . . . .	2,328,000	3,186,000
Corn, bu. . . . .	2,400,000	3,510,000
Beans, bags . . . . .	238,000	724,000
Cotton, bales . . . . .	107,000	116,000

**Manufacturing.**—Manufactured products were valued at \$25,123,641 in 1939; an average of 3,250 employees received \$2,912,993 in wages.

**Mineral Production.**—Potash was New Mexico's chief mineral in 1945.

Table II.—Principal Mineral Products of New Mexico, 1945 and 1944  
(Year ending Oct. 31)

Mineral	Value, 1945	Value, 1944
Copper . . . . .	\$13,454,179	\$17,116,956
Potash . . . . .	13,940,753	13,620,367
Zinc . . . . .	6,451,011	9,193,478
Coal . . . . .	5,200,901	5,709,027
Lead . . . . .	903,053	663,916
Silver . . . . .	242,162	256,373
Gold . . . . .	149,846	125,512

The total value of minerals produced was \$41,935,755. (F. D. R.)

**New South Wales.** A state of the Australian commonwealth, lying in the southeast and occupying 309,432 sq.mi.; pop. (est. June 30, 1944) 2,870,956. Chief cities: Sydney, capital (1,398,000); Newcastle (120,000). Governor (1945): Captain the Rt. Hon. Lord Wakehurst.

**History.**—Lord Wakehurst's appointment as governor was extended in 1945 for a further period. During the year the state premier, W. J. McKell, accompanied by two departmental secretaries, visited the United States and Britain. This was in conformity with the state government's announced policy that ministers and senior departmental officers should study overseas developments which might assist to solve problems in New South Wales. In March Sydney's new graving dock, the largest in the southern hemisphere, was opened by the governor-general, the duke of Gloucester, and was named by the duchess the "Captain Cook." The dock is 1,033 ft. long; 154 ft. wide; 47 ft. deep, and has a flooding capacity of 55,000,000 gal.

Heavy autumn and winter rains ended the severe drought conditions which had prevailed for nearly two years. Losses to the agricultural and pastoral economy had been calamitous and for the first time for nearly a century wheat was imported into the state. Prospects for the ensuing season were favourable.

**Education.**—In 1942: number of schools (state) 2,864 (private) 719; teachers (state) 11,112 (private) 3,886; scholars enrolled (state) 350,962 (private) 103,692; average attendance (state) 275,722 (private) 84,718.

**Finance.**—In 1943-44: revenue \$231,900,000; expenditure \$227,100,000; debt outstanding (June 30, 1944) \$1,126,100,000. (Conversion rate £A1=\$3.2 U.S.)

**Communication.**—Roads (1940) 126,058 mi.; railways, government (Sept. 1944) 6,128 mi.; tramways (June 1943) 172 mi.; motor vehicles licensed (Dec. 1944): cars 184,364, commercial vehicles 93,644, cycles 15,546. Wireless receiving set licences (Jan. 1945) 564,184. Telephones (June 1941): exchanges 2,018; instruments connected 280,161.

**Agriculture, Manufacturing, Mineral Production.**—Production (in short tons): wheat (1944-45) 540,000; butter (1943-44) 43,930; wool, greasy (1943-44) 268,500; maize (1943-44) 70,000; coal (1942) 13,700,000; gold (1942) 77,249 fine oz. Industry and labour, 1943-44: factories 10,775; employees (average) 323,032; gross value of output \$1,248,450,000; unemployment (trade union returns) (Feb. 1945) 1.5%. (W. D. MA.)

**Newspapers and Magazines.** United States.—For U.S. newspapers, 1945 was a year crowded with news events of outstanding popular interest, breaking almost daily, which taxed all the modern devices of rapid communication; a year which carried World War II to two final victories thousands of miles apart in its first eight months and then shifted into equally news-worthy postwar reconversion and labour strife. In trying to give this news to a public clamouring for more than could be printed, the newspapers struggled against increasing shortages of paper and of manpower.

A quick survey of the year is seen in the list of Biggest News Events announced at the end of 1945 by the United Press: President Roosevelt dies at Warm Springs, Ga., April 12; Italian partisans execute Mussolini, April 28; Hamburg radio announces Hitler's death, May 1; Germany signs surrender at Reims, May 7; United Nations organize for world peace at San Francisco, charter completed June 26; Labour party wins British election, July 26; Bomber crashes into Empire State building, July 28; Potsdam declaration, Aug. 2; President Truman reports use of first atomic bomb on Japan, Aug. 6; Truman announces Japan accepts surrender terms, Aug. 14; German war criminals go on trial at Nuernberg, Nov. 20; and U.A.W. strike at General Motors, Nov. 21. Associated Press and International News service listed the same events but both put atomic power in first place.

Because of rapid communication provided by radio and Press Wireless, the U.S. people were ringside spectators of the closing months of World War II, beginning with the last stand of the nazis in the Belgian Bulge, the invasion of Germany, the closing in on Japan via Okinawa, the two atomic bombs and final surrender. And, accordingly, there were false alarms. The false armistice story of World War I in 1918 had its counterpart in the premature V-E day announcement of the German surrender at Reims sent by Edward Kennedy of Associated Press on May 7, a day ahead of official release following an earlier A.P. "false peace flash" on April 28 from San Francisco. Again on Aug. 12 the United Press carried a "false flash" prematurely announcing Japanese surrender, but only radio circulated it. The death of President Roosevelt on April 12 caught newspapers at a bad time of day, 5:49 P.M. eastern war time, but even college dailies got out extras. "The week of weeks" in the newspaper offices was April 28-May 4 which brought the headlines: "Munich Revolts," "Mussolini Killed," "Reichstag Seized," "Hitler Suicide," "Berlin Captured," "Italy War Ends" and "Hamburg



ERNIE PYLE, Scripps-Howard writer endeared to the infantry for whom he spoke, smoking with some U.S. marines during a short lull in the battle of Okinawa. Pyle was instantly killed by Japanese machine-gun fire on Ie Jima, April 18, 1945

Falls." One of the largest gatherings in the history of newspaper and radio reporters, at least 1,800, covered the United Nations conference in San Francisco, April 25 to June 26. To impress on U.S. minds the picture of nazi "atrocities," the war department took 17 newspaper and magazine editors to Germany in April, and their eyewitness accounts flooded the press; the *St. Louis Post-Dispatch* displayed for thousands an exhibit of huge enlargements of atrocity photos. An all-time record of 348 correspondents attended President Harry S. Truman's first press conference on April 17 and approved ending of censorship on presidential whereabouts. After President Truman announced the first atomic bombing, Hiroshima Aug. 6, the war department selected William L. Laurence, *New York Times* science writer, to explain it to the public. On Aug. 30, the *New York Times* did the unusual in printing the entire 130,000-word Pearl Harbor report in one 16-page supplement. The final big war story of the year, the Nuernberg trial of German war criminals opening Nov. 20, drew a gallery of 325 correspondents from 23 countries, including about 100 from the United States. In contrast, the greatest conclave of sports writers in history, about 300, gathered in Chicago in Oct. 1945 for the baseball world series. A spectacular stunt in October was the flying of three press agency writers, including one woman, on the first six-day round-the-world flight of the "Globester" of the air transport command.

The close of the war brought summaries of press activities. The three major press agencies totalled their war dispatches at 270,000,000 words, of which 16,000,000 were transmitted by Press Wireless mobile transmitters in Paris and Manila. Casualties among U.S. correspondents totalled 149, including 38 writers and photographers killed and 36 awarded the Purple Heart, out of a grand total of 600 to 800 correspondents at the various

battle fronts. Most notable press casualty was Ernie Pyle, popular war columnist, killed on Ie Jima on April 18. When Manila was liberated, 11 newsmen were freed from Japanese prison camps. Captured German records revealed that an A.P. man had been executed by the nazis. While 24 women were listed among the war correspondents, women were filling newspaper offices and press agency bureaus at home as never before; even after the death of her husband, Eleanor Roosevelt continued her syndicated column, "My Day." The most famous photograph taken during the war was Associated Press Joe Rosenthal's picture of the U.S. marines planting their flag on Mt. Suribachi, Iwo Jima. Early in May Censorship Director Byron Price cut back restrictions to a minimum and on Aug. 15 closed his office. On Sept. 5, the Office of War Information was transferred to the state department; Elmer Davis resigned on Sept. 15 and returned to CBS as news commentator. The greatest war secret, the atomic bomb, it was announced in August, had remained secret because of voluntary censorship by newspaper and radio men who had known of it long before. A final tally totalled 600 army newspapers published in various theatres, and the greatest of all, *Yank*, was suspended Dec. 31 after attaining a circulation of 2,500,000. The *New York Times Overseas Weekly*, printed from plates flown from New York, was issued in Manila and ten other foreign capitals; the *Chicago Overseas Tribune* appeared in Honolulu, Manila, Bremerhaven and Tokyo.

The greatest fund drive of the war was the Seventh or Victory Loan campaign in the fall which was geared to a goal of \$11,000,000,000 including \$85,000,000 in E bonds. After backing the Sixth loan with \$24,000,000 in free space and attaining a grand total of \$88,000,000 in the first six drives, newspapers carried \$42,635,459 worth of free ads for the Victory loan, including 110,230 appeals totalling 78,000,000 lines. Newspaper carrier boys by October had sold 1,704,000,000 ten-cent war stamps, 10% of all the stamps sold after Pearl Harbor, and were seek-

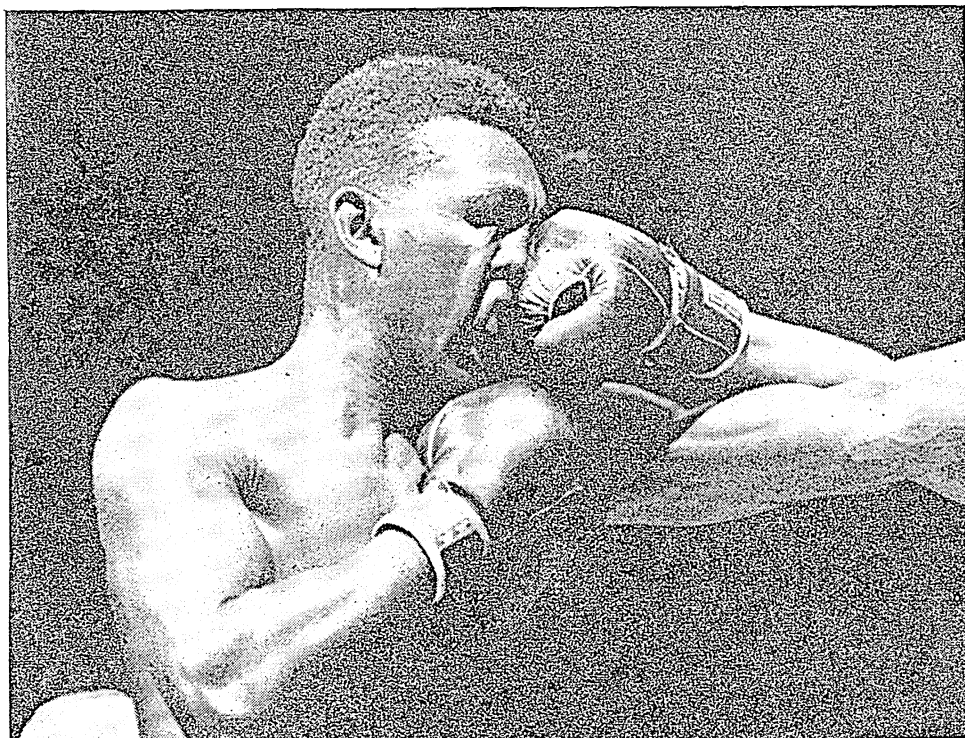
# BRITANNICA BOOK OF THE YEAR



THE PICTURES on these pages were submitted with hundreds of others in the *Britannica Book of the Year* News Photography Contest for 1945. These were selected as the best in each of four classifications, and were awarded first prize.

## ← WAR NEWS AND FEATURE

This celebrated photograph by Joe Rosenthal of the Associated Press, showing the raising of the flag over Mt. Suribachi, Iwo Jima, in Feb. 1945, was awarded first prize. It was the outstanding war photograph of the year, perhaps of the entire war. Charles P. Gorby, another Associated Press photographer, took second prize with "Tojo's Last Plot Fails," and third prize went to Charles Haacker of Acme Newspictures for a scene "They Will Know Food Again" of Buchenwald concentration camp victims.

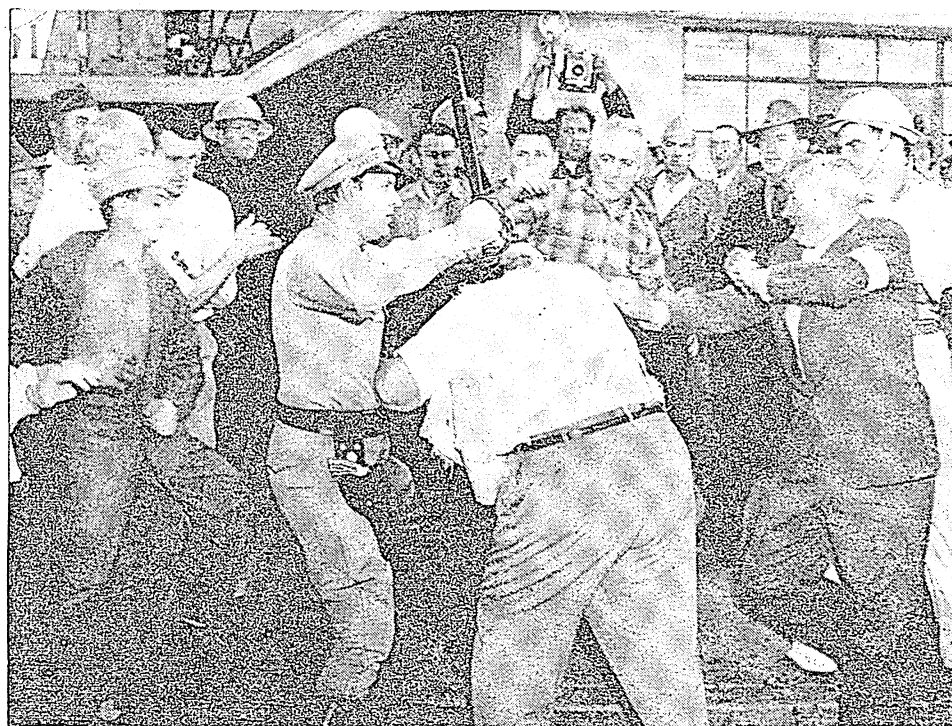
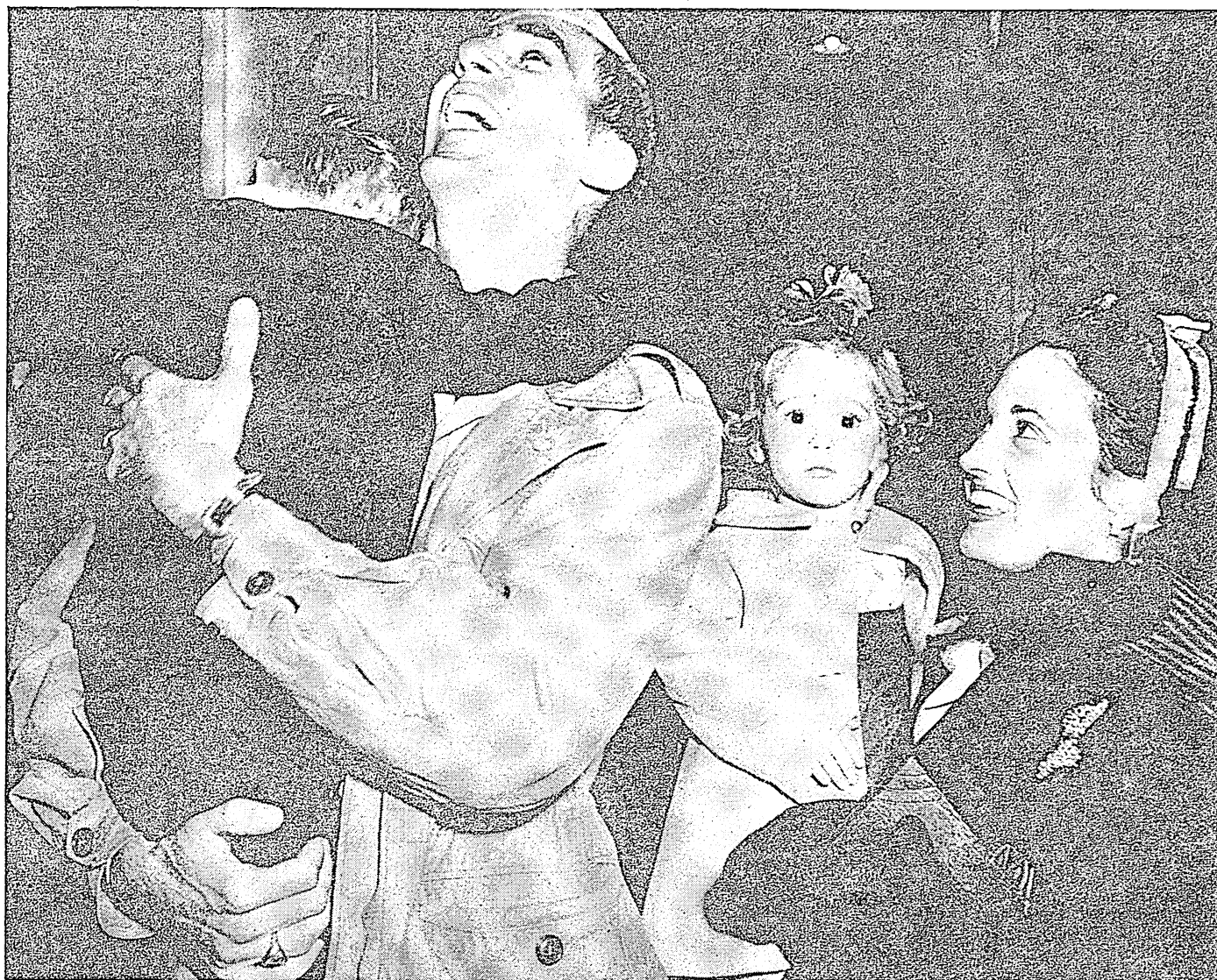


## SPORTS →

Matthew Zimmerman of the Associated Press made this first prize-winning photograph "Smash Hit," while "Big Run," a baseball action shot by Thomas Linton of the *Detroit Free Press* took second place, and the third award went to James N. Keen of the *Dayton Journal-Herald* for a football scene.



# NEWS PHOTOGRAPH WINNERS



## ↑ NONWAR FEATURE AND PICTORIAL

Caroline Valenta of the *Houston Post* snapped this happy scene "Daddy, Daddy, Daddy" as a soldier was being greeted by his son, wife and daughter upon his return in 1945 from service abroad, and was awarded first prize. Second and third prizes went to Robert Boyd of the *Milwaukee Journal* for "Christmas Program" and to James N. Keen of the *Dayton Journal-Herald*

## ← NONWAR SPOT NEWS

Gib Brush of the *Los Angeles Daily News* was awarded first prize for this photograph of "Maklin (Porky) Hall, Strike Breaker" crashing a picket line at Warner Brothers studio in Oct. 1945

Second prize went to Samuel Falk of the *New York Times* for a photograph "Untimely News," showing commuters reading newspaper accounts of the death of President Roosevelt, and third prize to Chester Gabrysiak of the *Chicago Tribune* for "Hit Run," a shot of a sailor traffic victim and his friends

ing to pass the 2,000,000,000 mark by the end of the year. The waste paper salvage campaign was carried on with increased vigour by the Boy Scouts and other school children, and in rural areas an increased fat salvage campaign was waged.

Shortage of print paper was the greatest problem in the newspaper offices and became more serious at the end of 1945. Although there had been no price increase after Sept. 1, 1943, a rise of \$3 a ton was approved on March 29, 1945, and another of \$6 a ton on Dec. 7, carrying the price to \$68 a ton. Through voluntary control of a sliding scale, newspapers during the year reduced their paper consumption, from 20% for the smallest to 37% for the largest, below 1941 consumption. As the proposal of continuing the voluntary L-240 control by the Newspaper Advisory committee under the War Production board was opposed by 85% of the press, all paper controls ended on Dec. 31. Realizing that Canadian newsprint production would be 3% below 1941 and U.S. production further curtailed in 1946, newspapers at the end of the year were trying to avoid "a mad scramble for paper" by setting up a "Good Neighbour Share-the-Paper" plan through newspaper organizations. To stay within their quotas, newspapers curtailed want ads, ran adless editions and abandoned victory editions. Meanwhile, quotas of magazines, using different paper, eased 5% in August.

Labour troubles that had been simmering all year grew into an unprecedented outbreak of strikes. Most notable was the strike on July 1 of 1,700 members of the Deliverers union in New York city which prevented delivery of 17 newspapers for 17 days; only *PM* was not involved, and counter sales of other newspapers went up to 650,000 on one day. A similar strike in St. Louis held up all newspapers three weeks in September. Argument over new contract rules of the International Typographical union continued through successive publishers' meetings and led to a wave of composing room strikes during the summer and fall which tied up newspapers, from a few days to 16 weeks, in the following cities: Fort Wayne, Ind., Jersey City, N.J., Birmingham, Ala., San Antonio, Tex., four Chicago suburban papers, Reading, Pa., six cities in Montana, Utica, N.Y., Uniontown, Pa., Seattle, Wash., Des Moines, Ia., St. Petersburg, Fla., Portsmouth, O. and Windsor and Winnipeg, Canada. Many "struck" newspapers continued their news gathering and published photographic engraved editions or put out their news by radio. The huge General Motors strike in November cost publications \$7,000,000 in cancelled automobile advertising contracts.

The campaign for world-wide free press continued. A free press mission of three men delegated by the American Society of Newspaper Editors Dec. 28, 1944, Wilbur S. Forrest, *New York Herald Tribune*, Ralph E. McGill, *Atlanta Constitution* and Carl W. Ackerman, Columbia university, made a three-month trip around the world visiting London, Cairo, Iran, Moscow, China, India, Australia, New Zealand and South America. A free press resolution was adopted at the Mexican conference in March, five more U.S. state legislatures voted endorsement and free news flow was encouraged by the British-American Telecommunications conference in Bermuda in December. Press freedom was established in Italy and France in January, in Germany in May, in Austria in August, in Japan in September and to some extent in South America in December. But there continued to be battles over censorship: the press was restrained at the Institute of Pacific Relations in January; many arguments about "political censorship" waged over the S.H.A.E.F. military news regulations in occupied Germany; 100 or more correspondents "sat outside" at the Big Three conference at Potsdam in July; and the state of soviet censorship was still being debated at the end of the year. Even so, newspapers opposed the free press rider attached to the United Nations Relief and Rehabilitation Administration relief bill by congress.

The government's antitrust suit against the Associated Press, started on Aug. 28, 1942, by the U.S. department of justice at the instance of the *Chicago Sun*, ended three years in the courts with A.P. defeat at a total cost of \$234,592. After the two-to-one decision of the New York circuit court of appeals on Oct. 6, 1943, A.P. appealed through oral argument before the U.S. supreme court on Dec. 5-6, 1944. The A.P. finally lost its case in a five-to-three decision of the supreme court handed down on June 18, reaffirming the Jan. 13, 1944, ruling of the lower court; each of the eight justices wrote a separate decision totalling 22,000 words. A.P. directors on Sept. 7 filed a petition for rehearing, but this was denied on Oct. 8, and a stay of 120 days was set for compliance. Meantime Col. R. R. McCormick of the *Chicago Tribune*, urged appeal to congress. On Nov. 28, at a special meeting, 125 A.P. members, armed with 948 proxies, revised the membership rules to conform, voted 949-34 to admit the *Chicago Sun* as an associate member (because of its U.P. contracts) and by 962-23 vote admitted the *Washington Times-Herald*, *Oakland Post-Enquirer* and *Detroit Times* to full membership. (Col. McCormick seconded the motion to admit the *Chicago Sun*.) The only other publication law suit of interest during 1945 was the decision early in June of the U.S. court of appeals returning the second-class mail privileges to the magazine, *Esquire*, reversing the Feb. 28, 1944, ruling of Postmaster-General Frank C. Walker.

The first colour picture transmitted by radio was sent to New York from the Big Three meeting in Potsdam on Aug. 9, and A.P. announced it had sent 150,000 wirephotos in ten years. Press Wireless developed new transmission services from Leyte, P.I., Shanghai and Buenos Aires and set up a new research station on Long Island. Daily circulations increased 6.4% to an all-time record of 46,000,000, and business offices announced

gains in both local and national advertising, as well as higher advertising and circulation prices, so that more than half the dailies were selling for five cents by March and readers spent more than \$800,000,000 for their newspapers during the year. Paris fashions came back into the news. With the decline of war news, radio stations began developing local news facilities. Because of the wartime ban on travel, the annual meetings of most newspaper groups, A.P., A.N.P.A., A.S.N.E., Inland, were abandoned, but American Newspaper guild held its 12th convention in St. Paul, Minn., on June 28, and Inland Daily Press resumed triyearly meetings Oct. 17. National Newspaper week was observed Oct. 1-8 with the theme, "A Free Press, Torch of World Peace." Moses Koenigsberg, 67, founder of King Features syndicate, died on Sept. 21, and Mrs. Marie M. Gasch, 70, creator of the "Beatrice Fairfax" column, died Nov. 15. Schools of journalism announced a new plan of accrediting schools and, while enrolment soared in the fall, a number of teachers staffed the Overseas Army university. The first school of journalism in Canada opened at London, Ont., in October.

**Magazines.**—Because of paper shortage, magazines became thinner. They used lighter paper and rejected more advertising; some froze circulations. Later in 1945, as the magazine paper situation eased, a few new projects were announced. Curtis Publishing Co., Philadelphia, Pa., on Oct. 15, announced a new recreation and travel monthly, *Holiday*. David Lawrence, publisher of *United States News*, Washington, announced on Dec. 15 a newsmagazine, *World Report*, devoted to international affairs. A newsmagazine, *Moderator*, was launched Aug. 30 in Boston. A Sunday roto tabloid magazine devoted to Ohio affairs was started by the *Columbus Dispatch* Oct. 7. Rumours of a new daily newsmagazine, *AM*, to be published in New York by Jacob A. Lazar, began in April but by fall the project was still in "rehearsal" stage. Marshall Field, after incorporating his New York daily as The Newspaper PM, Inc., on Dec. 30, 1944, purchased in Dec. 1945, the Quarric corporation, Chicago, publishers of *World Book Encyclopedia* and *Childcraft*. *Time* magazine in January purchased a site for a \$2,000,000 publishing plant in Los Angeles, Calif., and in February spent more than \$2,000,000 for a plant in Chicago. The OWI in August abandoned its picture magazine, *Voir*, and the war department suspended *War Times*, official weekly, in December.

(G. M. Hy.)

**Great Britain.**—The closing down of the press censorship division at the ministry of information on Sept. 2, 1945, brought to an end exactly six years of press censorship based upon voluntary co-operation. With Admiral G. P. Thomson in charge during that period there were 665,000 submissions containing 183,000,000 words, and out of 400,000 different issues of the press only four prosecutions on censorship grounds were instituted.

The British press covered the final stages of the European war with customary zeal and thoroughness. Occasional complaints of irksome restrictions served to emphasize the general co-operation that prevailed from D-day to the investment of Berlin. At the end of the European war arrangements were completed for extensive press coverage in the far east, and particularly for the invasion of Malaya and Japan. The atomic bomb and the sudden collapse of Japan took the British press by surprise, but large reporting and photographic staffs were available for the surrender scenes, and release and return of prisoners of war and civilian internees. When secrecy was no longer imperative the British press published stories of wartime aids to victory, of the operations called "Pluto," "Fido," "Mulberry," and so on, and of the wonders of radar, etc. Almost daily for a long period a fresh secret was revealed.

With the return of peace the press had ready their plans for expansion and development, but execution of these depended upon the supplies of newsprint and availability of manpower. It was expected that the need for large occupation forces in many theatres of war and the employment of much shipping tonnage would be retarding factors. The communist *Daily Worker* had ready an expansion scheme for a normal-sized paper to obtain a daily circulation of 250,000 as an immediate objective and 500,000 as a medium objective, with a final objective of breaking all circulation records. The supply of newsprint was still difficult. A 10% increase was granted just before the general election to enable more copies of newspapers to be printed for home and overseas.

Circulation figures continued to grow. The *Radio Times* passed the 4,000,000 mark, having added 1,000,000 during the war. The *London Evening News* claimed the largest world circulation for an evening paper with an average of 1,044,356 daily. The *Daily Express* exceeded 3,300,000 a day, and the immediate target was 4,000,000.

Steps were taken to end the conflict between the Institute of Journalists founded upon royal charter and the National Union of Journalists, a trade union affiliated to the Trades Union congress. After negotiations it was decided to ballot the members of both organizations on a merger proposal.

There were 60 journalists who were parliamentary candidates at the general election, and 21, the majority Labour, were returned.

The king in August conferred upon Lord James G. B. Kemsley, chairman of Kemsley Newspapers, Ltd., the honour of viscount.

Odham's Press, Ltd., acquired a controlling interest in Transport (1910), Ltd. and its subsidiary companies publishing numerous successful magazines dealing with railways and shipping, and Lord Julius S. E. Southwood became chairman. The *Financial News* took over the *Financial Times*, and the copyright belonging to the Camrose family was purchased for £280,000. For the second quarter of 1945 advertising amounted to £3,661,342, which represented a drop of 0.23% when compared with the corresponding period of the previous year.

Company profits included George Newnes £148,398 (£138,877); Odham's Press £959,981 (£798,708); Associated Newspapers £659,911 (£623,405); Kemsley Newspapers £480,843 (£471,173); Illustrated Newspapers £101,150 (£85,337); *Sunday Pictorial* £125,205 (£127,310) and *Daily Mirror* £112,955 (£97,180).

Appointments during the year were: Herbert Gunn, editor, *Evening Standard*; Cecil Thomas, editor, to board of directors, *Daily Mirror*; Walton Cole, managing editor, *Reuters*; T. W. Hutton, editor, *Birmingham Post*. During 1945 occurred the deaths of Sir Bernard Partridge (83), *Punch* cartoonist for 50 years and Capt. F. D. Bone of the *Daily Express* news centre. (See also ADVERTISING.) (S. R. C.)



**New York.** One of the original 13 states of the United States, popularly known as the "Empire state," New York covers an area of 49,576 sq.mi., of which 1,647 are water. With a population of 13,479,142 (federal census, 1940) and an estimated population of 13,946,957 (state division of vital statistics, July 1, 1945, up 3.5%), it retained its place as the most populous state. The foreign-born population was 2,853,530 in 1940, and the urban population 11,165,893. Albany is the capital, estimated 1945 population, 133,331. The 1945 population of New York city, almost twice the size of any other city in the country, was estimated at 7,730,383, up 3.7% from 1940; population of Buffalo, the state's second largest city, increased 6.2% to 611,336 and the neighbouring community, Niagara Falls, showed the greatest increase, 16.2% to 90,668. Among the other cities, 1945 population (including men and women in the armed services) and percent changes were: Rochester 333,442 (up 2.6%), Syracuse 220,299 (up 7%), Yonkers 140,258 (down 1.6%), Utica 102,834 (up 2.3%), Schenectady 95,745 (up 9.4%), Binghamton 79,781 (up 1.9%), Troy 69,845 (down 0.7%), Mt. Vernon 66,256 (down 1.6%), New Rochelle 57,449 (down 1.6%) and Elmira 50,512 (up 12%).

**History.**—To clear the tracks for business conversion from war production and to assist industry to full employment of the state's labour resources, the Governor's Reconversion Service agency was created by the governor, Thomas E. Dewey, Aug. 20, 1945. M. P. Catherwood, chairman, Charles H. Sells and Edward Corsi, commissioners of commerce, public works and labour respectively, were appointed by Governor Dewey and part of the staff of the state war council was transferred to the department of commerce to help carry out the purposes of the agency. The state department of commerce worked with industry throughout the state to develop business and employment opportunities, with special emphasis on small business expansion.

The division of veterans' affairs in the executive department was created by the 1945 legislature with an appropriation of \$2,825,000; Edward J. Neary, state director. Veterans were being assisted in numerous ways including advice on re-employment, education, welfare, job training and business opportunities. Governor Dewey negotiated the transfer of army and navy housing facilities for conversion into homes for veterans and their families.

The legislature, on the governor's recommendation, also extended insurance benefits for unemployed workers up to \$21 a week for a maximum of 26 weeks and enacted unemployment insurance experience rating for employers in New York state who make a successful effort to maintain stable pay rolls. This resulted in tax credits to qualified employers totalling \$76,500,000, applicable to contributions for the year beginning July 1, 1945.

The administration of workmen's compensation was improved and coverage extended. The Ives-Quinn Anti-Discrimination bill was passed, also bills creating a state youth commission designed to combat juvenile delinquency; giving municipalities the right to acquire property in blighted areas for rehabilitation; providing for additional loans for public housing and raising the limit on state subsidies for housing.

Both in 1945 and 1944, large surpluses of \$163,000,000 and \$156,000,000 at the end of the state fiscal year (March 31) were transferred on recommendation of the governor to the Postwar Reconstruction fund, which was expected to total nearly \$500,000,000 on April 1, 1946, the end of the fiscal year. Altogether, about \$800,000,000 in public works construction in the reconversion period was planned by the state.

Appropriations from the general fund at the end of the 1945 session totalled \$370,000,000 as compared with \$368,000,000 in

1944. At the same time, the state personal income tax was reduced by one-fourth for the second year. A further reduction in 1946 was anticipated.

State financial assistance to municipalities was increased. More than \$100,000,000 was distributed to localities as their share of the personal income, franchise, utilities, motor vehicle, motor fuel and alcoholic beverage taxes. In addition the state paid out almost \$150,000,000 to localities for support of common schools, for relief and welfare and other state aid. Altogether 42% of state tax revenues was returned to localities in aid or shared taxes. The Republican party continued in control of the state administration and both houses of the legislature.

**Education.**—During the school year ending June 30, 1944, the last year for which complete figures were available, there were 992 public high schools, with 583,089 pupils and 7,543 elementary schools, with 1,296,901 pupils. The total cost of maintaining the schools exclusive of money raised by bonds was \$347,016,624. In addition to the public schools there were 110 colleges and universities, including 11 teachers' colleges, with 122,301 students and a teaching staff of 14,330. A new commissioner of education, Colonel Francis T. Spaulding, was appointed by the board of regents Nov. 15, 1945, to take office July 1, 1946.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—The number of persons receiving public assistance was 165,114 in Sept. 1945 (as against 170,951 in Sept. 1944 and 198,606 in 1943) for whose relief \$7,200,000 was spent (compared with \$7,000,000 and \$7,500,000 respectively). The amount spent for home relief during Sept. 1945 was \$1,600,000, down 12% from 1944; \$3,850,000 for old-age assistance, up 3.9%; \$1,600,000 for aid to dependent children, up 17.3%; and \$120,000 for assistance to the blind, up 9.6%. The state operated 26 hospitals, 18 of them for the mentally ill, two for the criminal insane. There were eight state prisons, three reformatories and three institutions for defective delinquents.

**Communications.**—In addition to the 7,707 mi. of railroads, there were in New York state on Jan. 1, 1945, exclusive of streets in cities and incorporated villages, 83,113 mi. of highways, of which 70,334 mi. were town and country roads. Of the total, 59,448 were classified as improved. The state maintained a system of more than 450 mi. of canals including the Erie 340; the Champlain 63; the Cayuga-Seneca 27 and the Oswego 24. Including the rivers and lakes which were part of the New York State Barge Canal system, the total length was 800 mi. Although no tolls are charged, the canals and waterways yield a revenue of more than \$650,000 a year from the use of terminals, the sale of water power and the operation of grain elevators. Air transportation was being developed in New York state with the help of the newly created bureau of aviation in the state department of commerce.

**Banking and Finance.**—New York's share of total personal savings accumulated during World War II was estimated at \$30,845,558,063. As reported on Dec. 31, 1945, deposits in approximately 300 banks in New York state were as follows: savings banks \$8,292,000,664 (resources \$9,171,941,066); state banks and trust companies \$22,205,867,610 (assets \$24,168,737,199); industrial and private banks \$154,573,426 and \$193,116,363 respectively.

**Agriculture.**—Total farm acreage in New York state jumped to 17,722,081 ac. in 1945 under the extensive wartime farm production program. The average New York state farm chalked up a 3% increase in size during the war, making the total acreage included in the 153,358 farms listed by the 1945 agricultural census substantially greater than in 1940 (17,170,337 ac., 153,258 farms). The acreage of principal crops harvested, excluding orchards and vineyards, had increased to 6,680,000 in 1944, as compared with 6,506,000 in 1940. Total milk production was about 7,700,000,000 lb. in 1944. Even with heavy demand for chicken and poultry products to supplement the over-all meat supply, there were almost 10,000,000 chickens on farms in New York state in mid-1945. A state commission on agriculture was created to launch a long-range program to aid the farmers and consumers of New York state.

Table I.—Marketings of Principal Products from New York Farms, 1944 and 1943

	1944	1943
Milk and dairy products . . . . .	\$251,800,000	\$242,559,000
Cattle and calves (and other livestock) . . . . .	32,817,000	41,183,000
Poultry and eggs . . . . .	100,726,000	99,785,000
Vegetables, potatoes and beans . . . . .	101,672,000	101,979,000
Fruits . . . . .	59,921,000	40,836,000

**Manufacturing.**—In 1939, according to the biennial manufacturing census (none was taken during World War II), there were 34,506 manufacturing establishments employing 957,844 persons, paying \$1,163,785,198 in wages and producing goods valued at \$7,134,400,147.

Total war supply and facility contracts awarded to manufacturers in New York state amounted to \$23,058,000,000 during the period June 1940 through the second quarter of 1945, which was 10.1% of the national total.

**Mineral Production.**—The value of the leading mineral products of New



Table II.—Principal Industries of New York, 1939 and 1937

Industry	Value of products	
	1939	1937
Clothing . . . . .	\$1,107,535,000	\$1,061,543,000
Printing and publishing . . . . .	572,625,000	576,731,000
Bread and other baking products . . . . .	242,883,000	243,836,000
Automotive products . . . . .	197,885,000	114,924,000
Fur coats and other fur garments . . . . .	151,258,000	133,906,000
Steel works and rolling-mills . . . . .	116,112,000	157,810,000

Table III.—Principal Mineral Products of New York, 1944 and 1943

	Value	
	1944	1943
Cement (Portland—natural) . . . . .	\$ 7,037,000	\$ 8,765,665
Coke . . . . .	...	39,091,561
Gypsum (Calcined—crude) . . . . .	4,336,000	4,030,000
Petroleum . . . . .	15,593,000	15,230,000
Pig Iron . . . . .	9,900,000	79,873,775
Salt . . . . .	8,211,000	9,328,672
Stone (including limestone) . . . . .	...	8,917,164
Zinc . . . . .	...	9,936,000

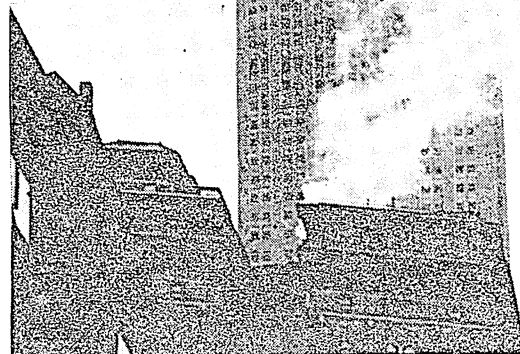
York for the years 1944 and 1943 are shown in Table III (1944 data for coke, pig iron and zinc were not available). (H. K.E.)

**New York City.** In the 1940 census New York city, the largest in the United States, had a population of 7,454,995; unofficial estimates place the figure in 1945 at about 7,730,383. Mayor: William V. O'Dwyer, Democrat, who took office Jan. 1, 1946, following the overwhelming Democratic victory in the November municipal election. The city's budget for the fiscal year ending July 1, 1946, was \$751,527,715, an increase over the previous year of \$21,847,270. The tax rate was \$2.66 on every \$100 of assessed valuation, which was a drop of 8 cents from the previous year. This decrease was made possible by increased revenue, largely from higher real estate valuations.

The Democratic administration which took over at the beginning of 1946 was faced with problems left over from the three-term, 12-year regime of Fiorello H. La Guardia as mayor. At the same time the La Guardia administration had been regarded as generally successful by virtually all shades of political opinion. In declining to run for a fourth term, La Guardia left the way open for a three-cornered race for mayor between O'Dwyer, a native of Ireland, a former labourer, policeman, lawyer, city magistrate, district attorney of Kings county and brigadier-general, who was supported by the Democratic organization and the American Labor party; Judge Jonah J. Goldstein, a judge of the court of general sessions, a Democrat who was indorsed by the Republicans, the Liberal party and the City Fusion party; and Newbold Morris, then president of the city council, who ran on the newly-formed No Deal party with the backing of La Guardia. In this campaign there were no clear-cut issues of any importance, and the charge that the election of O'Dwyer would mean the return of Tammany graft made little impression on the voters.

One of the first acts of the O'Dwyer administration was to strike from the capital outlay budget \$45,000,000 which had been earmarked for the vast new Idlewild airport on Long Island, and \$10,000,000 for a large market on the west side of Manhattan. The new administration argued that the money could be obtained for these improvements from other sources, and that they should be financed by an "authority," analogous to the port authority, rather than with city funds. The outgoing mayor, La Guardia, who had become a radio and newspaper commentator, protested strongly against these cuts.

The principal problems faced by New York city, which the O'Dwyer administration promised to tackle at once, were: The subways, municipally owned, operated at a loss at a five-cent fare, and were badly run down; housing, which was inadequate to the needs of the city notwithstanding the many new housing developments which were either under construction or in the blueprint stage; traffic congestion, which had steadily grown worse and which experts said would need drastic handling for



THE EMPIRE STATE BUILDING, partially obscured by smoke and flame after a U.S. army medium bomber, flying through fog, crashed into its upper stories on July 28, 1945. Fourteen persons lost their lives in the tragedy

even a partial solution; crime, which had increased alarmingly while the strength of the police force had dwindled by about 4,000 men; the school system, overcrowded and troubled by administrative problems; city finances, which were described by the incoming administration as insufficient to meet necessary expenditures unless new revenue were found; at the same time, the city's credit had been excellent for the last 12 years. O'Dwyer indicated at the beginning of his administration that he would seek state and federal aid in carrying out many of the projected city improvements. He also promised to try to strengthen the city's business and industry. (See also MUNICIPAL GOVERNMENT.)

FILMS.—*Arteries of the City* (Encyclopædia Britannica Films Inc.). (St. W.)

**New York University.** A private coeducational institution occupying six centres in various parts of New York city with undergraduate, graduate and professional schools of liberal arts, fine arts, business, engineering, education, medicine, dentistry, public administration and law. While bearing the name of both the state and the city of its location, it is supported and controlled by neither. A privately governed institution, its operating revenue of some \$9,000,000 in 1944-45 came from student fees, endowment and gifts. The latter approximated \$1,500,000, with \$100,000 from Mrs. Percy S. Straus for fine arts, and the bulk of the remainder for medical training and research. The year marked the launching of a campaign to rebuild the medical school on a \$15,000,000 scale commensurate with the projected reconstruction of adjacent Bellevue hospital. Experiencing a 20% rise in student attendance, the 1945 cumulative summer and autumn enrolment of 30,983 included some 4,200 war veterans. The institution reckoned its war dead at 600, out of some 35,000 under arms,

with 2,500 nonfatal casualties. Serving with the armed forces were 323 members of the faculty, while an additional 113 were on leave of absence in various civilian war research and executive posts. The military trainees at the university, 1941-45, numbered 6,200, and those trained in short courses for service in war contract plants, 23,200. Medical affiliations were effected with Irvington house, Irvington, N.Y., specializing in children's cardiac disorders, and with Lenox Hill hospital of New York city. Dr. Ernest O. Melby, chancellor of the university of Montana, succeeded Dr. E. George Payne on the latter's retirement from the deanship of the school of education. Comptroller LeRoy E. Kimball and Secretary Harold O. Voorhis were each appointed vice-chancellor of the university. (For statistics of enrolment, faculty, endowment, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (H. O. V.)

**New Zealand, Dominion of.** A British dominion, consisting of a group of islands, lying in the South Pacific between 34° 25' and 47° 17' S. and between 166° 26' and 178° 36' E. Area: dominion proper 103,415 sq.mi.; other islands, 519 sq.mi.; pop. dominion proper (est. Dec. 31, 1944) 1,655,794 including Maoris (99,482); Cook and other Pacific islands (census 1936) 16,350; Western Samoa (mandate) 66,447 at Dec. 31, 1944. Chief cities (pop., census Sept. 25, 1945): Auckland (with suburbs, 256,426); Wellington (cap., with suburbs, 175,189); Christchurch (112,525); Dunedin (65,487). Language: English. Religion: Christian (1936 figures excluding Maoris: Church of England 600,786; Presbyterian 367,855; Roman Catholic 195,261; Methodist 121,012). Ruler: King George VI; governor general: Lieutenant General Sir Bernard Freyberg, V.C.

**History.**—When the year 1945 opened, New Zealand troops were engaged in hand-to-hand warfare at Faenza in Italy. When the war in Europe finished, they found themselves with a somewhat delicate role to perform at Trieste. When Japan surrendered, the New Zealand division was about to be deployed for the attack on the Japanese mainland. The suddenness of the cessation of hostilities necessitated a swift adjustment of the country's finances and Walter Nash, finance minister, increased his estimates of expenditure to allow for £NZ18,000,000 for gratuities to demobilized servicemen and £NZ5,000,000 for deferred pay. Though no reduction in taxation was envisaged the main budget did provide a number of increased benefits from the social security fund costing £NZ1,800,000 for the year. Total war expenditure to March 31 amounted to £NZ507,000,000. Total public debt amounted in September to £NZ603,000,000. The war cabinet, which had included representatives of the opposition was dissolved in August. Air Vice-Marshal L. M. Isitt represented the dominion at the signing of the Japanese surrender terms. The prime minister, Peter Fraser, attended the commonwealth conference in London before the United Nations conference at San Francisco, Calif., where his efforts on behalf of the smaller nations won for him a considerable reputation and drew from the *New York Times* correspondent a tribute to "one of the leading intellectual figures at the conference." Mr. Fraser described the charter on his return as "much more liberal and democratic than the original draft." New Zealand associated itself with Australia in regret that it had not been consulted before the Potsdam ultimatum to Japan was issued. It supported Australia's efforts to ensure that small nations should have a share in shaping the peace in proportion to their contribution to victory.

In domestic affairs the nationalization of the Bank of New Zealand caused perhaps the most controversy. The prime minister revealed the motive for the government's action when he said: "We believe that in a world depression the state bank can

exercise a stabilizing influence and prevent the country from suffering as severely as it has on past occasions." A royal commission took voluminous evidence on the question of reform of the licensing laws. Goods and services supplied by New Zealand under reverse lend-lease were estimated to amount to more than £NZ70,000,000. The weight of food supplied to United States forces was nearly 1,000,000,000 lb. After July 1942 New Zealand sent to the Pacific a quarter of its vegetables and apples, a seventh of its meat and a twelfth of its dairy produce. By-elections saw a decline in the government vote. A general election was due in 1946.

**Education.**—(Dec. 1942) state elementary schools 2,230, scholars 245,592; secondary 197, scholars 46,389. The University of New Zealand has six constituent colleges, including agricultural colleges at Lincoln and Palmerston North, grouped together as the New Zealand School of Agriculture; university students 4,373. Total cost of education (year to March 31, 1943) £NZ5,038,395.

**Finance.**—(All in £NZ) Revenue, consolidated fund, year to March 31, 1945, £54,248,000, expenditure £53,033,000. Social security fund receipts £18,777,000, expenditure £19,332,000. War expenditure account receipts £138,981,000, expenditure £130,009,000. Note circulation June 1945, £40,560,461; reserve June 1945 (in Reserve bank), gold £2,801,878; exchange £62,417,173. Net overseas funds, May 28, 1945, £70,594,290. Exchange rate: £NZ125 = £100 sterling, £NZ = 324.2 cents U.S., £ sterling = 403.5 cents U.S.

Deposits in post office and trustee savings banks (March 31, 1945) £136,266,000. Taxation by general government, year ended March 31, 1945: consolidated fund: customs revenue £8,471,679; beer duty £2,074,457; land tax £952,622; income tax £25,686,050; racing taxation £1,096,456; motor-vehicles taxation £1,929,618; sales tax £4,063,558; stamp and death duties, £2,282,152; other, £1,414,956; total consolidated fund £45,689,396; social security taxation £14,260,066; war taxation £48,732,352. Total taxation £108,681,814, or £65 ss. 10d. per head of population, including Maoris.

Taxation by local governing authorities, year ended March 31, 1943: rates £7,764,677; licences, etc., £735,548; total £8,500,225. Indebtedness of local governing authorities, March 31, 1943; debentures and other securities (including loans from State Advances corporation and main highways board): gross £63,969,096; net £55,044,086. Loans from treasury (inscribed debt): gross £1,161,978; net (actuarially computed) £180,350. Total indebtedness: gross £65,131,074; net £55,224,436. Gross indebtedness of general government as of March 31, 1944: £566,494,017, or £344 12s. 1d. per head of population.

Aggregate private income, 1943-44: salary and wage payments, £175,900,000; social security benefits and pensions, £15,700,000; company income, £40,900,000; other income of individuals, £59,800,000; total £292,300,000. 1944-45: salary and wage payments, £176,500,000; social security benefits and pensions, £17,400,000.

**Communication.**—Roads paved or surfaced 44,812 mi. (including main highways 12,398 mi.), not paved or surfaced 8,631 mi. Passenger journeys, year to March 31, 1945, 32,954,529 mi.; goods traffic, 8,954,239 tons. Civil aviation, passengers carried March quarter 1945, 14,827. Shipping (1941) entered 2,323,264 tons net; cleared 2,309,469 tons net. Motor vehicles licenced (March 1945) 301,154. Wireless licences 380,128.

**Agriculture.**—1943-44 acreages: wheat for threshing 233,786, total 239,183; oats for threshing 39,652, total 228,887; barley for threshing 28,241, total 36,310; maize for threshing 5,691, total 11,460; linseed for threshing, western wolths and Italian rye grass 11,096; cocksfoot 10,797; tobacco 2,586. Yields, total and per acre: wheat 7,208,485 bu. (30.83); oats 1,834,310 bu. (46.26); barley 832,783 bu. (29.49); maize 296,081 bu. (52.03); peas 888,709 bu. (10.89); potatoes 161,512 tons (5.94); onions 8,466 tons (8.28); perennial rye grass 17,349,345 lb. (30.8); western wolths and Italian rye grass 4,171,136 lb. (376); cocksfoot 1,409,139 lb. (131). Livestock in dominion, 1944: horses 225,823; cattle 4,439,258 (including 1,647,920 dairy cows in milk); pigs 573,362 (including 77,281 breeding sows); sheep 33,200,298 (including 20,549,716 breeding ewes). Wool production, 1943-44: 330,000,000 lb. (on a greasy basis). Butterfat production, 1943-44: 387,800,000 lb.

Value of production, 1942-43: farming groups, £NZ 99,500,000; total £NZ169,800,000.

**Manufacturing.**—Factory production, 1942-43: number of establishments, 6,127; total number of employees, 114,590; salaries and wages paid, £NZ32,256,071; value of products, £NZ165,936,284; value of land, buildings, machinery and plant, £NZ288,253,772. (A. J. Hp.)

**NHA:** see HOUSING.

**Nicaragua.** A republic of Central America, situated between Honduras on the north and Costa Rica on the south. Area: 57,145 sq.mi., of which 3,475 sq.mi. is water. Pop. (off. est. as of Dec. 31, 1943) 1,048,642; by the 1940 census it was 983,160. Capital, Managua (1941 off. pop. est., 87,620); other urban centres are Chinandega (15,377); Granada (25,530); Jinotepe (9,556); León (31,799); and Masaya (21,070). Language: Spanish. President in 1945: General Anastasio Somoza.

**History.**—The press reported a few minor disturbances

against the government during 1945, one being a demonstration at the time of the visit of President Juan Antonio Rios of Chile on Nov. 9. In July President Somoza announced that any person who wished might become a candidate in the presidential election scheduled to take place in Aug. 1946, and also stated that he would present his own candidacy. The senate on Aug. 10, lifted the ban which prevented campaigning for elections more than ten months in advance. Late in November constitutional guarantees suspended during World War II were restored; emergency economic measures were continued, however. Martial law was ended Aug. 16, 1945.

Nicaragua took part in the Chapultepec and San Francisco conferences and carried out ratification of the United Nations charter on July 6—the first nation to approve the document. It was announced in June that a rubber purchase agreement with the United States would be extended until June 30, 1947.

The economic situation remained fairly satisfactory in 1945, although certain shortages continued to be felt. In January rice stocks were frozen and prices fixed, and sugar rationing was started in August. Two commissions to replace wartime agencies which had regulated commerce and quota matters were created Oct. 11. A new mining law and a new labour code became effective in April, making necessary some adjustments between labour and management, particularly in the mining industry. Organized labour paraded on May 1, for the first time in Nicaraguan history. In the summer the chamber of deputies approved a law providing that immigrants must settle in rural districts and engage in agriculture.

**Education.**—Primary schools in 1942 numbered 943, with an enrolment of 63,380 students (average attendance is lower, however). Eleven secondary schools had an enrolment of 2,750. Late in Nov. 1945, the minister of public instruction ordered industries employing more than 200 persons to establish night schools.

**Finance.**—The monetary unit is the córdoba, officially pegged at 20 cents U.S. in value. The national budget for 1945-46 was unofficially reported as set at 70,391,000 córdobas (1944-45: 54,114,871 córdobas). The public debt on March 24, 1945, was estimated at \$5,378,000 (U.S. currency). Total currency in circulation on June 30, 1945, amounted to 46,513,000 córdobas. On April 16 President Somoza told an opening session of congress that a budget surplus of \$1,600,000 existed.

**Trade and Resources.**—Exports for 1944 were valued at \$15,412,455, and imports at \$10,279,451; total trade was estimated to be 11% less than 1943. The exchange stabilization fund on June 30, 1945, amounted to about \$7,520,000, a decrease of 22% compared with June 30, 1944. On July 1 the rate on import duties and taxes payable at customhouses in Nicaragua was changed from four paper córdobas for one gold córdoba (the latter is equivalent to the U.S. dollar) to five for one, and in the same quarter the basic tax on the sale of foreign exchange was reduced from 10% to 5%. A decree of Oct. 15 removed need for import permits except for certain goods, and created a commission to regulate commerce.

Coffee production for the 1944-45 quota year amounted to 191,859 bags of 60 kg. each (1943-44: 223,370 bags). In April 1945 it was officially announced that the coffee quota for the year could not be completed. Sugar output for 1944-45 was estimated at about 25,500,000 lb.; sesame seed production at about 6,500,000 lb.; rice 12,000,000 lb.; beans 9,000,000 lb. (33% less than the previous year); corn 29,000,000 lb.; cotton 1,254,000 lb. Banana exports for the first half of 1945 amounted to 29,647 stems (for the first half of 1944: 1,557 stems). Production of gold in 1944 amounted to 219,579 troy oz. (1943: 219,189 troy oz.); silver output was 254,457 troy oz. (1943: 254,989 troy oz.).

**Communications.**—In 1944 Nicaragua had 258 mi. of railroad and about 3,000 mi. of highway, largely unimproved. Motor vehicle registration (1943) listed 1,172 passenger automobiles, and 312 trucks and buses. Air service is supplied by Transportes Aereos Centro Americanos (T.A.C.A.) and Pan American airways.

**BIBLIOGRAPHY.**—Dana G. Munro, *The Five Republics of Central America* (1918); Chester Lloyd Jones, *The Caribbean since 1900* (1936); *Foreign Commerce Weekly* (Washington).

**FILMS.**—*Central America* (Encyclopædia Britannica Films Inc.). (D. Ro.)

**Nickel.** The production of nickel in Canada declined from 144,009 short tons in 1943 to 137,299 tons in 1944. In the first 10 months of 1945 the total was 107,718 tons, equivalent to an annual output of 129,300 tons.

Almost the entire United States supply is derived from imports, mostly from Canada. The domestic output was 642 tons in 1943 and 988 tons in 1944, while secondary recovery was 6,917 tons in 1943 and 4,321 tons in 1944. Imports decreased from 122,492 tons in 1943 to 118,293 tons in 1944, of which 107,950 tons were from Canada, 7,000 tons from New Caledonia, 3,000 tons from Cuba, 800 tons from England and small amounts from other sources.

The Falconbridge plant in Norway was found to be intact after the German surrender, and operation was expected to resume as soon as a supply of matte could be provided. During the German occupation the Falconbridge matte was treated by International Nickel Co. in Canada.

The Patchang plant (the former Finnish development of International Nickel at Petsamo) was being restored after destruction during the German occupation. In New Caledonia the contract for the sale of nickel to the United States expired in June 1944, but most of the output would continue to go there; production was expected to continue at prewar level. In mid-1945 a new electrolytic plant was reported to be about ready to start operation at Monchegorsk, on the Kola peninsula, U.S.S.R. A former plant there was destroyed when the Germans invaded the area. The mines were reopened in 1942, shipping ore to treatment plants in Siberia; production of crude nickel was resumed in 1944, and electrolytic refining was to be added.

(G. A. Ro.)

**Niger:** see FRENCH COLONIAL EMPIRE.

**Nigeria:** see BRITISH WEST AFRICA.

**Nimitz, Chester William** (1885- ), U.S. naval officer, was born Feb. 24 in Fredericksburg, Tex., and was graduated from Annapolis in 1905. An experienced submarine officer, during World War I he was chief of staff to the commander of the Atlantic fleet's submarine force. He was promoted to rear admiral, June 23, 1938. On Dec. 17, 1941, after the surprise attack on Hawaii, Admiral Nimitz was made commander in chief of the Pacific fleet, with the rank of admiral. The U.S. Pacific fleet, weakened by the blow at Pearl Harbor, was a mere skeleton when Nimitz assumed his post at Pearl Harbor, Dec. 31, 1941. Nimitz quickly reorganized his combat teams and strategy and then built up a group of leaders, including Halsey, Mitscher, Turner, Spruance and Kinkaid. Nimitz's command of the Pacific ocean area placed army and marine units as well as naval forces under his authority. Under his command, U.S. armed forces conquered the Solomons, 1942-43, the Gilbert Islands in 1943, and the Marshalls, Marianas and Palau in 1944 and Iwo Jima in 1945. Nimitz was promoted Dec. 15 to the five-star rank of fleet admiral of the U.S. navy. He supplied the huge naval forces that participated in the Leyte and Luzon campaigns (1944-45) and directed the opening phase of the Okinawa invasion (1945).



Nimitz attended the Japanese surrender ceremonies aboard the battleship U.S.S. "Missouri" in Tokyo bay, Sept. 2. He asserted (Sept. 21) that the atomic bomb merely emphasized the value of seapower insofar as the bomb depended "on planes and planes depended on seapower's securing and holding the bases for them." Like the vast majority of naval officers, Nimitz opposed the merger of the armed services. On Nov. 20, he was named chief of naval operations, succeeding Adm. King. He assumed office Dec. 15.

**Nitrogen, Chemical.** Chile still remained the only source of natural nitrates in any appreciable quantity, but the once predominant position of this form of chemical nitrogen was gradually usurped by other forms—first by ammonia from by-product coke ovens, and later to an even greater extent by ammonia and nitric acid synthesized from air nitrogen. During World War II shipments from Chile were hampered by shortage of transportation, but actual losses en route were small. U.S. imports from Chile (761,165 short tons in 1943 and 712,434 tons in 1944) were used almost entirely for fertilizers, leaving the nitrogen requirements of the munitions program to be supplied by synthetic nitrogen. As of Jan. 1, 1946, there was little information available concerning the synthetic industry.

The by-product coking of coal in the United States yielded 761,270 tons of ammonium sulphate in 1943 and 818,244 tons in 1944, besides 34,106 tons and 31,665 tons respectively of ammonia content of ammonia liquors.

Other forms of nitrogen that are imported in appreciable amounts are calcium cyanamide, ammonium sulphate, ammonium nitrate, ammonium phosphate and sodium-potassium nitrate.

(G. A. Ro.)

**NLRB:** see NATIONAL LABOR RELATIONS BOARD.

**NMB:** see NATIONAL MEDIATION BOARD.

**Nobel Prizes:** see PRIZES OF 1945.

**North Borneo:** see BORNEO.

**North Carolina.** A south Atlantic coast state, popularly known as the "Old North state" or the "Tar Heel state," North Carolina is one of the original 13 states of the union; area 52,712 sq.mi. (49,142 sq.mi. land, 3,570 sq.mi. water); pop. (1940) 3,571,623, of which 974,175 (27.3%) were urban, 2,597,448 (72.7%) rural and 1,005,501 (28.2%) nonwhite. On July 1, 1944, the bureau of the census estimated the civilian population of the state at 3,534,545. Capital, Raleigh (46,897); other cities: Charlotte (100,899); Winston-Salem (79,815); Durham (60,195); Greensboro (59,319); Asheville (51,310).

**History.**—In January R. Gregg Cherry was inaugurated governor. For the most part his recommendations were adopted by the second wartime legislature of North Carolina after 1865 in a 67-day session characterized by relative harmony, caution and conservatism. Impressed by the uncertainty of the future, the legislature made no major changes in the tax structure; no major increases for operating expenses; and no major appropriations for expansion. It left intact the \$20,000,000 postwar reserve fund, set up in 1943, with the exception of earmarking \$5,000,000 for veterans' needs; and its first major act was to set aside about \$52,000,000 from the surplus, a sum adequate to retire all of the general fund bonded indebtedness. Record-breaking annual appropriations of \$116,000,000 were held within estimated revenue. The 3% sales tax was removed from some items but the tax on wine was sharply increased. The salaries of teachers and state employees were slightly increased; the compulsory school attendance age was raised from 14 to 16

years; and, pursuant to the new constitutional amendment, a new state board of education was established and given control over public school funds. New insurance laws greatly strengthened the power of the department of insurance. The state was made a self-insurer of its property from loss by fire, and a Veterans' commission was created to assist North Carolina veterans in securing all available legal rights and benefits. The legislature submitted to a popular referendum a proposed constitutional amendment allowing equal rights for women, including jury service, and endorsed an elaborate program for a four-year medical school at the university and a state-wide system of hospitals, health centres and clinics but made only a contingent appropriation of \$1,000,000 to aid in the hospitalization of indigent sick.

Josephus Daniels' *The Wilson Era* was awarded the Mayflower Society Cup for the best 1945 book by a North Carolinian.

State officers in 1945 were R. Gregg Cherry, governor; L. Y. Ballentine, lieutenant governor; Thad Eure, secretary of state; George Ross Pou, auditor; C. M. Johnson, treasurer; Clyde A. Erwin, superintendent of public instruction; Harry McMullan, attorney general; W. P. Stacy, chief justice.

**Education.**—In 1943-44 there were 3,512 public elementary schools with 19,755 teachers and principals and 699,965 enrolled pupils; 980 public high schools with 6,174 teachers and principals and 133,650 enrolled pupils; these were operated at a cost of \$44,773,369, approximately four-fifths of which was contributed by the state government. The state provided bus transportation for 311,249 school children at an average cost of \$8.67 per pupil.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—In Oct. 1945 public grants amounting to \$430,254 were made to 32,804 persons for old-age assistance; \$156,063 to 6,032 families for aid to dependent children; \$46,413 to 2,396 blind persons; and \$29,951 to 2,502 cases for general relief (by the county governments). During the year ending June 30, 1945, the total amount of public relief funds distributed was approximately \$7,200,000; and during 1945 unemployment benefits amounted to \$1,839,959.34. In 1945 the state maintained 9 charitable institutions with 9,598 inmates on Nov. 1; 6 correctional institutions with 864 inmates; and state highway prison camps with 6,177 prisoners.

**Communications.**—In 1945 the state highway and public works commission maintained 11,289 mi. of state highways, of which 9,910 mi. were hard-surfaced; and 49,441 mi. of county roads, of which 2,588 mi. were hard-surfaced. There were 4,581 mi. of railroads, 324 mi. of city bus routes, 10,277 mi. of passenger bus routes, and 11,525 mi. of freight vehicle routes in 1944.

**Banking and Finance.**—On June 30, 1945, there were 45 national banks with resources of \$416,453,000, and 182 state banks with deposits of \$1,132,425,601 and resources of \$1,203,142,411. On Jan. 1, 1945, there were 147 building and loan associations operating under state charters with total assets of \$91,803,821. In 1944-45 state receipts were \$401,575,457; disbursements, \$389,866,928. On June 30, 1945, the state gross bonded and net debts were \$109,521,500 and \$34,764,075, respectively. The assessed value of property was \$2,760,261,628 in 1943. In the state general fund there was a cash surplus of about \$6,000,000 at the end of 1945.

**Agriculture.**—The total value of agricultural production harvested from about 6,400,000 ac. in 1945 was approximately \$620,000,000, of which tobacco accounted for \$360,043,000 and cotton \$47,300,000. North Carolina produced 40% of all the tobacco and 68% of all flue-cured tobacco grown in the United States. The cash income of North Carolina farmers in 1944 was

\$504,044,000 from crops; \$107,371,000 from livestock and livestock products; and \$16,421,000 from government payments. The value of the lands and buildings on the 278,276 farms in 1940, 44% of which were operated by tenants, was \$736,708,125.

Table I.—Leading Agricultural Products of North Carolina, 1945 and 1944

Crop	1945 (est.)	1944	Value 1945
Tobacco, lb.	819,790,000	752,956,000	\$360,043,000
Cotton, bales	430,000	710,000	47,300,000
Corn, bu.	55,650,000	51,018,000	77,910,000
Tame hay, tons	1,281,000	1,150,000	35,996,000
Peanuts, lb.	287,850,000	343,910,000	26,194,000
Wheat, bu.	6,216,000	8,560,000	10,319,000
Sweet potatoes, bu.	7,260,000	8,625,000	14,520,000
Irish potatoes, bu.	9,240,000	6,970,000	15,708,000
Oats, bu.	9,128,000	8,151,000	8,398,000
Soybeans, bu.	2,700,000	2,058,000	5,940,000
Lepedeza seed, lb.	45,400,000	40,700,000	4,767,000
Peaches, bu.	2,172,000	2,698,000	5,104,000
Apples, bu.	252,000	1,782,000	718,000
Pecans, lb.	2,814,000	2,300,000	840,000

**Manufacturing.**—In 1939 manufacturing establishments numbering 3,225 employed 270,210 wage earners at wages of \$199,289,501 and made products valued at \$1,421,329,578. The principal industries were tobacco products, cotton goods and furniture. Continuing war needs maintained North Carolina's industrial production in 1945 at about \$2,000,000,000.

**Mineral Production.**—The mineral production for North Carolina in 1943 was \$22,172,000. In quantity production of mica, feldspar and bromine, North Carolina ranked first among the states; but in value of all minerals produced, it ranked 32nd in 1943. The value of gold produced in 1942 was \$142,695, an increase of 26% over that in 1941.

Table II.—Principal Mineral Products of North Carolina, 1944, 1943, 1942 and 1941

Mineral	Value, 1944	Value, 1943	Value, 1942	Value, 1941
Stone	\$5,975,951	\$5,376,600	\$3,774,472	\$4,806,623
Clay products	2,700,000	3,000,000	4,000,000	5,356,000
Sand and gravel	1,405,917	1,823,516	2,491,820	2,345,165
Feldspar (crude)	778,007	656,182	533,448	552,386
Mica	2,280,910	2,288,691	991,194	587,379

**BIBLIOGRAPHY.**—U.S. Census; *Minerals Yearbook*; reports of state agencies; 1945 Session Laws. (A. R. N.)

## North Dakota.

A west north central state of the United States, admitted to the union Nov. 2, 1889. Popular name, "Flickertail State." Land area, 70,054 sq.mi.; water area, 611 sq.mi. Population (1940), 641,935; rural 510,012; urban 131,923. On July 1, 1944, the bureau of the census estimated the civilian population of North Dakota at 528,071. Capital, Bismarck (15,496). Chief cities, Fargo (32,580); Grand Forks (20,228); and Minot (16,577).

**History.**—Senator John Moses (Dem.), who replaced Gerald P. Nye (Rep.), died on March 3, 1945, and Gov. Aandahl appointed Milton R. Young to fill the unexpired term. Chief state officers in 1945 were: governor, Fred G. Aandahl; lieutenant governor, C. P. Dahl; secretary of state, Thomas Hall; auditor, Berta E. Baker; treasurer, Otto Krueger; attorney general, Nels G. Johnson; superintendent of public instruction, Arthur E. Thompson; commissioner of insurance, Oscar E. Erickson; commissioner of agriculture and labour, Math Dahl; public service commissioner, C. W. McDonnell; tax commissioner, John Gray.

**Education.**—School teaching positions, June 1945, numbered 5,111 (elementary) and 1,497 (high school). Enrolment, elementary (88,378); secondary (27,154). Buildings used were: one- and two-room (3,043); graded elementary (218); combinations of high school and elementary grades (443).

**Social Insurance and Assistance, Public Welfare and Related Programs.**—Public assistance in the year ended June 30, 1944, was \$4,235,667; average number aided per month, 18,216. Types of aid, old age, \$2,791,806, with 8,987 persons aided;

care of dependent or foster-home children, \$896,382, with 5,031 persons; blind, \$43,645, with 126 persons; other, \$503,834, with 1,452 persons. Cost of operating four charitable and four correctional institutions, biennium ending June 30, 1947, was expected to reach \$4,500,000. Average number of patients, estimated for 1945: Grafton, (feeble-minded), 960; school for blind, 30; school for deaf, 90; tuberculosis sanatorium, 235 and the four correctional institutions, 2,470 persons.

**Communications.**—Mileage of state highways, Jan. 1, 1945, was 7,103.6; rural, 107,066. Net expenditures, highway department, for the year ended June 30, 1945, for constructing and operating state highways, \$4,007,949.92; additional apportioned to counties, \$1,323,379.53. Railway mileage, Jan. 1, 1945, 5,271.7.

**Banking and Finance.**—One trust company and 110 state banks, as of June 30, 1945, had total resources of \$229,466,000 and deposits of \$216,743,000. Total resources of 42 national banks (four with trust powers), \$184,724,000; deposits \$175,776,000. Six federal savings and loan associations, Dec. 30, 1945, had estimated total resources of \$5,306,184 and a total share capital of \$4,917,465. Twelve state building and loan associations, Dec. 30, 1945, had estimated total resources of \$13,531,636 and total share capital of \$12,234,658. State treasury receipts, year ended June 30, 1945, \$39,530,307; expenditures \$40,397,140; bonded indebtedness, June 30, 1945 \$18,964,350.

**Agriculture.**—Total farm acreage, 1943, was 17,534,000 (excluding wild hay). Cash income from crops and livestock, 1944, \$500,000,000, of which \$183,900,000 was from livestock. Benefit payments for soil building in 1944 were \$6,000,000.

Table I.—Leading Agricultural Products of North Dakota, 1944 and 1943

Crop	1944	1943
Spring wheat (other than durum), bu.	131,660,000	121,486,000
Durum wheat, bu.	27,970,000	32,670,000
Corn, bu.	35,250,000	25,335,000
Oats, bu.	*	70,924,000
Barley, bu.	63,155,800	63,648,000
Rye, bu.	1,814,000	4,014,000
Flax, bu.	6,694,900	15,052,000
Potatoes, bu.	*	22,100,000

\*No figures available.

**Manufacturing.**—Total estimated value of manufacturing, 1944, \$43,767,082. Total employment, 4,800; wages paid \$4,204,192. Value of creamery butter, 1944, \$34,500,000; flour and grain mill products produced from wheat, year ending Sept. 1, 1945, \$22,010,612.

**Mineral Production.**—Production from 184 lignite mines (3 new), year ending June 30, 1944, was 2,515,823 tons of coal valued at \$3,715,568.97. Number of closed mines, 57. Number employed: 811 miners; 379 others. One new coal field opened in 1944. Natural gas produced from four wells in Bowman county in 1944 was 200,105,000 cu.ft. Total yield from seven wells in 1943 was 177,000,000 cu.ft. (A. V. O.)

**Northern Ireland:** see IRELAND, NORTHERN.

**Northern Rhodesia:** see RHODESIA.

## Northern Territory

OF AUSTRALIA. Area 523,620 sq.mi.; pop. (June 30, 1940): aboriginals, full-blooded 13,901; half-caste 902; white (est. Dec. 31, 1943) 14,445. Capital, Darwin (pop. Dec. 31, 1941, 4,400).

**History.**—The federal government in 1945 passed a bill to empower it to acquire all privately-owned land in and around Darwin. The government intended to develop Darwin as a modern military and air base. The new city was to be laid out according to the latest methods of town planning and the most modern airport in the southern hemisphere was planned with special tourist accommodation.

**Finance.**—Revenue (1943-44), ordinary \$170,000; from Central Australian railway \$6,500,000; from North Australian railway \$2,800,000. Expenditure (1943-44), ordinary appropriation \$925,000; new works, etc., \$375,000. (£A1=\$3.21 U.S.)

**Production and Communication.**—Production (1939-40): pastoral industry \$1,880,000; gold \$750,000; wolfram \$150,000; pearl shell \$51,000. Railways, government (Dec. 31, 1944) 508 mi. (W. D. MA.)

## Northwestern University.

An institution of higher learning at Evanston and Chicago, Ill. The university comprises the following divisions: the college of liberal arts, the graduate school, the technological institute and the schools of music, education, speech, commerce and journalism, all located in Evanston (a suburb of Chicago)

on a campus bordering Lake Michigan; the medical, law and dental schools and the evening departments of the university, all on Chicago's near north side, on a campus six blocks from the loop business district. A total of 2,187 degrees and diplomas were awarded during the year 1944-45.

For the fiscal year ending Aug. 31, 1945, gifts to the university totalled \$3,284,800, exclusive of certain sums received from the estate of Walter P. Murphy, founder of the technological institute. The budget of the university was \$9,080,000.

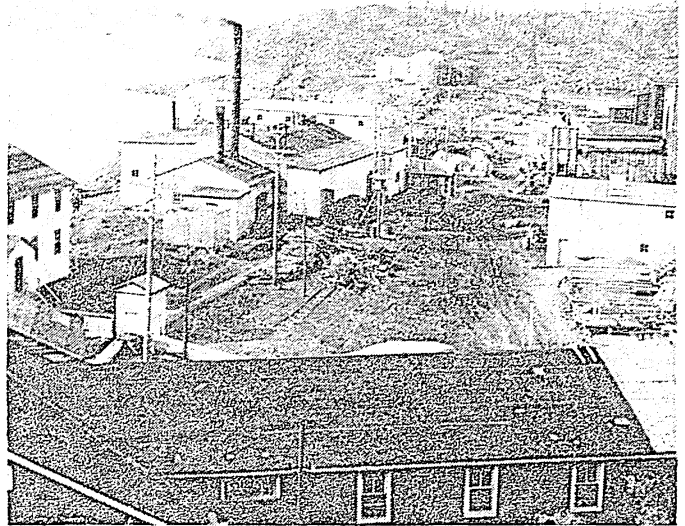
A new program for the education of teachers, employing units of study instead of traditional courses and placing greater emphasis on a liberal education, was inaugurated in the school of education. It was modelled after a new program of study for the bachelor of arts degree established the year previously in the college of liberal arts.

Military training at the university tapered off until at the end of the school year only the naval R.O.T.C., supply corps, and V-12 programs remained, with 700 men in residence. Altogether the university gave war training to approximately 50,000 men and women in 13 different types of programs. Of the total, 36,124 consisted of naval trainees, with 6,210 trained in the naval radio operators' school on the Evanston campus, and 24,570 in the naval midshipmen's school on the Chicago campus. In addition the university conducted a broad program of confidential research for the government, sent 400 members of the faculty and staff into military or governmental service and was represented by more than 11,000 alumni in military service, of whom 280 lost their lives.

The university was in 1945 making plans for its centennial, to be celebrated in 1951. Included in those plans was a program for a substantial increase in endowment and the erection on the Evanston and Chicago campuses of \$30,000,000 worth of new buildings. (For statistics of enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.)

**Northwest Territories.** The Northwest Territories in Canada comprise the regions formerly known as Rupert's land and the Northwestern territory, except those portions which form the provinces of Manitoba, Saskatchewan and Alberta and the Yukon territory, together with all British territories and possessions in North America and all islands adjacent thereto, not included within any province. The exception is the colony of Newfoundland and its dependencies. Area, 1,309,682 sq.mi.; pop. (1941 census) 12,028; seat of government, Ottawa, Ont. For administrative purposes, the territories in 1918 were subdivided into the provisional districts of Mackenzie, Keewatin and Franklin. The Northwest Territories act (1927) provided for a territorial government composed of the commissioner of the Northwest Territories, the deputy commissioner and five councillors appointed by the governor general in council. The Northwest Territories council in 1945 was composed as follows:—Commissioner, Charles Camsell; deputy commissioner, R. A. Gibson; members of council, A. L. Cumming, K. R. Daly, R. A. Hoey, S. T. Wood.

**Transportation and Communication.**—Inland water transportation on the Mackenzie river system from railhead at Waterways, Alta., to points in the Mackenzie district was provided by three companies, two of which maintained passenger services. Regular commercial air services, which also carry mail, were maintained from Edmonton, Alta., to the principal settlements. Negotiations were completed for the construction in 1946 of a new all-weather road which would link Hay River post, N.W.T. on Great Slave lake, with railhead at Grimshaw, Alta. Medical centres, trading posts and other places in the eastern Arctic were served by the annual supply ship from



ELDORADO Mining & Refining at Port Radium, Northwest Territories, photographed in Aug. 1945. The pitchblende-silver properties located here constitute one of the principal world sources of uranium, the element vital in atomic research

Montreal, Que., which also carried mail. Auxiliary boat services from railhead at Churchill, Man., were also provided. Radio communication was maintained between important settlements and trading posts in the territories and outside points through government and private commercial radio stations.

**Fur Trade.**—Fur trade and mining are the principal industries of the territories. The value of pelts harvested for the year ended June 30, 1944, was \$2,199,132. Fur trading is controlled by regulation and is open only to those who have been issued permits and who have established permanent posts. Natives and half-breeds living the life of natives enjoy free hunting and trapping privileges. Of the white residents, only those who, under the regulations, are included in an established eligible list are permitted to hunt and trap, and such individuals require an annual licence. Reindeer herding in the northern Mackenzie district was continued in the interests of the native population.

**Mineral Production.**—Mining activity in the territories in 1945 included the production of pitchblende concentrate (from which radium and uranium are extracted), gold and petroleum. Wartime developments in the field of atomic research directed new attention to the importance of the pitchblende-silver properties of Eldorado Mining and Refining, Ltd. on Great Bear lake as one of the principal world sources of uranium. The mine, which forms part of the assets operated as a crown company after Jan. 1944, was worked at capacity in 1945, in the production of concentrates which are refined at Port Hope, Ont. Figures relating to the tonnages of ore mined, milled and shipped were treated as confidential.

Increased activity in the Yellowknife mining district included prospecting for gold and staking on a wide scale, and more than 15,000 claims were in good standing by midsummer of 1945. Diamond drills were used extensively for surface exploration, and removal in June of wartime restrictions on the sinking of new shafts permitted a number of companies to undertake underground exploration. The shortage of labour which brought about the shutdown of all producing gold mines in 1944 showed some improvement in 1945, and as a result the Negus mine recommenced milling gold in July. Other developments in the Yellowknife area included the investigation of hydroelectric power sites on the Snare and Lockhart rivers with a view to supplementing existing facilities; construction of a new landing field capable of accommodating wheel-equipped aircraft; improvement and extension of roads serving mining properties, and the survey of an extension to the townsite of Yellowknife.

Production of petroleum at Norman Wells in the lower Mackenzie basin, which reached a new high in 1944, declined in 1945 following termination of drilling and production of crude oil for the Canol project, on orders of the United States government. From the inception of the Canol project in May 1942, until March 8, 1945, a total of 61 new producing wells were brought in. Sufficient wells were left in operation to meet the needs of a small refinery at Norman Wells which supplied the petroleum products requirements of Mackenzie district, and the remainder were capped. Up to March 8, 1945, when oil production for the Canol project stopped, the cumulative production of the Norman Wells field was 1,977,342 bbl. Of this amount, 118,895 bbl. were produced prior to May 1942. The pumping of oil through the Canol pipeline from Norman Wells to Whitehorse, Yukon Territory, and the operation of the refinery at White-



horse were terminated about April 1, 1945. Explorative drilling, on a small scale, was continued in the vicinity of Norman Wells.

**Field Surveys and Investigation.**—An extensive program of field investigation was continued in 1945 in the territories by various Canadian government departments. Work undertaken in the Mackenzie district included geological reconnaissance and mapping, topographical and hydrographic surveys, horticultural and soil surveys, investigation of fisheries, and surveys necessary for the improvement of navigation on the Mackenzie river waterway. (R. A. G.)

**Norway.** A democratic monarchy of northern Europe, bounded N. by the Arctic ocean, E. by Finland and Sweden, S. and W. by the North sea. Area 124,556 sq.mi.; pop. (est. 1939) 2,921,000. Capital, Oslo (253,124). Other principal cities, with 1930 populations, are Bergen (98,303); Trondheim (54,458); and Stavanger (46,780). Religion, Lutheran Christian. Ruler in 1945: King Haakon VII. Prime Minister: Einar Gerhardsen.

**History.**—As warning prelude to 1945, a flight of bombers from Great Britain raided Oslo gestapo headquarters in Victoria terrace on New Year's Eve 1944 (to 1945). While some damage was done to the building and a few Germans were killed, there were also 75 Norwegians killed because the Germans had not given them the air-raid warning.

The reconquest of northern Norway, partly by Norwegian troops trained in Great Britain or Sweden, pushed forward vigorously. The Russians had freed Kirkenes but refrained from driving deep into the devastated country. Dean Arne Fjellbu, banished from Trondheim because of a demonstration of popular disobedience to the nazis, was appointed bishop of the liberated northern area, and preached his first sermon on Jan. 14. The Norwegian troops had reconquered the land down into northern Troms province by May 8, when the Germans surrendered. Home front forces, meantime, had committed extensive sabotage of mines and factories and effectively wrecked much of the transportation system so as to prevent the nazi troops from being moved. This entailed expensive destruction in a country whose ruggedness made engineering projects difficult. Bombings and blockade added to the problems of the invaders, and to the eventual reconstruction problems of the Norwegians.

By May 8 the people felt repaid for their tenacious resistance. On that day the German major-generals, Frantz Böhme and Holte, signed the terms of surrender with Brigadier General R. Hilton of the Allied Control commission. Thus ended fears of a desperate nazi "last stand" in Norway. Church bells rang throughout the land and the Norwegians gave themselves to rejoicing. Crown Prince Olav, as commander in chief of Norwegian military forces, broadcast orders from London placing Norwegian troops under Allied command, and complete coordination was maintained. The 1,200 patriot prisoners were released from the notorious Grini concentration camp and many more from the smaller concentration camps scattered through the country. "Möllergaten 19" was emptied of its political prisoners, some under sentence of death. Vidkun Quisling was thrust into one of the vacant cells as a common prisoner, despite his demands for special treatment. Reichscommissar Josef Terboven and S.S. Lt. Gen. W. Rediess committed suicide, as did Jonas Lie and Henrik Rogstad, heads of the Quisling police system. There were 17,000 Norwegians arrested for treason, while the vast majority of the people gloried in their liberation.

It was found in May that about 350,000 German soldiers remained in Norway. They were brought into camps and by July were being transported out at the rate of 25,000 per week. The 74,000 Russian slave labourers were sent home and of the 15,000 Russian troops who had occupied Finnmark the last evacuated among scenes of mutual gratitude on Sept. 25. By the middle of October the 4,700 U.S. troops, who had come in after May 8, also departed—many of these were of Norwegian ancestry and

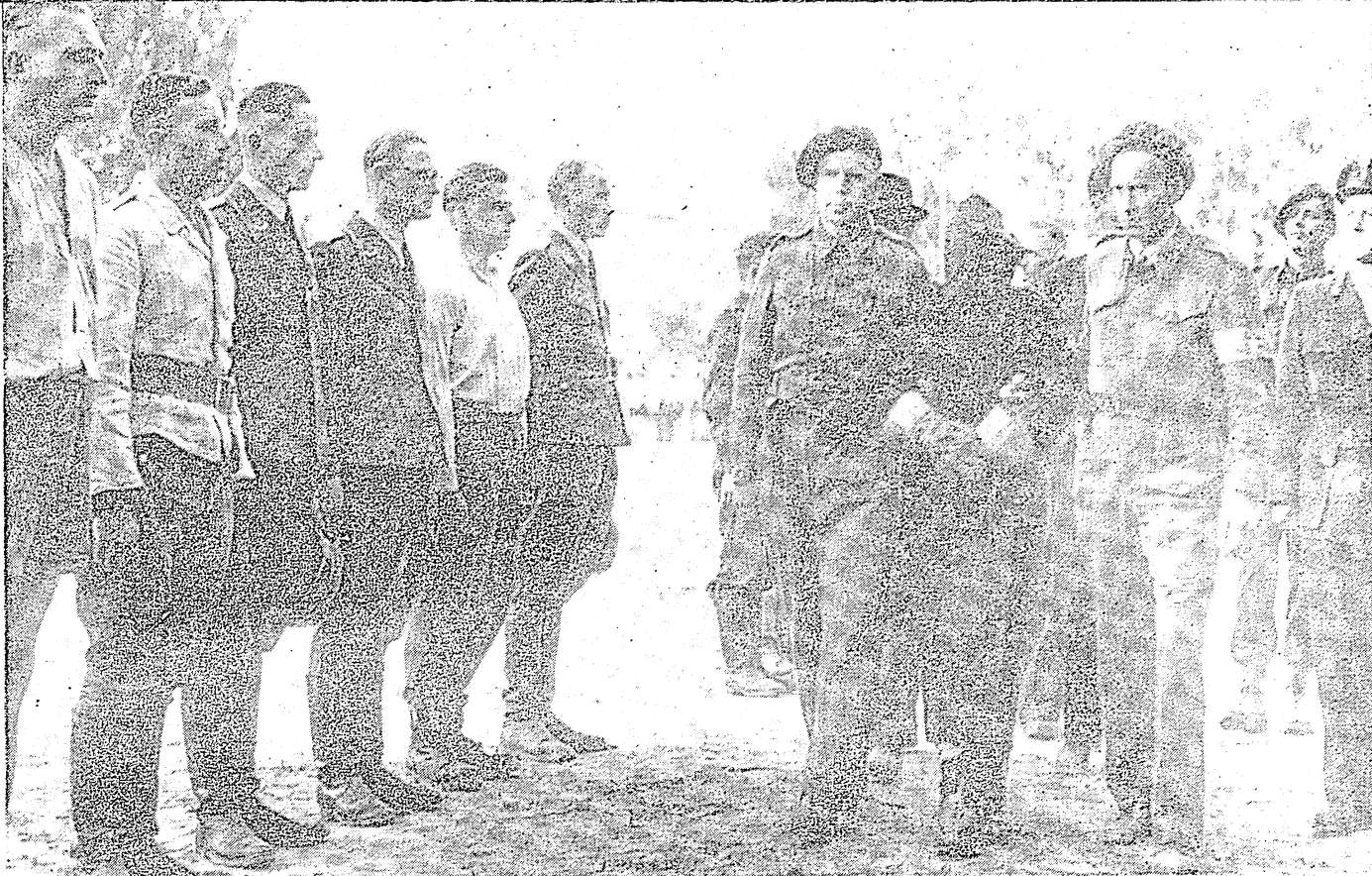
70 had married Norwegian girls. A more serious problem was the large number of children born to Norwegian girls of German fathers. The government frankly took responsibility for allowing these children to be adopted and protected and partially supported by the state. Girls who wished were to be allowed to go to Germany to marry.

Quisling, who had given his name to the languages of the world as synonym for a special 20th century brand of treason, was brought to trial in the Norwegian courts. He defended himself vehemently, but on Sept. 10 was convicted of treason, murder and theft. It was decided that he had plotted with the Germans for the invasion of Norway and had been responsible for the deaths of 1,000 Norwegian Jews and 100 citizens who had resisted the invasion and whose pardon he had refused. The supreme court upheld the verdict on Oct. 13; Mrs. Quisling's special appeal was denied by the cabinet on Oct. 22; and the puppet leader was executed at Akershus fortress, 2:40 A.M., Oct. 24. The death penalty, long forbidden in Norwegian law, had been established by decree of the government-in-exile, Oct. 3, 1941, and confirmed by the storting on June 29, 1945.

Reconstruction, after five years of occupation marked from the first by bitterness, bloodshed and destruction, was hard. Areas such as Finnmark had been "scorched"—there only two churches stood in the whole province, and few homes. Prefabricated houses from Sweden could only begin to fill the need, and people lived in crowded and primitive conditions. Transportation was extremely difficult, electric power plants had been destroyed, cattle and sheep were gone, fishing boats destroyed. But the Norwegians went to work to rebuild their beloved land, ordered new ships and were confident of the future.

Normal political life was re-established in Norway more quickly and more smoothly, probably, than in any of the other occupied countries. On May 13 Crown Prince Olav arrived in Oslo, with three of the ministers of the government-in-exile from London (Terje Wold, Oscar Torp and Sven Nielsen). On May 14 the home front leaders formally handed over authority to Olav. On the last day of May president of the storting, Carl J. Hambro, Prime Minister Nygaardsvold and the other ministers arrived; on June 7, exactly five years from the day he had left Norway, King Haakon sailed in on the "Heimdal," the royal yacht on which he had come to Norway in 1907. The political legalities were all intact due to a far-sighted constitutional provision and to the meeting of the storting at Elverum on April 9, 1940, when the government was empowered to take any decisions necessary, wherever it might be.

The Nygaardsvold government, in power from 1935, resigned as it had promised on June 12. Chief Justice Paal Berg, highest leader of the underground, was asked to form a government, but could not satisfy himself and the parties. Einar Gerhardsen, mayor of Oslo and member of the Labour party, then formed an interim government, to serve until elections. Soon thereafter (July 24) the Communist and Labour parties amalgamated, and in the elections on Oct. 8 won a clear majority. Gerhardsen reconstructed the cabinet so that after Nov. 8 it was constituted of the following ministers and their departments: Einar Gerhardsen, prime minister; Trygve Lie, foreign affairs; Kaare Fostervoll, church and public instruction; Oscar Torp, supply (formerly defense); Lars Evensen, commerce; Sven Oftedal, social affairs (these carrying over from the interim government, the rest new); Jens C. Hauge, defense; Erik Brofoss, finance; Oscar C. Gundersen, justice; Kristian Fjeld, agriculture; Nils Langehelle, public works; and the following consultative ministers, all new: Aaslaug Aasland, social affairs; Reidar Carlsen, fisheries; Peder Holt, reconstruction. This was the youngest cabinet in Norwegian history, with five of the ministers under 38 and the average age 44.



HOODED Norwegian informer identified Gestapo agents from among the Norwegian regular army at Oslo in 1945. Behind him were Allied intelligence troops prepared to take charge of prisoners

Norway participated in the San Francisco conference with an able delegation led by Trygve Lie, C. J. Hambro and W. M. Morgenstierne. The government was eager to create a working broad international organization, and shied away from regional blocs.

Rapid rebuilding of the country was the foremost aim of government and people. Trade negotiations were pushed, plans were drawn for re-establishing the whaling industry and the merchant fleet, increasing power production and rebuilding the farm lands. The University of Oslo opened its doors, closed from 1943, to more than 1,000 students, and scores went abroad to Great Britain and the U.S. for special training.

**Education.**—In 1937-38 there were 357,793 students and 10,521 teachers in the elementary schools; 31,127 students and 1,809 teachers in the middle schools and gymnasia, and 16,033 students in continuation schools. The 11 schools of university rank had a combined enrolment of 4,998. The total state budget for educational purposes in 1939-40 was 65,364,000 kr.

**Finance.**—The monetary unit is the krone (23.2 U.S. cents in 1939). Budgetary income and expenses for 1937-38 balanced at 572,135,000 kr. The government, while in London, received a large income from the merchant marine, requisitioned early in World War II.

**Trade.**—In 1939 exports were valued at 808,172,000 kr.; imports, 1,361,835,000 kr. In 1945 foreign trade was carried on through government organizations, but plans were announced in December for transferring the British and U.S. trade to private channels. By strenuous efforts the merchant fleet was being rapidly re-established. Trade loans were negotiated abroad—such as the \$50,000,000, 3% to 3½% loan through the U.S. Export-Import bank.

**Communication.**—In 1939 there were 2,335 mi. of state railways and 26,677 mi. of highways (11,857 mi. improved, 13,820 unimproved). In 1938 there were 107,657 motor vehicles. Norwegian air lines flew a total of 85,000 mi. in 1938. Telephones numbered 122,664; telegraph lines extended 21,875 mi.;

radio receivers (licensed) numbered 400,623.

**Agriculture.**—The total value of agricultural products in 1938 was 384,207,000 kr.; of animal products (eggs, milk, wool, etc.), 428,000,000 kr.; furs, 30,000,000 kr. Landholdings numbered 562,407 (298,360 operating units) with a value of 2,410,101,000 kr. Leading crops were wheat 15,791,000 kr., rye 2,197,000 kr., barley 22,382,000 kr. and oats 31,479,000 kr. In 1938 total productive forest area was one-quarter of the total land area, or 18,700,000 ac. Herds were reduced at least 15% during World War II, and farms were often badly neglected.

**Fisheries.**—The total catch of fish in 1938 was 1,174,000 short tons, plus 1,089,000 tons of whale oil; of the fish, 763,000 tons were herring of various kinds. The 1944 catch was considerably smaller than normal and the Germans demanded 75%-95% of it. Conditions improved in 1945, but the fishing fleet was much depleted.

**Manufacturing.**—In 1937 there were 4,306 establishments which turned out products valued at 2,023,551,000 kr. According to value of the product, the most important industries were food and tobacco 411,109,000 kr., paper, cellulose 309,733,000 kr., iron and metal 308,169,000 kr., mining 216,511,000 kr., textile 144,488,000 kr. and wood, furniture, etc. 140,756,000 kr.

**Mineral Production.**—In 1938 the principal mineral product was iron ore, valued at 26,665,000 kr. Pyrites, valued at 18,168,000 kr. and copper, valued at 5,013,000 kr., were respectively the second and third minerals. (F. D. S.)

**Nose:** see EAR, NOSE AND THROAT, DISEASES OF.

**Notre Dame, University of.** An institution of higher education at Notre Dame (South Bend), Indiana.

Outstanding in 1945 was the shift from war to peace programs. Notre Dame's World War II dead totalled 287. The U.S. Naval Reserve Midshipmen's school closed Nov. 2 after having commissioned more than 10,000 officers in its 11 classes during the war years. The N.R.O.T.C. absorbed most of the remaining 800 navy trainees in its own program, including a

few V-12 and V-5 men.

Enrolment in the five colleges at the end of 1945 totalled 2,855, including 591 returned veterans and 2,047 civilian students, two-thirds of normal civilian capacity.

Rev. Hugh O'Donnell, C.S.C., president of Notre Dame, announced in April a long-range development and building program, which was actively supplemented later in the year by announcement of a \$1,000,000 bequest for economic development and a \$1,000,000 gift for chemistry and chemical engineering. Annual alumni giving and other individual gifts raised the 1945 total income substantially.

Gardiner Howland Shaw, diplomat and penologist, was the 63rd Laetare medalist. The Associate Board of Lay Trustees observed the 25th anniversary of its founding. A new dean of engineering, Karl Schoenherr, was announced. Frank Leahy returned as director of athletics after service in the navy. Offices of student personnel and vocational counselling were instituted on the campus to supplement the work done by advisors in student residence halls. The university continued on the three 16-week semester program, with 283 degrees being awarded in the February, June and November special convocations.

(For statistics of enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (J. E. AR.)

**Nova Scotia.** One of the maritime provinces of Canada, Nova Scotia entered the union in 1867. The area is 21,428 sq.mi.; the population, 577,962 (1941 census). The capital is Halifax (70,488); other cities are Sydney (28,305), and Glace Bay (25,147). Local administration is in the hands of a provincial parliament composed of a lieutenant governor, executive council and legislative assembly of 30 members. Nova Scotia is represented at Ottawa by 12 members of the house of commons and 10 senators.

**History.**—During 1945, the chief political event in provincial circles was the general election held in October. The Liberal administration, which was returned in 1941, swept the province, winning 28 of the 30 seats in the assembly; the Co-operative Commonwealth Federation party, 2. In the course of the autumn, Angus Macdonald succeeded A. S. Macmillan as leader of the Liberal party. At the dominion general elections (June 11), the Liberals captured 9, the Progressive Conservative party 2, and the Co-operative Commonwealth Federation party 1 of the seats in the Ottawa parliament. Other events of note were the disastrous V-E day demonstrations in Halifax, and the great fire at the naval arsenal near Halifax on July 18, when about 100 persons were injured.

**Education.**—For the school session 1941-42, enrolment in all educational institutions was 143,162; revenues of provincially controlled schools in 1943 was \$4,724,817. The universities of Nova Scotia are, King's Dalhousie (Halifax), Acadia (Wolfville), St. François Xavier (Antigonish).

**Agriculture and Industries.**—During 1945, coal production was 3,815,736 tons, for the period, Sept. 1944-Sept. 1945. In 1943, the value of coal production was \$27,121,861. The estimated gross value of farm production was \$47,912,000 (1944); farm income, \$26,600,000. In 1945, the value of field crops was \$20,660,000 (1944, \$21,998,000). In 1944, the value of the fisheries was \$23,662,055.

FILMS.—*Maritime Provinces* (Encyclopædia Britannica Films Inc.). (J. I. C.)

**Nursery Schools:** see EDUCATION.

**Nursing, War.** On Jan. 6, 1945, with military demands for graduate nurses at their wartime peak, the president of the United States, in his message to congress, rec-

ommended a draft of registered nurses.

Voluntary enlistments, recruited by the army and navy nurse corps with the help of the American Red Cross, had not proved sufficient to meet the unprecedented needs of total war. Members of the U.S. cadet nurse corps studying in 1,100 schools of nursing throughout the U.S., had released many thousands of graduates for military service and had prevented the collapse of nursing service on the civilian home front. But the corps was still in its infancy insofar as producing graduates was concerned.

In March, the first bill ever designed to draft women in the United States was passed by the house of representatives and introduced in the senate. (H.R. 2277, an act "to amend the Selective Training and Service act of 1940.")

A spectacular increase in army and navy nurse corps enlistments was precipitated by conviction of need in the president's message and in the subsequent nurse draft hearings in the house military affairs committee. At the same time, a survey of cadet nurses revealed that 85% intended to go into military service upon graduation, although their pledge gave them a choice to remain in either military or essential civilian nursing for the duration of the war. Because of this magnificent response, the progress of the spring military campaigns in Europe and the victorious end of the war, the draft bill was withdrawn. The Japanese surrender in August cancelled all recruiting of graduate nurses for the military and of student nurses for the cadet nurse corps. For the second consecutive year, the corps had exceeded its quota, 60,000 new student nurses by June 30. In accordance with the recommendations of the president and congress, Oct. 15, 1945, was set as the final date for new admissions; total corps strength on that day was 117,000. The Bolton Nurse Training act (June 1943), which established the corps under the administration of the U.S. public health service, provided that these cadet nurses would be carried through to graduation on federal scholarships.

As of June 30, 65,216 graduates (27% of the total number of active professional nurses in the United States) were serving with the armed forces, on land, on sea and in the air, stationed at installations in continental United States and in all theatres of operation. This figure plus the tens of thousands who applied but were not assigned represented a larger number of war-service volunteers than any other U.S. profession. Graduate nurses held commissions in the army nurse corps, the navy nurse corps and the public health service commissioned corps, which was declared a duration military service in July 1945.

While military demands decreased, nursing needs increased in the three civilian federal services (Veterans' administration, public health service and Indian bureau) and in civilian non-federal hospitals and public health agencies. The principal sources of nursepower to meet this need included: graduates released from the military (25,000 from the army, 2,000 from the navy, by Jan. 1, 1946); graduates of the cadet nurse corps (approximately 14,000, July 1-Dec. 31, 1945); senior cadet members of the corps (approximately 8,000, July 1-Dec. 31, 1945).

During the national emergency, graduates and students serving on the civilian home front assumed tremendous responsibilities. Students rendered 80% of the nursing service in hospitals with schools of nursing. Senior cadets in federal hospitals, non-federal general and special hospitals and public health agencies gave service almost equal to that of graduates. Graduates were pressed to take on extra duties, particularly in educational and administrative positions, for which they were not adequately prepared. To remedy this latter situation, the Bolton act, in addition to providing federal scholarships for cadet nurses, furnished federal funds for advanced study for graduates. Where these nurses could not be spared from their jobs to take com-



plete postgraduate preparation, a series of on-the-job courses was brought to the hospital. From July 1, 1943, to Oct. 15, 1945, approximately 15,000 graduates had received federal aid for advanced study.

The shortage of nursing and nonnursing personnel in hospitals in the U.S. remained acute after the surrender of Japan. As of September, 23% had closed beds, many had closed wards and operating rooms. And the public need for hospital care was greater than ever before. Between 1940 and 1944, the daily average hospital census increased from 1,026,171 to 1,299,474; births increased 705,484. If all military nurses could have been released immediately, and if all had returned to civilian nursing at once, the domestic problem could have been solved. This, obviously, could not happen. Sick and wounded service men and women continued to need nursing care. Demobilization takes time. Following their release from military service, army and navy nurses were entitled to long-needed rests; some decided not to return to active professional jobs.

For devotion to duty during the war, 962 army and navy nurses had received awards and citations by Sept. 1945:

Army	Navy
1 Distinguished Service Medal	1 Legion of Merit
2 Distinguished Flying Crosses (one posthumous)	13 Bronze Star Medals
4 Silver Stars	12 Presidential Unit Citations
12 Legion of Merit	42 Unit Citations
5 Soldiers Medals	21 Individual Commendations
332 Bronze Stars (one with Oak Leaf Cluster)	
354 Air Medals	
103 Citations	
60 Purple Hearts (15 posthumous, one with Oak Leaf Cluster)	

BIBLIOGRAPHY.—“The Nurses’ Contribution to American Victory,” *American Journal of Nursing* (Sept. 1945); 1945 *Facts About Nursing*, published by the Nursing Information bureau of the American Nurses’ association, co-operating with the National League of Nursing Education and the National Organization for Public Health Nursing. (T. Pn.)

**Nutmegs:** see SPICES.  
**Nutrition:** see DIETETICS; FOOD RESEARCH; MEDICINE; VITAMINS.  
**Nutrition and Home Economics, Bureau of:** see AGRICULTURAL RESEARCH ADMINISTRATION.

**Nuts.** Pecan production in 1945 in the United States was estimated at 141,533,000 lb. compared with 140,165,000 lb. produced in 1944 and an average of 97,346,000 lb. in 1934-43. Of the total harvested in 1945, 63,446,000 lb. were of improved varieties and 78,087,000 lb. wild or seedling kinds. The Texas crop was 25% below 1944 due mainly to hurricane damage in August.

U.S. Production of Pecans by States, 1945 and 1944

State	Improved Varieties		Wild Varieties	
	1945 lb.	1944 lb.	1945 lb.	1944 lb.
Georgia	30,954,000	28,140,000	5,896,000	5,360,000
Alabama	7,216,000	7,885,000	1,804,000	1,615,000
Texas	3,870,000	5,400,000	38,380,000	39,600,000
Mississippi	3,300,000	4,980,000	2,700,000	3,320,000
South Carolina	2,961,000	2,132,000	443,000	468,000
North Carolina	2,504,000	2,070,000	310,000	230,000
Florida	2,371,000	2,856,000	1,863,000	2,244,000
Louisiana	1,840,000	3,744,000	7,360,000	10,656,000
Oklahoma	1,000,000	1,400,000	20,000,000	12,600,000
Arkansas	882,000	504,000	4,018,000	3,696,000
Missouri	60,000	25,000	1,800,000	750,000
Illinois	21,000	10,000	1,029,000	480,000

Walnut production in 1945 was estimated at 68,000 tons, slightly less than the 1944 crop but 18% above the ten-year average. In California the crop was only slightly less than the record production of 1941. Oregon had a crop somewhat smaller than 1944.

The almond crop, which is produced almost wholly in California, was estimated at 23,100 tons, the largest on record. This compares with 21,000 tons produced in 1944 and 13,700 tons in 1934-43.

The filbert crop, produced in Oregon and Washington was estimated at 4,920 tons which was 24% smaller than the 1944 production of 6,460 tons but above the average of 1934-43. In Oregon the older orchards yielded poorly and the 1944 total was only 4,300 tons compared with 5,600 tons produced in 1944. Dry weather reduced the Washington crop. (See also COCO-NUTS; PEANUTS.) (J. C. Ms.)

**NWLB (National War Labor Board):** see WAR LABOR BOARD, NATIONAL.

**Nyasaland:** see BRITISH EAST AFRICA.

**Nylon:** see RAYON AND OTHER SYNTHETIC FIBRES.

**Oats.** In the United States the 1945 crop of oats was the top record crop of grains of the year. Oat production was estimated by the U.S. department of agriculture at 1,583,650,000 bu. which exceeded the previous record of 1920 by 139,000,000 bu. This crop was 30% above the 1944 crop of 1,166,392,000 bu. and nearly 50% above the average of 1,068,000,000 bu. of 1934-43. The acreage was increased nearly 8% to 41,950,000. Yields were phenomenal at 37.8 bu. per ac. compared with 29.6 as the average of 1934-43. The record yields were harvested in

U.S. Production of Oats, 1945 and 1944

State	1945 bu.	1944 bu.	State	1945 bu.	1944 bu.
Minnesota	242,640,000	155,960,000	Colorado	7,245,000	5,482,000
Iowa	214,440,000	135,198,000	Idaho	6,806,000	7,308,000
Illinois	158,102,000	100,896,000	Alabama	5,275,000	4,608,000
Wisconsin	152,337,000	118,938,000	California	5,115,000	5,310,000
South Dakota	147,963,000	92,430,000	Wyoming	4,557,000	4,320,000
North Dakota	82,484,000	82,041,000	Louisiana	4,248,000	4,880,000
Nebraska	74,120,000	35,586,000	Tennessee	4,416,000	3,611,000
Michigan	64,400,000	44,100,000	Virginia	3,780,000	3,672,000
Indiana	59,682,000	31,400,000	Maine	2,916,000	3,516,000
Ohio	53,210,000	37,124,000	Utah	1,833,000	2,107,000
Texas	42,441,000	38,600,000	West Virginia	1,750,000	1,430,000
Missouri	31,161,000	29,970,000	Kentucky	1,725,000	1,538,000
Pennsylvania	24,583,000	23,912,000	Vermont	1,302,000	1,395,000
New York	20,822,000	25,017,000	Maryland	960,000	1,170,000
Oklahoma	19,855,000	27,569,000	New Jersey	925,000	1,209,000
Kansas	17,668,000	28,098,000	New Mexico	682,000	1,050,000
South Carolina	16,023,000	15,064,000	Florida	480,000	400,000
Georgia	15,000,000	13,080,000	Arizona	384,000	319,000
Mississippi	13,671,000	15,096,000	Nevada	273,000	252,000
Montana	9,486,000	15,717,000	New Hampshire	252,000	259,000
North Carolina	9,128,000	8,151,000	Massachusetts	186,000	165,000
Arkansas	8,208,000	9,405,000	Delaware	124,000	116,000
Oregon	7,818,000	10,828,000	Connecticut	116,000	108,000
Washington	7,040,000	7,728,000	Rhode Island	31,000	30,000

the north central states: Wisconsin 51.5 bu. per ac., Minnesota 46, South Dakota 43 and Illinois 48. Yields in Missouri, Kansas and Oklahoma were below average. Stocks of oats for feed were one-third larger than in 1944. Prices of oats ranged lower through the year 1945 than in 1944. (J. C. Ms.)

**Obituaries.** The following is a list of men and women who died during 1945. An asterisk (\*) marks those for whom biographical notices are to be found in regular alphabetical position.

Name	Birth date	Death date
ABDULLAH, ACHMED, British novelist and writer.	May 12, 1881	May 12
*ADAMS, HERBERT, U.S. sculptor	Jan. 28, 1858	May 21
ADAMS, PORTER HARTWELL, U.S. educator.	Aug. 10, 1894	Dec. 5
AGNELLI, GIOVANNI, Italian industrialist	Aug. 13, 1866	Dec. 16
AGNINI, GREGORIO, Italian politician	1858?	Oct. 5
AINLEY, HENRY HINCHIFFE, British actor	Aug. 21, 1879	Oct. 31
ALBEE, FRED HOULETT, U.S. surgeon	Apr. 13, 1876	Feb. 15
ALINGTON, ARGENTINE HUGH, British naval officer	July 10, 1876	Mar. 28
ALWIN, KARL, German pianist, composer, conductor	Apr. 15, 1891	Oct. 15
ANAMI, KORECHIKA, Japanese army officer	Feb. 1887	Aug. 14?
APPLETON, ROBERT, U.S. publisher	1864?	Jan. 19
*ARGENTINITA (ENCARNACION LOPEZ), Spanish dancer	Mar. 25, 1905	Sept. 24
ARMAGH, JOSEPH MACRORY, CARDINAL ARCHBISHOP OF, Irish prelate	Mar. 19, 1861	Oct. 13
ARMETTA, HENRY, U.S. motion picture actor	July 4, 1888	Oct. 21
ARMSTRONG, EDWARD FRANKLAND, British chemist	1878	Dec. 15
ARNOLD, SYDNEY ARNOLD, 1ST BARON, British politician	Jan. 13, 1878	Aug. 3
AROSEMENA, FLORENCIO HARMODIO, Panama politician	1873?	Aug. 30
ARUNDALE, GEORGE SYDNEY, British theosophist leader	Dec. 1, 1877	Aug. 12
*ASTON, FRANCIS WILLIAM, British scientist	Sept. 1, 1878	Nov. 21?
ATWOOD, JULIUS WALTER, U.S. clergyman	June 27, 1857	Apr. 10
AVILA CAMACHO, MAXIMINO, Mexican politician and army officer	Aug. 1893	Feb. 17
AZARIAH, VEDANAYAKAM SAMUEL, Indian bishop	Aug. 17, 1874	Jan. 2
BACON, SIR HICKMAN BECKETT, premier baronet of England	Apr. 14, 1855	Apr. 13
*BAKER, SARA JOSEPHINE, U.S. child hygiene expert	Nov. 15, 1873	Feb. 22
BAIFOUR, GERALD WILLIAM BAIFOUR, 2ND EARL OF, British peer	Apr. 9, 1853	Jan. 14

Name	Birth date	Death date	Name	Birth date	Death date
*BARBIER, GEORGE, U.S. actor	1865?	July 19	DAMMANN, MOTHER GRACE COWARDIN, U.S. educator	July 9, 1872	Feb. 13
BARCLAY-SMITH, EDWARD, British anatomist	1861?	July 5	*DARBY, WILLIAM ORLANDO, U.S. army officer	July 8, 1911	May 12
BARING, MAURICE, British diplomat and author	Apr. 27, 1874	Dec. 15	DAVIS, DWIGHT FILLEY, U.S. politician, cabinet member	July 5, 1879	Nov. 27
BARNET VINAGERAS, JOSE AGRIPIO, Cuban statesman	1864?	Sept. 19	DAWSON, MARTIN HENRY, U.S. research scientist	Aug. 6, 1896	Apr. 28
*BARTOK, BELA, Hungarian composer	Mar. 25, 1881	Sept. 26	*DAWSON OF PENN, BERTRAND EDWARD DAWSON, 1ST VISCOUNT, British physician	1865?	Mar. 7
*BASCOM, FLORENCE, U.S. geologist, educator	July 14, 1862	June 18	DAYTON, KATHARINE, U.S. writer	1890?	Mar. 4
*BASILONE, JOHN, U.S. marine	1918?	Feb. 19	DE BLOIS, AUSTEN KENNEDY, U.S. educator	Dec. 17, 1866	Aug. 10
BAXTER, HUGH H., U.S. banker, sportsman	1861?	Dec. 28	DE CASSERES, BENJAMIN, U.S. author, columnist	1873?	Dec. 6
BECKER, CARL LOTUS, U.S. author, historian	Sept. 7, 1873	Apr. 10	DE FOREST, ALFRED VICTOR, U.S. engineer, educator	Apr. 7, 1888	Apr. 5
BEDNY, DEMIAN IEFIM ALEXEYEVICH PRIDVOROV, Russian poet	1883	May 26?	*DELAND, MARGARETTA WADE (CAMPBELL), U.S. writer	Feb. 23, 1857	Jan. 13
*BEER-HOFMANN, RICHARD, Austrian poet and playwright	July 11, 1866	Sept. 26	DE L'ISLE AND DUDLEY, WILLIAM SIDNEY, 5TH BARON, British M.P.	Aug. 19, 1859	June 18
BELL, SIR CHARLES (ALFRED), British government official	Oct. 31, 1870	Mar. 8	DE MOOR, JOHANNES MARTEN, Netherlands jurist	1896	May 30
BELLAMANN, HENRY, U.S. author, musician	Apr. 28, 1882	June 16	*DENNY, HAROLD NORMAN, U.S. war correspondent	Mar. 11, 1889	July 3
*BENAVIDES, OSCAR R., Peruvian army officer, politician	1876	July 2	DENTZ, HENRI-FERNAND, French army officer	Dec. 12, 1881	Dec. 13
*BENCHLEY, ROBERT CHARLES, U.S. humorist	Sept. 15, 1889	Nov. 21	DESBOROUGH, WILLIAM HENRY GRENFELL, 1ST BARON, OF TAPLOW, British sportsman	Oct. 30, 1855	Jan. 9
*BENDIX, VINCENT, U.S. engineer, inventor	1882	Mar. 27	DIELS, LUDWIG, German botanist	Sept. 24, 1874	Nov. 30
BENT, SILAS, U.S. editor, writer	May 9, 1882	July 30	DIVER, (KATHERINE HELEN) MAUD, British author	1867?	Oct. 14
BERNET, OTTO, U.S. art dealer	July 13, 1881	Oct. 13	DONNAY, MAURICE, French playwright	Oct. 12, 1859	Mar. 31
BERRY, EDWARD WILBER, U.S. educator, paleontologist	Feb. 10, 1875	Sept. 20	DONOGHUE, STEPHEN ("STEVE"), British jockey	Oct. 1884	Mar. 23
BERRY, GEORGE RICKER, U.S. theologian, archaeologist	Oct. 15, 1865	May 24	DOROT, MARCEL, French aviator	1896?	Feb. 5
BERTRAM, ADOLF, CARDINAL, German prelate	Mar. 14, 1859	July 12?	DORIOT, JACQUES, French politician	1888	Feb. 23?
*BERZARIN, NIKOLAI Y., Russian army officer	1904?	June 18	DORMMUELLER, JULIUS HEINRICH, German transportation expert, politician	July 24, 1869	Aug. 2?
BEVEN, JOHN LANSING, U.S. railroad executive	Feb. 17, 1887	Jan. 3	DOSTLER, ANTON, German army officer	1891?	Dec. 1
*BIBESCO, ELIZABETH, PRINCESS, British author	1897	Apr. 7	*DOUGLAS, LORD ALFRED (BRUCE), British author and poet	Oct. 22, 1870	Mar. 20
*BONG, RICHARD IRA, U.S. air officer	Sept. 24, 1920	Aug. 6	*DREISER, THEODORE, U.S. author	Aug. 27, 1871	Dec. 28
BORCHARD, LEO, Russian conductor	Mar. 31, 1899	Aug. 23	DRIGGS, LAURENCE LA TOURETTE, U.S. attorney, aviation specialist	Dec. 1, 1876	May 26
*BOSE, SUBHAS CHANDRA, Indian politician	1859?	Oct. 13	DUFFERIN AND AVA, BASIL SHERIDAN HAMILTON-TEMPLE-BLACKWOOD, 4TH MARQUESS OF, British army officer, government official	Apr. 6, 1909	Mar. 25
BOUGHTON, FREDERICK SEYMOUR, U.S. mycologist	1872?	Nov. 3	DUNLAP, RENICK WILLIAM, U.S. agricultural scientist	Oct. 21, 1872	Mar. 2
BOURBON-ORLEANS, LOUIS FERDINAND, PRINCE OF, member of royal house of France and Spain	Nov. 5, 1888	June 22	DUNNING, N. MAX, U.S. architect	Aug. 4, 1873	Apr. 19
BOURDET, EDOUARD, French playwright	1887?	Nov. 3	*EASLEY, CLAUDIUS MILLER, U.S. army officer	July 11, 1891	June 19
*BOVARD, OLIVER KIRBY, U.S. newspaper editor	1872?	Nov. 3	EBERSOLE, JOHN FRANKLIN, U.S. educator	July 16, 1884	June 24
BOYLE, SIR EDWARD, British corporation executive, Balkan expert	June 12, 1878	Apr. 3	ECKHARD, GEORGE FREDERICK, U.S. educator	Nov. 21, 1878	Dec. 28
BOYNTON, GEORGE RUFUS, U.S. portrait painter	1854	Jan. 6	EDSALL, DAVID LINN, U.S. physician	July 6, 1869	Aug. 12
BRAITHWAITE, SIR WALTER PIPON, British army officer	Nov. 11, 1865	Sept. 9	*EDWARDS, GUS, U.S. song writer	Aug. 18, 1881	Nov. 7
*BRANDEIS, ALICE GOLDMARK, U.S. suffragist	1866?	Oct. 11	EDWARDS, JOHN HOMER, U.S. government official	Sept. 10, 1869	Aug. 20
BRANN, DONALD W., U.S. army officer	Sept. 26, 1895	Dec. 29	EGERTON, GEORGE (MRS. GOLDING BRIGHT), British author	Dec. 14, 1859	Aug. 13
BRANN, MAX, German politician	1893?	July 3	EKMAN, CARL GUSTAF, Swedish politician, journalist	1872	June 15
BREWSTER, DAVID LUKENS SHOEMAKER, U.S. marine corps officer	Dec. 31, 1887	July 10	ELIOT, ELLSWORTH, JR., U.S. surgeon	June 6, 1864	Oct. 30
BRISCOE, BENJAMIN, U.S. auto manufacturer	1867?	July 26	ELIUS, SIR HUGH JAMIESON, British army officer	Apr. 27, 1880	July 11
BROWN, ALBERT CURTIS, U.S. journalist, literary agent	Oct. 30, 1866	Sept. 22	ELIUS, SIR WILLIAM HENRY, British industrialist	Aug. 20, 1860	July 4
BROYLES, JOSEPH WARREN, U.S. educator	Mar. 9, 1901	Sept. 29	ELIUS, WILLIAM JOHN, U.S. penologist	Nov. 18, 1892	Mar. 11
BRUN, CONSTANTIN, Danish diplomat	1860	Dec. 23	ENO, WILLIAM PHELPS, U.S. traffic authority	1858?	Dec. 3
BRUNEAU, ARMAND L., U.S. tennis player	?	Aug. 20	ETTINGER, WILLIAM LOUIS, U.S. educator	Dec. 29, 1862	Dec. 25
BRYAN, CHARLES WAYLAND, U.S. politician	Feb. 10, 1867	Mar. 4	EUANK, EARLE HOWARD, U.S. sociologist, educator	Mar. 20, 1887	Dec. 17
*BUCKNER, SIMON BOLIVAR, JR., U.S. army officer	July 18, 1886	June 18	EURICH, FREDERICK WILLIAM, British pathologist	1867	Feb. 16
BUGBEE, HENRY GREENWOOD, U.S. urologist	1881	Jan. 18	EVANS, CARADOC, British novelist	1883?	Jan. 11
BULL, JOHAN, U.S. artist, etcher	Nov. 22, 1893	Sept. 12	EVANS, EDWARD STEPTOE, U.S. manufacturer	May 24, 1879	Sept. 6
BURGIN, EDWARD LESLIE, British politician	July 13, 1887	Aug. 15	EXMOUTH, CHARLES ERNEST PELLEW, 7TH VISCOUNT OF, British chemistry professor	Mar. 11, 1863	June 7
BURKE, THOMAS, British novelist, essayist	1886	Sept. 22	FAIRFAX, BEATRICE (MARIE MANNING GASCHI), U.S. columnist	1875?	Nov. 28
BURSTALL, SIR HENRY (EDWARD), Canadian army officer	Aug. 26, 1870	Feb. 8	FAIRFIELD, FREDERICK ARTHUR GREER, 1ST BARON, British jurist	1863	Feb. 4
BURTCH, VERDI, U.S. ornithologist	Dec. 25, 1868	Dec. 27	FAIVRE, ABEL, French painter, caricaturist	Mar. 30, 1867	Aug. 14
*BUSCH, ERNST, German army officer	July 6, 1885	July 17	FARJEON, HERBERT, British playwright, drama critic	Mar. 5, 1887	May 3
BUZZARD, SIR E. FARQUHAR, British physician	Dec. 20, 1871	Dec. 18	FARRAND, MAX, U.S. library director, educator	Mar. 29, 1869	June 17
BYAS, HUGH, British newspaperman	1874?	Mar. 6	FAVORSKY, ALEXEI, Russian scientist	1859?	Aug. 6
CABLE, FRANK TAYLOR, U.S. submarine expert, engineer	June 19, 1863	May 21	FENNEMAN, NEVIN M., U.S. physiographer and geologist	Dec. 26, 1865	July 4
*CABOT, HUGH, U.S. surgeon, educator	Aug. 11, 1872	Aug. 14	FERNENZI, IMRE, Hungarian sociologist	1884	Aug. 17
*CALDER, ALEXANDER STRILING, U.S. sculptor	Jan. 11, 1870	Jan. 6	FERGUSON, JOHN CALVIN, Canadian educator	Mar. 1, 1866	Aug. 3
CALDER, WILLIAM M., U.S. politician	Mar. 3, 1869	Mar. 3	FERRIS, SCOTT, U.S. lawyer and politician	Nov. 3, 1877	June 9
*CALLES, PLUTARCO ELIAS, Mexican statesman, military leader	Sept. 25, 1877	Oct. 19	FERSMAN, ALEXANDER EVGENIEVICH, Russian mineralogist	1883	May 20
*CAMERON, SIR DAVID YOUNG, British etcher, painter	June 28, 1865	Sept. 16	FISKE, ARTHUR DAVISON, U.S. poet, author	Nov. 10, 1883	Nov. 30
CANNON, WALTER BRADFORD, U.S. physiologist	Oct. 19, 1871	Oct. 1	FIELD, SIR FREDERICK LAURENCE, British naval officer	Apr. 19, 1871	Oct. 24
CARLIN, FRANCIS, U.S. poet	Apr. 7, 1882	Nov. 11	FIELDING, EDWARD, U.S. actor	1879?	Jan. 10
CARLIN, GEORGE A., U.S. editor	1891?	Nov. 28	*FINLAY, WILLIAM FINLAY, 2ND VISCOUNT, OF NAIRN, British jurist	1875	June 30
CARR, EMILY, Canadian artist, author	1870?	Mar. 14	*FISCHER, HANS, German chemist	July 27, 1881	Apr. 6?
*CASSEL, GUSTAV, Swedish economist	Oct. 20, 1866	Jan. 14	FISK, HARRY G., U.S. industrialist	1873?	Nov. 30
*CASSIRER, ERNST, German philosopher	July 28, 1874	Apr. 13	FISKE, GEORGE WALTER, U.S. educator, author	June 3, 1872	Oct. 10
CATOR, SIR RALPH BERTIE PETER, British jurist	Nov. 21, 1861	July 29?	*FLEMING, SIR (JOHN) AMBROSE, British physicist	Nov. 29, 1849	Apr. 19
CAVIGLIA, ENRICO, Italian army officer	May 4, 1862	Mar. 22	*FLEXNER, BERNARD, U.S. lawyer	Feb. 24, 1865	May 3
CHANDLER, THEODORE EDSON, U.S. naval officer	Dec. 26, 1894	Jan. 16?	FORTNEY, LORAIN, U.S. educator	1873?	Dec. 30
CHAPMAN, FRANK MICHLER, U.S. ornithologist	June 12, 1864	Nov. 15	FOSTER, EDNA ABIGAIL, U.S. writer, editor	?	July 11
CHARLESWORTH, HECTOR W., Canadian journalist, author	Sept. 28, 1872	Dec. 29	FOUILLOUX, JACQUES ANDRE, U.S. architect	Sept. 27, 1879	June 20
CHARLEY, SEBASTIAN, French educator	1867	Feb. 8	FOURET, GEORGES, French poet, author	1867?	Jan. 27
CHARNOOD, GODFREY RATHBONE BENSON, 1ST BARON, British author	Nov. 6, 1864	Feb. 3	FOX, DIXON RYAN, U.S. educator	Dec. 7, 1887	Jan. 30
CHATFIELD-TAYLOR, HOBART C., U.S. author	Mar. 24, 1865	Jan. 16	*FRASER, LEON, U.S. banker	Nov. 27, 1889	Apr. 8
*CHAUVEL, SIR HENRY GEORGE, Australian army officer	Apr. 16, 1865	Mar. 4	FRIDAY, DAVID, U.S. economist, educator	Sept. 30, 1876	Mar. 16
*CHERNYAKHOVSKY, IVAN DANILOVICH, Russian army officer	1907?	Feb. 18	*FRIEDBURG, HANS GEORG VON, German naval officer	July 15, 1895	May 23?
CHESTER, WAYLAND MORGAN, U.S. biologist	Mar. 10, 1870	Feb. 7	FULLERTON, HUGH S., SR., U.S. sportswriter	1873?	Dec. 27
CLARK, BRUCE LAWRENCE, U.S. paleontologist	May 29, 1880	Sept. 24	GAGE, GEORGE RAYMOND, U.S. botanist, educator	Aug. 6, 1890	Aug. 18
CLARKE, JAMES, U.S. publisher	Feb. 20, 1852	Sept. 4	GARVE, ALFRED ERNEST, British divine	Aug. 29, 1861	Mar. 7
*CLARKE, JOHN HESSIN, U.S. jurist	Sept. 18, 1857	Mar. 22	GAUL, HARVEY B., U.S. composer, organist	1881	Dec. 1
*CLENENING, LOGAN, U.S. physician, writer	May 25, 1884	Jan. 31	*GAY, MAISIE, British actress	Jan. 7, 1883	Sept. 13
CLOSE, RALPH WILLIAM, British diplomat	Oct. 27, 1867	Mar. 21?	*GAYFORD, OSWALD ROBERT, British air force officer	May 18, 1893	Aug. 10
COBORN, CHARLES, British comedian	Aug. 4, 1852	Nov. 23?	GIE, STEPHANUS F. N., British diplomat	July 13, 1884	Apr. 9
COLE-HAMILTON, JOHN BERESFORD, British air officer	Dec. 1, 1894	Aug. 22	GILBEY, SIR (H.) WALTER, British sportsman	Oct. 1, 1859	Apr. 11
COMMONS, JOHN ROGERS, U.S. economist and educator	Oct. 13, 1862	May 11	GILMORE, CHARLES WHITNEY, U.S. paleontologist	Mar. 11, 1874	Sept. 27
CONDON, JOHN F. ("JAFSIE"), U.S. educator	1860?	Jan. 2	GLASGOW, ELLEN (ANDERSON GHOLSON), U.S. author	Apr. 22, 1874	Nov. 21
CONNICK, CHARLES JAY, U.S. stained glass craftsman	Sept. 27, 1875	Dec. 28	GLASS, POWELL, U.S. journalist	Oct. 9, 1886	July 8
CONNOLLY, JOSEPH VINCENT, U.S. editor	Feb. 7, 1895	Apr. 18	GODDARD, ROBERT HUTCHINGS, U.S. physicist	Oct. 5, 1882	Aug. 10
CONSETT, MONTAGU WILLIAM WARCOP PETER, British naval officer	Apr. 15, 1871	Mar. 7	GODFREY, STUART C., U.S. army officer	Jan. 1, 1886	Oct. 19
COOLIDGE, JOHN TEMPLEMAN, U.S. artist, author	Jan. 1, 1856	Nov. 16	GODFREY-FAUSSETT, SIR BRYAN GODFREY, British royal equerry	1863	Sept. 20
CORBETT, LAMERT SEYMOUR, U.S. educator	Feb. 11, 1887	Feb. 8	*GOEBBELS, JOSEF, German propaganda chief	Oct. 29, 1897	May 3?
CORBETT-SMITH, ARTHUR, British publicist	1879	Jan. 17	*GODENOUGH, SIR WILLIAM EDMUND, British naval officer	June 2, 1867	Jan. 30
COX, LOUISE HOWLAND KING, U.S. portrait painter	June 23, 1865	Dec. 11	GORRELL, EDGAR STALEY, U.S. industrial engineer	Feb. 3, 1891	Mar. 5
CRAIB, MAJIN, U.S. army officer	Aug. 5, 1875	July 25	GOSCHEN, SIR HARRY (WILLIAM HENRY NEVILLE), British banker	1865	July 7
*CRAVEN, FRANK, U.S. actor	1880	Sept. 1	GOSSLER, PHILIP GREEN, U.S. utilities magnate	Aug. 6, 1870	May 18
CRET, PAUL PHILIPPE, U.S. architect	Oct. 23, 1876	Sept. 8	GOULD, FRANK MILLER, U.S. railway executive, philanthropist	Feb. 6, 1899	Jan. 13
*CREWE, ROBERT OFFLEY ASHBURTON CREWE-MILNES, 1ST MARQUESS OF, British statesman, writer	Jan. 12, 1858	June 20	GROLD, KINGDON, U.S. financier	1867?	Nov. 7
CROCKET, OSWALD SMITH, Canadian jurist	Apr. 13, 1868	Mar. 2	GRANACH, ALEXANDER, Polish actor	1890?	Mar. 14
CROW, (HERBERT) CARL, U.S. author	Sept. 26, 1883	June 8	*GRANT, HEBER J., U.S. cleric	Nov. 22, 1856	May 14
CROWN, JAMES EVANS, U.S. editor	Aug. 11, 1873	Jan. 10	GREEN, FLORENCE TOPPING, U.S. artist	1882	May 24
CROWFIELD, GERTRUDE, U.S. author	Oct. 26, 1877	Jan. 2			
CRUZAT, CARLOS ROJAS, Cuban army officer	1862?	Sept. 20			
*CURTIN, JOHN, Australian statesman	Jan. 8, 1885	July 5			
CUTTER, IRVING SAMUEL, U.S. physician, writer	Dec. 5, 1875	Feb. 2			
CYRIL, PRINCE OF PRESIAV, Bulgarian regent	Nov. 17, 1895	Feb. 1			
DABNEY, CHARLES WILLIAM, U.S. educator	June 19, 1855	June 15			
DAIRYMPL, SIR HEW HAMILTON, British M.P.	1857	July 11?			

Name	Birth date	Death date	Name	Birth date	Death date
GREIM, ROBERT RITTER VON, German luftwaffe chief.	1893?	May 24	LUGUET, CHARLES, French air officer, diplomat	1896	Dec. 15
GRIFFITHS, GEORGE ARTHUR, British M.P.	May 7, 1878	Dec. 15	LYMAN, CHARLES HUNTINGTON, U.S. marine corps officer	Sept. 22, 1875	July 23
GRUEN, FREDERICK GUSTAVUS, U.S. horologist, watch manufacturer.	Apr. 15, 1872	Sept. 15	MACALARNY, ROBERT EMMET, U.S. editor, educator, writer	Dec. 30, 1873	Nov. 15
*HACHA, EMIL, Czechoslovak statesman	1872	June 27	*MCCAIN, JOHN SIDNEY, U.S. naval officer	Aug. 9, 1884	Sept. 6
HAGENBECK, HEINRICH, German zoologist	July 5, 1875	Feb. 7?	*MCCORMACK, JOHN, U.S. tenor	June 14, 1884	Sept. 16
HAKING, SIR RICHARD CYRIL BYRNE, British diplomat and army officer	Jan. 24, 1862	June 9	*MACDOUGALL, HAMILTON CRAWFORD, U.S. organist	Oct. 15, 1858	Mar. 16
HAMILTON, ELWOOD, U.S. jurist	Feb. 22, 1883	Sept. 19	MACFARLAND, JOSEPH, U.S. educator, pathologist	Feb. 9, 1868	Sept. 22
HANSON, VICTOR HENRY, U.S. newspaper publisher	Jan. 16, 1876	Mar. 7	MACGREGOR, SIR IALASDAIR DUNCAN, British jurist	June 4, 1883	Nov. 17?
*HARMON, CLIFFORD B., U.S. aviation pioneer	1866?	June 25	MCGUIRE, THOMAS B., JR., U.S. army air ace	Aug. 1, 1921	Jan. 7
*HARMON, MILLARD FILLMORE, U.S. army air officer	Jan. 19, 1888	Mar. 3?	MCINNES, JAMES CAMPBELL, Canadian singer, teacher	?	Feb. 8
HARRINGTON, EMERSON COLUMBUS, U.S. politician	Mar. 26, 1864	Dec. 15	*MACKENSEN, AUGUST VON, German field marshal	Dec. 6, 1849	Nov. 8
HARROLD, ERNEST W., Canadian editor	?	Oct. 22	MACLAREN, MALCOLM, U.S. electrical engineer	June 21, 1869	Sept. 24
HARVEY, RODNEY BEECHER, U.S. plant physiologist	May 26, 1890	Nov. 4	MACLARTY, NORMAN ALEXANDER, Canadian politician	Feb. 18, 1889	Sept. 15
HATHFIELD, JAMES TAFT, U.S. educator	June 15, 1862	Oct. 3	MACLEAN, JAMES ALEXANDER, Canadian educator	Aug. 2, 1868	Jan. 18
HAY, CHARLES MARTIN, U.S. lawyer	Nov. 10, 1879	Jan. 16	MCNAB, ARCHIBALD PETER, Canadian politician	May 29, 1864	Apr. 29
HAYDEN, JOSEPH RALSTON, U.S. educator, public official	Sept. 24, 1887	May 19	*MAHER PASHA, AHMED, Egyptian jurist, politician	1888	Feb. 24
HAYES, MAX S., U.S. labour editor	May 25, 1866	Oct. 11	MAILLET-STEVENS, ROBERT, French architect	1886	Feb. 10?
HAZARD, CAROLINE, U.S. educator	June 10, 1856	Mar. 19	MALONEY, FRANCIS, U.S. senator	Mar. 31, 1894	Jan. 16
HEIN, CARL, U.S. musician, choral director	Feb. 2, 1864	Feb. 27	MANSON, JAMES BOUVAR, British painter	June 26, 1879	July 3
HENDERSON, JAMES, British industrialist	May 12, 1868	Nov. 20	MARCH, CHARLES HOYT, U.S. government official	Oct. 20, 1870	Aug. 28
HERRIES, GWENDOLEN MARY FITZALAN HOWARD, BARONESS, (DUCHESS OF NORFOLK)	Jan. 11, 1877	Aug. 28	MARION, GEORGE, U.S. actor, stage director	1860?	Nov. 30
*HERSHEY, MILTON SNAVELY, U.S. confectioner and philanthropist	Sept. 13, 1857	Oct. 13	*MARRIOTT, SIR JOHN ARTHUR RANSOME, British historian	1859	June 7
HIBBARD, ADDISON, U.S. educator	Aug. 29, 1887	May 17	MARSH, HOWARD DANIEL, U.S. educator, author	Mar. 30, 1871	Aug. 26
HIBBERT, HAROLD, U.S. educator and chemist	Aug. 27, 1877	May 14	MARSHALL, CHARLES DIONNELLO, U.S. industrialist, bridge builder	Aug. 13, 1867	May 16
HILL, ROBERT TUDOR, U.S. educator	Mar. 30, 1881	Feb. 24	MARTEL, CHARLES, U.S. librarian	Mar. 5, 1860	May 15
*HIMMLER, HEINRICH, German politician	Nov. 7, 1900	May 23	*MASCAGNI, PIETRO, Italian composer	Sept. 7, 1863	Aug. 2
*HITLER, ADOLF, German statesman	Apr. 20, 1889	May 1?	MATHER, WINIFRED HOLT, U.S. sculptress, writer, philanthropist	?	June 14
HOFFMAN, GUSTAVE ADOLPH, U.S. etcher	Jan. 28, 1869	Aug. 30	MAX-MULLER, SIR WILLIAM GRENFELL, British diplomatist	June 9, 1867	May 10
HOLABIRD, JOHN AUGUR, U.S. architect	May 4, 1866	May 4	MECKLENBURG-SCHWERIN, GRAND DUKE FREDERICK FRANCIS IV OF	Apr. 9, 1882	Nov. 18?
HOLDEN, ROY JAY, U.S. geologist	Oct. 21, 1870	Dec. 16	*MERRIAM, JOHN CAMPBELL, U.S. paleontologist	Oct. 20, 1869	Oct. 30
HOLGATE, THOMAS FRANKLIN, U.S. educator, mathematician	Apr. 8, 1859	Apr. 11	MERRIMAN, ROGER BIGELOW, U.S. educator, author	May 24, 1876	Sept. 7
HOLSTI, RUDOLF, Finnish statesman and educator	1881	Aug. 3	MITCHELL, SIR PETER CHALMERS, British zoologist	Nov. 23, 1864	July 2
HOPEKIRK, HELEN, British pianist, composer	May 20, 1856	Nov. 19	MONCADA, JOSE MARIA, Nicaraguan statesman	Dec. 8, 1871	Feb. 23
HOUSTON, HALE, U.S. educator	Feb. 17, 1871	Dec. 27	*MORGAN, GEORGE CAMPBELL, British clergyman	Dec. 9, 1863	May 16
HOWELL, WILLIAM HENRY, U.S. physiologist, educator	Feb. 20, 1860	Feb. 6	MORGAN, JOHN HILL, U.S. lawyer	June 30, 1870	July 16
HOWLAND, WILLIAM, U.S. music educator	May 1, 1871	May 2	MORGAN, JOHN JACOB BROOKE, U.S. psychologist, educator	Aug. 23, 1888	Aug. 16
HUGHES, HATCHER, U.S. playwright, educator	Feb. 12, 1881	Oct. 19	MORGAN, THOMAS HUNT, U.S. biologist	Sept. 25, 1866	Dec. 4
HUIZINGA, JOHAN, Netherlands historian, educator	Dec. 7, 1872	Mar. 22?	MOROSCO, OLIVER, U.S. theatrical producer	1876	Aug. 25
HUN, JOHN GAIE, U.S. educator	Nov. 21, 1877	Sept. 15	MORRIS, ROBERT TUTTLE, U.S. surgeon, botanist	May 14, 1857	Jan. 9
HUNTER, GLENN, U.S. actor	1896	Dec. 30	MORRIS, ROLAND SIETOR, U.S. diplomat	Mar. 11, 1874	Nov. 23
HUTCHISON, GEORGE WAYLAND, U.S. geographic devotee	Nov. 21, 1886	Mar. 24	MORRISON, HENRY CLINTON, U.S. educator	Oct. 7, 1871	Mar. 19
HYLTON, HYLTON GEORGE HYLTON JOLIFFE, 3RD BARON, British peer, politician	Nov. 10, 1862	May 26	MOSES, JOHN, U.S. politician	June 12, 1885	Mar. 3
IMMEL, RAY KEESLAR, U.S. educator	Oct. 31, 1885	Apr. 11	MOSHER, WILLIAM EUGENE, U.S. educator	Nov. 26, 1877	June 1
IWASAKI, KOYATA, 2ND BARON OF, Japanese financier	Aug. 3, 1879	Dec. 2	MOTHERVELL, HIRAM, U.S. writer, editor	1888?	Dec. 1
JELIFFE, SMITH ELY, U.S. psychiatrist, neurologist	Oct. 27, 1866	Sept. 25	MOTT, JAMES WHEATON, U.S. congressman	Nov. 12, 1883	Nov. 12
JENCKS, MILLARD HENRY, U.S. educator	Nov. 5, 1881	Feb. 14	MOTT, WILLIAM ELTON, U.S. civil engineer, educator	Jan. 24, 1868	Oct. 5
JENKINS, BURRIS ATKINS, U.S. clergyman	Oct. 2, 1869	Mar. 13	MUELLER, PAUL FREDERICK, German chemist	July 22, 1876	Apr. 8?
*JIMENEZ OREAMUNO, RICARDO, Costa Rican statesman	Feb. 6, 1859	Jan. 4	MUIRHEAD-GOULD, G. C., British naval officer	1889?	June 26
*JOHNSON, EDWARD REEVES, U.S. manufacturer	Feb. 6, 1867	Nov. 14	MURPHY, HERMANN DUDLEY, U.S. artist	Aug. 25, 1867	Apr. 16
*JOHNSON, HIRAM WARREN, U.S. politician	Sept. 2, 1866	Aug. 6	MURRAY, SIR ARCHIBALD, British army officer	Apr. 21, 1860	Jan. 23
*JOHNSON, WILLIAM EUGENE ("PUSSYFOOT"), U.S. prohibitionist	Mar. 25, 1862	Feb. 2	*MUSSOLINI, BENITO, Italian politician	July 29, 1858	Apr. 28
JONES, LEWIS RALPH, U.S. botanist	Dec. 5, 1864	Mar. 31	*NAZIMOVA, ALLA, U.S. actress	June 4, 1879	July 13
JONES, LOUIS CLEVELAND, U.S. industrial chemist	Dec. 24, 1870	Dec. 29	NECAS, JAROMIR, Czechoslovak politician	1888	Feb. 1
JONGERS, ALPHONSE, Canadian artist	1872?	Oct. 2	NEURATH, OTTO, Austrian sociologist	Dec. 10, 1882	Dec. 22
JURGENS, ANTON, Netherlands industrialist	1866?	Mar. 12	NEWBERRY, TRUMAN HANDY, U.S. politician, industrialist	Nov. 5, 1864	Oct. 3
*KAISER, GEORG, German playwright	Nov. 25, 1878	June 5	NEWTON, CLEVELAND ALEXANDER, U.S. politician, lawyer	Sept. 3, 1873	Sept. 17
*KAUSH, MAX, U.S. sculptor	Mar. 1, 1891	Mar. 18	NOCK, ALBERT JAY, U.S. author and editor	1873?	Aug. 19
KAN-IN, PRINCE KOTOHITO, Japanese army officer	Nov. 10, 1865	May 21	NORMANO, JOHN F., U.S. economist, writer	1887?	Apr. 25
KEANE, DORIS, U.S. actress	Dec. 12, 1881	Nov. 25	NORRIS, CHARLES GILMAN, U.S. novelist	Apr. 23, 1881	July 25
KEMMERER, EDWIN WALTER, U.S. economist, monetary expert	June 29, 1875	Dec. 16	NORTON, WILLIAM WARDER, U.S. publisher	Sept. 17, 1891	Nov. 7
KEMP, STANLEY WELLS, British marine biologist	June 14, 1882	May 16	NOYES, ALEXANDER DANA, U.S. journalist	Dec. 14, 1862	Apr. 22
KENNEDY, WALTER B., U.S. educator	1884?	Dec. 30	O'CONNOR, JAMES FRANCIS, U.S. congressman	May 7, 1878	Jan. 15
*KERN, JEROME DAVID, U.S. composer	Jan. 27, 1885	Nov. 11	O'CONNOR, KATE F., U.S. suffragist	1863?	May 25
*KERNAN, FRANCIS JOSEPH, U.S. army officer	Oct. 19, 1859	Feb. 3	OLIVIER, MARCEL, French statesman	Nov. 29, 1879	Jan. 4
KEY, PIERRE VAN RENSSLAER, U.S. music editor, critic	Aug. 28, 1872	Nov. 28	OLMSTEAD, ARTHUR TEN EYCK, U.S. orientalist	Mar. 23, 1880	Apr. 11
*KEYES, ROGER JOHN BROWNLOW KEYES, 1ST BARON, OF ZEEBRUGGE AND DOVER, British admiral	Oct. 4, 1872	Dec. 26	ONISHI, TAKIJO, Japanese naval officer	?	Aug. 17
*KIEFER, DIXIE, U.S. naval officer	Apr. 4, 1896	Nov. 11	ONISLOW, RICHARD WILLIAM ALAN ONISLOW, 5TH EARL OF, British M.P.	Aug. 23, 1876	June 9
KIMBROUGH, THOMAS CHARLES, U.S. lawyer, educator	Jan. 28, 1873	Dec. 31	OSTBERG, RAGNAR, Swedish architect	July 14, 1866	Feb. 6
*KNOBLOCK, EDWARD, British playwright	Apr. 7, 1874	July 19	*OUMANSKY, CONSTANTINE ALEXANDROVICH, Russian diplomat	1902	Jan. 25
KNOTT, THOMAS ALBERT, U.S. lexicographer and educator	Jan. 12, 1880	Aug. 16	*OXFORD AND ASQUITH, MARGOT, COUNTESS OF, British writer	1864?	July 28
KNUBEL, FREDERICK HERMANN, U.S. clergyman	May 22, 1870	Oct. 16	PAINTON, FREDERICK C., U.S. writer	1894?	Mar. 31
KOMAROV, VLADIMIR LEONTEVICH, soviet botanist	1869	Dec. 6?	PARLETT, SIR HAROLD GEORGE, British diplomat	Nov. 2, 1869	June 30
*KONOYE, FUMIMARO, Japanese prince and statesman	Oct. 1, 1891	Dec. 16	*PARTRIDGE, SIR BERNARD, British artist	Oct. 11, 1861	Aug. 9
KORN, ARTHUR, U.S. scientist	May 15, 1870	Dec. 21	PASTERNAK, LEONID O., Russian artist	1862	June 5?
KORNGOLD, JULIUS, Austrian music critic	Dec. 22, 1860	Sept. 25	*PATCH, ALEXANDER MCCARRELL, JR., U.S. army officer	Nov. 23, 1889	Nov. 21
KROFTA, KAMIL, Czechoslovak statesman	Dec. 22, 1876	Aug. 18	*PATRICK, EDWIN DAVIES, U.S. army officer	Jan. 11, 1894	Mar. 15?
KUMMEL, HENRY BARNARD, U.S. geologist	May 25, 1867	Oct. 23	*PATTEN, GEORGE WILLIAM (GILBERT) (BURT L. STANDISH), U.S. author	Oct. 25, 1866	Jan. 16
LAGERCRANTZ, HERMAN, Swedish diplomat	1859?	Sept. 28	*PATTON, GEORGE SMITH, JR., U.S. army officer	Nov. 11, 1885	Dec. 21
LAING, GORDON JENNINGS, U.S. educator	Oct. 16, 1869	Sept. 1	PELLIOT, PAUL, French archaeologist and orientalist	May 28, 1878	Oct. 29
LAKE, SIMON, U.S. naval architect, mechanical engineer	Sept. 4, 1866	June 23	PENCK, ALBRECHT, German geographer	Sept. 25, 1858	Mar. 9?
*LAIQUE, RENÉ, French artist and designer	Apr. 6, 1860	May 9	*PENGDERGAST, THOMAS JOSEPH, U.S. politician	July 22, 1872	Jan. 26
*LANG, COSMO GORDON LANG, 1ST BARON, OF LAM-BETH, Anglican divine	Oct. 31, 1864	Dec. 5	PHILOFF (or PHILOV), BOGDAN DIMITROV, Bulgarian politician	Apr. 10, 1883	Feb. 1
LANIER, CHARLES DAY, U.S. publisher, author	1868?	Nov. 17	PHIPPS, SIR ERIC (CLARE EDMUND), British diplomat	Oct. 27, 1875	Aug. 13
LARSEN, HANNA ASTRUP, U.S. author, editor	Sept. 1, 1873	Dec. 3	PICCIRILLI, ATTILIO, U.S. sculptor	May 16, 1868	Oct. 8
*LAVAIL, PIERRE, French politician	June 28, 1883	Oct. 15	PRAGER, RICHARD, German astronomer	Nov. 30, 1883	July 20
LA VERNE, LUCILLE, U.S. actress	Nov. 8, 1872	Mar. 4	PRATT, FREDERICK BAYLEY, U.S. industrialist	Feb. 22, 1865	May 3
LEA, LUKE, U.S. senator, newspaper publisher	Apr. 12, 1879	Nov. 18	PRATT, HERBERT LEE, U.S. oil company executive	Nov. 21, 1871	Feb. 3
*LEE, WILLIS AUGUSTUS, JR., U.S. naval officer	May 11, 1888	Aug. 25	PRETTYMAN, FORREST JOHNSTON, U.S. clergyman	Apr. 7, 1860	Oct. 12
LEHMANN, IRVING, U.S. jurist	Jan. 28, 1876	Sept. 22	PRICE, HARRISON JACKSON, U.S. army officer	Apr. 3, 1868	Sept. 16
LEONIAN, LEON HATCHIG, U.S. plant pathologist	Feb. 27, 1888	June 7	PRINCE, JOHN DYNELEY, U.S. educator, linguist	Apr. 17, 1868	Oct. 11
LESLEY, EVERETT PARKER, U.S. aerodynamics engineer	Aug. 12, 1874	Jan. 17	PUEYREDON, HONORIO, Argentine politician	July 9, 1876	Sept. 23
LEVY, J. LANGLEY, British editor	May 25, 1870	May 12	*PYLE, ERNEST TAYLOR, U.S. newspaperman	Aug. 3, 1900	Apr. 18
LEWIS, LEO RICH, U.S. composer, educator	Feb. 11, 1865	Sept. 8	*PYLE, GERALDINE, wife U.S. war correspondent Ernie Pyle	1900?	Nov. 23
LEWIS, SIR THOMAS, British heart specialist	1874?	Mar. 17	*QUISING, VIDKUN ABRAHAM, Norwegian politician	July 18, 1887	Oct. 24
LEWIS, WILLIAM MATHER, U.S. educator	Mar. 24, 1878	Nov. 11	RACZYNSKI, COUNT ROGER, Polish diplomat, economist	1889	Nov. 14?
*LEY, ROBERT, German politician	Feb. 15, 1890	Oct. 25	RAINIER, PETER W., British author, army officer	1890?	July 6
LIIDDELL, ERIC H., British missionary, athlete	(?)	Feb. (9)	RALSTON, JACKSON HARVEY, U.S. lawyer	Feb. 6, 1857	Oct. 13
LIEBUNG, LEONARD, U.S. music editor, pianist	Feb. 7, 1880	Oct. 28	RAND, EDWARD KENNARD, U.S. educator	Dec. 20, 1871	Oct. 28
LIIDFORD, JOHN POWYSS, 5TH BARON OF, British peer	Jan. 12, 1863	Dec. 17	RANDALL, ALBERT BORLAND, U.S. master mariner	Sept. 11, 1879	Dec. 1
LINDSAY, SIR RONALD, British diplomat	May 3, 1877	Aug. 21	*RANDALL-MACIVER, DAVID, British archaeologist, anthropologist	1873	Apr. 30
LITTLE, ANDREW GEORGE, British historian	1863	Oct. 22	RAPEE, ERNO, U.S. orchestra conductor	June 4, 1891	June 26
*LLOYD GEORGE OF DWYFOR, DAVID LLOYD GEORGE, EARL, British statesman	Jan. 17, 1863	Mar. 26	RAY, ANNA CHAPIN, U.S. author	Jan. 4, 1865	Dec. 13
LOVEJOY, FRANK WILLIAM, U.S. business executive	Dec. 11, 1871	Sept. 16	RECORD, SAMUEL JAMES, U.S. educator, forestry expert	Mar. 10, 1881	Feb. 3
LOUCAS, ALBERT PIKE, U.S. painter, sculptor	(?)	May 2			
LUGARD, FREDERICK DEALTRY LUGARD, 1ST BARON, OF ABINGER, British soldier and statesman	Jan. 22, 1858	Apr. 11			



## OBSTETRICS—OHIO

Name	Birth date	Death date
REZNICEK, EMIL NICHOLAUS VON, Austrian composer	May 4, 1860	Aug. 5
RHALLUS, PERICLES, Greek jurist	?	Aug. 22
RHALLUS, PETROS, Greek politician	?	Aug. 21
RIDDELL, WILLIAM RENWICK, Canadian jurist	Apr. 6, 1852	Feb. 12
RIDINGTON, JOHN, Canadian librarian	Apr. 18, 1868	Apr. 20
ROCHDALE, GEORGE KEMP, 1st Baron, British peer	June 9, 1866	Mar. 24
ROEDDER, EDWIN CARL, U.S. educator, philologist	Apr. 8, 1873	Oct. 21
*ROOSEVELT, FRANKLIN DELANO, U.S. president	Jan. 30, 1882	Apr. 12
RORKE, KATE, British actress	Feb. 22, 1866	July 31
*ROSE, MAURICE, U.S. army officer	Nov. 26, 1899	Mar. 30
ROSS, FRANCOIS-XAVIER, Canadian clergyman	Mar. 6, 1869	July 5
*ROTHENSTEIN, SIR WILLIAM, British artist	Jan. 29, 1872	Feb. 14
*ROYAL, FORREST, U.S. naval officer	Feb. 10, 1893	June 18
*RUPERTUS, WILLIAM HENRY, U.S. marine corps officer	Nov. 14, 1889	Mar. 25
RUSSELL, JAMES EARL, U.S. educator	July 1, 1864	Nov. 4
RYAN, JOHN AUGUSTINE, U.S. prelate	May 25, 1869	Sept. 16
SAINT JEAN, IDOLA, Canadian feminist leader, educator	1880?	Apr. 6
*SALTEN, FELIX, German writer	Sept. 6, 1869	Oct. 8
SALTER, ALFRED, British physician	1873	Aug. 24
SAMPSON, HOMER L., U.S. roentgenologist	Apr. 4, 1880	May 16
SANDRICH, MARK REX, U.S. motion picture producer, director	1900?	Mar. 4
SANFORD, STEADMAN VINCENT, U.S. educator	Aug. 24, 1871	Sept. 15
SCARBOROUGH, ALFRED FREDERICK GEORGE BERESFORD		
LUMLEY, 10TH EARL OF, British peer	Nov. 16, 1857	Mar. 4
SCHREMB, JOSEPH, U.S. prelate	Mar. 12, 1866	Nov. 2
SCOTT, CYRIL, U.S. actor	Feb. 9, 1866	Aug. 16
SCRUGHAM, JAMES GRAVES, U.S. senator	Jan. 19, 1880	June 23
*SEABROOK, WILLIAM BUEHLER, U.S. author, explorer	Feb. 22, 1886	Sept. 20
SEGERSTEDT, TORGNY KARL, Swedish editor, publicist	1876	Mar. 31
SEIBOLD, LOUIS, U.S. journalist	1864?	May 10
SEUGMANN, ANDRÉ J., French art dealer	1899?	July 17
*SERÉDI, JUSTINIAN GEORGE, CARDINAL, Hungarian prelate	Apr. 23, 1884	Apr. 13?
SERT, JOSÉ MARIA, Spanish mural painter	1876?	Nov. 27
*SHAPOSHNIKOV, BORIS MIKHAILOVICH, Russian army officer	Oct. 4, 1862	Mar. 26
SHATTUCK, L. HUBBARD, U.S. historian	Sept. 6, 1892	Mar. 29
SHCHERBAKOV, ALEXANDER SERGEEVICH, Russian army officer, politician	1901?	May 10
SHEAR, THEODORE LESLIE, U.S. archaeologist	Aug. 11, 1880	July 3
*SHEEHAN, WINFIELD R., U.S. motion picture producer	Sept. 24, 1883	July 25
SHIPLEY, FREDERICK WILLIAM, U.S. educator	Jan. 15, 1871	Feb. 11
SILOTI, ALEXANDER, Russian pianist	Oct. 10, 1863	Dec. 8
SIMMONS, WILLIAM JOSEPH, U.S. preacher	?	May 18
SIMON, LUCIEN, French artist	July 18, 1861	Oct. 15
*SIMONS, MOISES, Cuban composer	1889?	June 28
SLADEN, FRED WINCHESTER, U.S. army officer	Nov. 24, 1867	July 10
SLEIGH, SIR WILLIAM LOWRIE, British industrialist, public official	Sept. 26, 1865	May 6
SMITH, ARTHUR DOUGLAS HOWDEN, U.S. writer	Dec. 29, 1887	Dec. 18
SMITH, CLIFFORD P., U.S. editor	Mar. 4, 1869	Aug. 8
SMITH, LADY ELEANOR, British author	1903?	Oct. 20
SMITH, HARRY WORCESTER, U.S. sportsman	Nov. 5, 1865	Apr. 5
SMITH, LOWELL H., U.S. army officer	Oct. 8, 1892	Nov. 4
SPEAKS, JOHN C., U.S. congressman	1859?	Nov. 6
SPEARMAN, CHARLES E., British scientist, educator	Sept. 10, 1863	Sept. 17?
SPERRY, EDWARD GOODMAN, U.S. industrialist	1891?	Nov. 6
STANFIELD, ROBERT NELSON, U.S. politician	July 9, 1877	Apr. 13
STARACE, ACHILLE, Italian politician	Aug. 18, 1889	Apr. 29
STEADMAN, JOHN MARCELLUS, JR., U.S. educator, philologist	June 20, 1889	Dec. 20
STEBBINS, GEORGE COLES, U.S. evangelist, hymn writer	1846?	Oct. 6
STEGEWARD, ADAM, German politician and government official	Dec. 14, 1874	Dec. 6?
STEINER-PRAG, HUGO, German art expert, illustrator	1880	Sept. 10
STONE, GEORGE ROBERT, U.S. baseball star	1877?	Jan. 6
STRALIA, ELSA, Australian opera singer	?	Aug. 31?
STRUNSKY, MANYA GORDON, U.S. writer	1882?	Dec. 27
STUART, KENNETH, Canadian army officer	Sept. 9, 1891	Nov. 3
SUGIYAMA, GEN HAJIME, Japanese army officer	Jan. 2, 1880	Sept. 12
SWANN, EDWARD, U.S. jurist, politician	Mar. 10, 1862	Sept. 19
SYKES, EUGENE OCTAVE, U.S. jurist	July 16, 1876	June 21
*SYMONS, ARTHUR, British poet and critic	Feb. 28, 1865	Jan. 22
ZOLD, HENRIETTA, U.S. Zionist leader	Dec. 21, 1860	Feb. 13
TABLADA, JOSÉ JUAN, Mexican author, educator	1871?	Aug. 2
TAFT, HENRY WATERS, U.S. lawyer	May 27, 1859	Aug. 12
TALBOT, EVERETT GUY, U.S. author, lecturer	Oct. 26, 1883	Feb. 5
TAMARKIN, JACOB DAVID, U.S. mathematician, educator	July 11, 1888	Nov. 18
*TARDIEU, ANDRÉ PIERRE GABRIEL AMEDÉE, French politician, writer	Sept. 22, 1876	Sept. 15
TATEKAWA, YOSHITSUGU, Japanese army officer, diplomat	1880	Sept. 10
TAUB, HARRY, U.S. pharmacologist	Mar. 15, 1899	Dec. 20
TCHEREPNIN, NICOLAI, Russian composer	May 15, 1873	June 28
TERBOVEN, JOSEF, German politician	May 23, 1898	May 9
THOMAS, JOHN W., U.S. senator	Jan. 4, 1874	Nov. 10
THOMPSON, OSCAR, U.S. music critic, writer	Oct. 10, 1887	July 3
THORKELSON, JACOB, U.S. congressman	Sept. 24, 1876	Nov. 20
TIRARD, PAUL, French government official, writer	1879	Dec. 24
TISDEL, ALTON P., U.S. government official	1880?	June 1
*TOLSTOY, ALEXEI NIKOLAYEVICH, Russian novelist, dramatist	1883	Feb. 23
TOLSTOY, LEO, Russian author	1869?	Oct. 18
TOWNLEY, SIR WALTER BEAUPRE, British diplomat	Jan. 8, 1863	Apr. 7?
*TRAIN, ARTHUR, U.S. novelist	Sept. 6, 1875	Dec. 22
RELEASE, WILLIAM, U.S. botanist	Feb. 22, 1857	Jan. 1
*TROUBETZKOY, AMELIE RIVES, PRINCESS, U.S. author	Aug. 23, 1863	June 15
TRUESDALE, PHILEMON E., U.S. surgeon	1874	June 12
TULLY, RICHARD WALTON, U.S. dramatist, producer	May 7, 1877	Jan. 31
TUPPER, SIR REGINALD GODFREY OTWAY, British naval officer	Oct. 16, 1859	Mar. 6
ULLSTEIN, FRANZ, German publisher	1868?	Nov. 12
UPHAM, ALFRED HORATIO, U.S. educator	Mar. 2, 1877	Feb. 17
URENA, RAFAEL ESTRELLA, Dominican politician	Sept. 19, 1889	Sept. 16
*VALÉRY, PAUL, French poet	Oct. 30, 1871	July 20
*VAN ANDA, CARR VATTTEL, U.S. newspaper editor	Dec. 2, 1864	Jan. 28
VAN DE WALL, CONSTANT, Dutch composer, orchestra conductor	1870?	Jan. 9
VAN DE WATER, VIRGINIA BELLE TERHUNE, U.S. author	?	Oct. 17
VAN WILK, FREDERIK GERTH, Netherlands diplomat	Nov. 13, 1876	Jan. 24
VINSON, ROBERT ERNEST, U.S. educator	Nov. 4, 1876	Sept. 2
VREELAND, HERBERT HAROLD, U.S. industrialist	Oct. 28, 1856	Jan. 31
WAINWRIGHT, JONATHAN MAYHEW, U.S. lawyer, politician	Dec. 10, 1864	June 3
WAITE, MERTON BENWAY, U.S. plant pathologist	Jan. 23, 1865	June 5
WAKELEE, EDMUND WARING, U.S. utilities executive	Nov. 21, 1869	Apr. 26
WAKE-WALKER, SIR WILLIAM FREDERIC, British naval officer	Mar. 24, 1888	Sept. 24
WALDRON, WEBB, U.S. editor, author	Sept. 8, 1882	Aug. 5
WALLACE, ROBERT JAMES, U.S. photo-physicist	Nov. 15, 1868	Dec. 12
WALLER, WILLARD, U.S. sociologist	July 30, 1899	July 26

Name	Birth date	Death date
WALTER, FRANK KELLER, U.S. librarian, bibliographer	July 23, 1874	Oct. 28
WARD, HENRY BALDWIN, U.S. zoologist, educator	Mar. 4, 1865	Nov. 30
WARRENDER, LADY MAUD, British singer, author	Dec. 16, 1870	Sept. 3
*WATSON, EDWIN MARTIN, U.S. army officer	Dec. 10, 1883	Feb. 20
WEAVER, ARTHUR J., U.S. politician	Nov. 18, 1873	Oct. 18
WEBER, ANTON VON, Austrian composer	Dec. 3, 1883	Sept. 15
WEHRWEIN, GEORGE SIMON, U.S. agricultural economist, educator	Jan. 31, 1883	Jan. 10
WEITZ, JEREMIAH, U.S. educator	1882?	Oct. 14
*WERFEL, FRANZ, German writer	Sept. 10, 1890	Aug. 26
WEYERHAEUSER, FREDERICK EDWARD, U.S. lumberman	Nov. 4, 1872	Oct. 18
WHITE, ALFRED GEORGE HASTINGS, British librarian	1859	July 8
WHITNAIL, HAROLD ORVILLE, U.S. geologist	Aug. 3, 1877	May 18
WIESELTHIER, VALLY, U.S. ceramic artist	1895	Sept. 1
WILLIAMS, FRANCIS CHURCHILL, U.S. editor	Apr. 23, 1869	Apr. 11
WILSON, MARGARET BARCLAY, U.S. educator	Aug. 28, 1863	Oct. 8
WING, LEONARD F., U.S. army officer	Nov. 12, 1893	Dec. 19
WITOS, WINCENTY, Polish statesman, politician	1874	Oct. 31
WOLD, PETER IRVING, U.S. physicist, educator	Nov. 27, 1881	June 17
WOODLOCK, THOMAS FRANCIS, U.S. writer	Sept. 1, 1866	Aug. 25
WOODS, MARGARET LOUISA, British writer	1856	Dec. 1?
*WOOLSEY, JOHN MUNRO, U.S. jurist	Jan. 3, 1877	May 4
WYETH, NEWELL CONNERS, U.S. artist, illustrator	Oct. 22, 1882	Oct. 19
WYNTER, HENRY DOUGLAS, Australian army officer	June 5, 1886	Feb. 7?
YARD, ROBERT STERLING, U.S. editor	Feb. 1, 1861	May 17
YASUI, TETSU, Japanese educator	Feb. 1870	Dec. 2
YOAKUM, CLARENCE STONE, U.S. educator, psychologist	Jan. 11, 1879	Nov. 20
YOUNG, HUGH HAMPTON, U.S. surgeon	Sept. 18, 1870	Aug. 23
ZACHRY, CAROLINE BEAUMONT, U.S. psychologist	Apr. 20, 1894	Feb. 22
ZIWER PASHA, AHMED, Egyptian statesman	Nov. 14, 1864	Aug. 21
ZULOAGA, IGNACIO, Spanish painter	July 26, 1870	Oct. 31

**Obstetrics:** see GYNAECOLOGY AND OBSTETRICS.

**Occupational Therapy for the Wounded:** see PHYSICAL

MEDICINE AND OCCUPATIONAL THERAPY FOR THE WOUNDED.

**OCD (Office of Civilian Defense):** see CIVILIAN DEFENSE.

**Oceanography:** see MARINE BIOLOGY.

**ODT:** see DEFENSE TRANSPORTATION, OFFICE OF.

**OEI:** see FOREIGN ECONOMIC ADMINISTRATION.

**Office of Civilian Defense:** see CIVILIAN DEFENSE.

**Office of Contract Settlement:** see WAR MOBILIZATION AND RECONVERSION, OFFICE OF.

**Office of Defense Transportation:** see DEFENSE TRANSPORTATION, OFFICE OF.

**Office of Economic Stabilization:** see STABILIZATION, ADMINISTRATOR, OFFICE OF.

**Office of Education, U.S.:** see EDUCATION; FEDERAL SECURITY AGENCY.

**Office of Price Administration:** see PRICE ADMINISTRATION, OFFICE OF.

**Office of Scientific Research and Development:** see SCIENTIFIC RESEARCH AND DEVELOPMENT, OFFICE OF.

**Office of the Coordinator of Inter-American Affairs:** see INTER-AMERICAN AFFAIRS, OFFICE OF.

**Office of War Information:** see WAR INFORMATION, OFFICE OF.

**Office of War Mobilization and Reconversion:** see WAR MOBILIZATION AND RECONVERSION, OFFICE OF.

**Ohio.** A north central state of the United States, popularly known as the "Buckeye state." Area, 41,222 sq.mi., including 100 sq.mi. of water; pop. (1940) 6,907,612, of whom 2,294,626 were rural and 4,612,986 urban; native white 6,047,265, foreign-born white 519,266, Negro 339,461, other races 1,620. Capital, Columbus (306,087). Other cities of more than 100,000 were Cleveland (878,336), Cincinnati (455,610), Toledo (282,349), Akron (244,791), Dayton (210,718), Youngstown (167,720) and Canton (108,401). On July 1, 1944, the bureau of the census estimated the population of the state at 6,836,667.

**History.**—Gov. Frank J. Lausche, a Democrat, took the oath of office Jan. 8, 1945, and announced that there would be no wholesale firing of Republicans from the state pay roll. Among the appointments he made were: John M. Hodson of Williams county as director of agriculture; Perry T. Ford of Columbus as director of highways; Herbert D. Defenbacher of Columbus as finance director; Frazier Reams of Toledo as director of welfare and James W. Huffman of Columbus as director of com-

merce. When U.S. Senator Harold H. Burton was appointed to the U.S. supreme court, Huffman was appointed by Gov. Lausche to replace Burton in the senate. Then Robert L. Moulton was named director of commerce. Other important state officers were: George D. Nye (D), lieutenant governor; Edward J. Hummel (R), secretary of state; Joseph T. Ferguson (D), auditor; Don H. Ebright (R), treasurer; Hugh S. Jenkins (R), attorney general.

The general assembly met in continuous session from Jan. 1, 1945, to July 19. Its outstanding accomplishments were: passage over Gov. Lausche's veto of a bill to increase the state contribution to local school districts; re-enactment of the liquid fuel, cigarette and utility excise taxes; advancement of the primary election and filing dates to enable members of the armed forces to participate in Ohio elections; granting of salary increases amounting to about \$5,000,000 a year; and establishing of library survey and code revision commissions. A brief special session of the general assembly was called Sept. 5 at which unemployment compensation benefits were increased from a maximum of \$16 a week for 18 weeks to \$21 a week for 22 weeks. The state administration was able to make substantial progress in 1945 in providing housing for the mentally sick and in adding to and developing state parks and forests.

**Education.**—In 1945 Ohio had 3,502 elementary schools with an enrolment of 699,773 and a teaching staff of 21,176; 1,122 secondary schools with an enrolment of 336,352 and a teaching staff of 14,584; and 120 junior high schools (grades 7, 8 and 9) with an enrolment of 77,455 and a teaching staff of 2,700. The state superintendent of public instruction in 1945 was Clyde Hisson.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—The average number of recipients of general relief in Ohio in 1945 was 11,350 and total relief granted was \$3,906,484. The average number receiving aid for the aged was 118,319 at a total cost of \$42,672,344; aid to dependent children, 7,465 cases at a total cost of \$4,943,367; aid to the blind, 3,034 cases at a total cost of \$989,530; 794,961 weeks of unemployment were compensated during the first eleven months of the year at a net cost of \$14,710,416.

Ohio had nine hospitals for the insane with approximately 20,500 inmates, four institutions for the feeble-minded with approximately 5,850 inmates, four penal institutions with an average population in 1945 of 6,678 and two industrial schools with an average population of 1,288.

Total cost of operating and maintaining the state's welfare institutions in 1945 was approximately \$13,290,000.

**Communication.**—Ohio had 86,737 mi. of highways in 1945 outside municipalities. Of this total, 16,158 mi. were classified as state, 28,639 mi. as county and 41,940 mi. as township. In addition there were 2,286 mi. of state highway extensions inside of municipalities. Expenditures on the state highway system in 1945 were \$33,098,605.

The state had 8,870 mi. of railroads, 141 airports and landing fields, 1,595 mi. of airways within its boundaries and 1,740,000 telephones.

**Banking and Finance.**—There were 440 state and private banks in Ohio with deposits (Sept. 29, 1945) of \$3,810,735,009 and resources of \$4,054,973,566. There were 241 active national banks in the state with deposits (June 30, 1945) of \$3,014,308,000 and resources of \$3,201,731,000. State-chartered savings and loan associations numbered 513 with total resources (June 30, 1945) of \$860,971,033. There were 125 federal savings and loan associations with total assets (estimated as of Dec. 31, 1945) of \$427,917,460.

The state budget for the 1945-46 biennium was \$391,499,969. At the close of 1945 the state surplus was approximately \$115,-

000,000.

**Agriculture.**—The total acreage harvested in Ohio in 1945 was 10,844,000; in 1944, 10,898,000. Total value of the crops in the state in 1944 was \$434,997,000. Cash receipts from farm marketing in Ohio for the first nine months of 1945 were \$527,545,000 as compared with \$534,417,000 in the same period of 1944. The estimated total of cash receipts for all of 1945 was \$600,000,000.

The Ohio farmers were handicapped by unusual weather conditions. An exceptionally warm March was followed by a cold, wet spring. August brought a drought and October heavy rains, all of which reduced crop production. Nevertheless, the Ohio wheat crop set a new high record, acreage yields were exceptionally good in corn and potatoes, and popcorn production was three times that of 1944. Imported Bahamian labour and the use of German and Italian prisoners of war on farms and in canneries eased the manpower shortage.

Table I.—Leading Agricultural Products of Ohio, 1945 and 1944

Crop	1945	1944
Corn, bu. . . . .	176,913,000	142,956,000
Wheat, bu. . . . .	60,993,000	46,805,000
Oats, bu. . . . .	53,210,000	37,224,000
Soybeans, bu. . . . .	20,072,000	21,796,000
Rye, bu. . . . .	558,000	608,000
Barley, bu. . . . .	630,000	475,000
Potatoes, bu. . . . .	7,130,000	5,810,000
Apples, bu. . . . .	984,000	5,395,000
Tame hay, tons . . . . .	3,473,000	3,293,000
Tobacco, lb. . . . .	21,274,000	25,347,000
Buckwheat, bu. . . . .	306,000	294,000
Sugar beets, tons . . . . .	32,000	17,000
Grapes, tons . . . . .	6,400	24,400

**Manufacturing.**—The total value of manufactures in Ohio in 1939 was \$4,584,665,659; total employment, 686,089; total wages and salaries paid, \$1,033,426,673.

**Mineral Production.**—The total value of mineral production in Ohio in 1944, exclusive of pig iron, was \$190,967,000. In 1943

Table II.—Principal Mineral Products of Ohio, 1944 and 1943

Mineral	Value, 1944	Value, 1943
Pig iron . . . . .	\$294,265,267	\$299,483,340
Bituminous coal . . . . .	89,941,000	78,009,123
Clay and clay products . . . . .	13,340,809	16,615,431
Cement . . . . .	5,957,819	8,798,964
Lime . . . . .	11,876,409	12,001,684
Natural gas . . . . .	25,286,000	27,255,000
Petroleum . . . . .	6,720,000	6,810,000
Salt . . . . .	4,076,481	3,824,508
Sand and gravel . . . . .	8,866,549	10,003,339
Stone . . . . .	15,292,705	15,598,542

the comparable figure was \$189,422,000. Intensive development of strip mining was responsible for the increased coal production. (P. By.)

**Ohio State University.** An institution of higher education at Columbus, Ohio. Formally established as a land-grant institution in 1870, it opened its doors on Sept. 17, 1873, to a student body of 17. The university admits both women and men. It has ten colleges: agriculture, arts and sciences, commerce and administration, dentistry, education, engineering, law, medicine, pharmacy and veterinary medicine; a graduate school; and eight special schools: aviation, fine and applied arts, home economics, journalism, music, nursing, optometry and social administration. Graduate work is offered through the doctor of philosophy degree. Special curricula in 1945 prepared students for work in naval science, dental hygiene, international relations, medical technology, occupational therapy, and rehabilitation of the handicapped. Latest additions to the physical plant were a 400-acre airport and a research laboratory. The university operates on a four-quarter plan, enabling most students to complete their studies in three calendar years. (For statistics of enrolment, faculty, etc., see UNIVERSITIES AND COLLEGES.) (H. L. B.)

**Oil:** see PETROLEUM.

**Oils and Fats, Vegetable and Animal:** see VEGETABLE OILS AND ANIMAL FATS.

**Okamura, Yasuji** (1884- ), Japanese army officer, was born in May at Tokyo. A graduate of the military academy, 1905, and a student of the military staff college, he became adviser to Sun Chuang-fang, Chinese military and political figure who rose to power in the 1920s. He also served as chief of military history compilation and chief of the military research department of the general staff office and later as vice chief of staff of the Kwantung army. An aggressive member of Japan's army clique, Okamura was behind most of the manoeuvres that led to the invasion of Manchuria in 1931 and the excision of that territory, as well as the northern Chinese territories, from the body of China proper in the ensuing years. Okamura, who had been commander in chief of Japanese forces in north China, replaced Shunroku Hata as commander in chief of all Japanese armies in China on Nov. 22, 1944. Okamura formally surrendered his forces, variously estimated as upwards of 1,000,000 men, to Gen. Ho Ying-chin, supreme commander of Chinese ground forces, on Sept. 9, 1945. The arrest of Okamura as the No. 1 war criminal of Japanese forces in China was demanded by Chinese communists, Dec. 6.

**Okinawa.** Largest single island and seat of Japanese administration of the Ryukyu archipelago, a chain of islands in the north Pacific located between 24° and 30° N. and 123° and 130° E. The northernmost of the Ryukyus is 80 mi. S. of Kyushu, the southernmost 73 mi. N.E. of Formosa. The archipelago is divided into three main groups of islands, of which the northern is called Oshima shoto, the central Okinawa gunto and the southern Sakishima retto.

**History.**—Okinawa, up to 1945 a little known island, seldom visited by foreigners, came into prominence when it became the scene of the last and bloodiest great land battle fought between Japanese and U.S. forces in the Pacific. Following the capture of Iwo Jima (*q.v.*) a U.S. naval force under the command of Adm. Richmond Kelly Turner landed the new 10th army, under command of Gen. Simon Bolivar Buckner, on the western coast of Okinawa. Contrary to previous practice, there was little or no

Japanese resistance on the beaches. The mountainous northern part of the island was overrun by a marine corps with little difficulty.

But a Japanese army of more than 100,000 men entrenched itself in an arc of pine-covered hills from the towns of Nawa (the capital) and Shuri in the west to Yonabaru in the east. During the month of May the armies practically fought each other to a standstill, the U.S. forces gaining only about 5 mi. against the strongest defensive system they had encountered in the Pacific war, a system based on caves, tunnels and artillery and mortar positions.

One of the main objectives, Sugarloaf hill, changed hands ten times in bitter hand-to-hand fighting.

Finally the tenacious Japanese resistance was broken. Marine and army units fought their way into Shuri castle, located on a steep coral cliff, and took possession of the charred ruins of Nawa. The main Japanese defense line was pierced on June 1. However, 18 days of further fighting were required before the remnants of the Japanese forces were destroyed. Adm. Chester Nimitz announced the complete capture of the island on June 21.

Losses among U.S. forces were 11,260 dead and missing, 33,769 wounded. A revised figure, including nonbattle casualties, placed the total number at 79,507. Among the dead was Gen. Buckner, mortally wounded by the fragment of an exploding shell as he watched mopping up operations from a rock on June 18. Japanese losses were more than 98,000 killed and about 4,500 prisoners. The number of prisoners, unusually large in view of the Japanese military tradition of dying without thought of surrender, might be attributed partly to an elaborate campaign to stimulate surrender through radio broadcasts and showing of pamphlets by U.S. psychological warfare units, partly to a growing Japanese realization that their cause was hopelessly lost. The marine Lt. Gen. Roy S. Geiger quoted a captured Japanese captain as saying:

"So overwhelming is the equipment and fighting spirit of the Americans that any Japanese who thinks he has a chance to win the war is just a fool."

Located 400 mi. from Kyushu and 1,100 mi. from Tokyo, Okinawa was designed to be a take-off point for the final invasion of the Japanese home islands. This invasion was made unnecessary by the Japanese surrender in August. (*See* WORLD WAR II.) (W. H. CH.)

ON V-E DAY, U.S. troops in Okinawa close to the front lines stood quietly in the rain to hear of the victory in Europe, and then returned to battle





**Oklahoma.** A west south-central state, admitted as the 46th state Nov. 16, 1907. Popular name "Sooner state," from the term "sooner" applied to those who entered and staked claims sooner than the law allowed when the first public lands in the Indian territory were opened by the run for homesteads, April 22, 1889. Area, 69,283 sq.mi., including water surface, of which 265 sq.mi. are in artificial lakes. Population, 2,336,434 (1940), of which approximately 62% were rural. Approximately 87% were white, 7% Negro, 4% Indian, 2% foreign born. On July 1, 1944, the bureau of census estimated the civilian population of Oklahoma at 2,064,679. Oklahoma City (1940 census) (204,424), the capital, and Tulsa (142,157) are the two largest cities.

**History.**—In 1945 the chief state executive officers (elected Nov. 1942, for the four-year term) were: Robert S. Kerr, governor; James E. Berry, lieutenant governor; Frank C. Carter, secretary of state; C. C. Childers, auditor; A. S. J. Shaw, treasurer; Mac Q. Williamson, attorney general; A. L. Crable, state superintendent of public instruction; John Rogers, state examiner and inspector; W. A. Pat Murphy, commissioner of labour; Mabel Bassett, commissioner of charities and corrections; Jesse G. Read, commissioner of insurance; Robert H. Brown, chief mine inspector; Joe C. Scott, president state board of agriculture. One of the reforms advocated by many students of government in Oklahoma is a change in the state constitution which would reduce the number of state-wide elected, executive officers.

**Education.**—The total enrolment in Oklahoma public schools for the term 1944-45 approximated that of the previous term (1943-44) when there was reported 506,244 pupils in the state, with 17,236 teachers, including 150,707 pupils in 825 high schools, maintained at a cost to the state of \$34,684,384.44. State institutions of higher learning included a university (Norman), a state agricultural and mechanical college (Stillwater), a college for women (Chickasha), an agricultural and mechanical college (Goodwell), a Negro university (Langston), an institute of technology (Weatherford), and five colleges primarily for teacher training (Ada, Alva, Durant, Edmond, Tahlequah). There were 17 two-year junior colleges, recognized by the state board of education, including five state-supported, district junior colleges and one military academy. There were six senior colleges and three junior colleges with church affiliations.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—In Dec. 1945, the department of public welfare reported for that month, 81,956 persons receiving old age assistance; 16,306 families receiving aid for 39,668 dependent children; 1,898 blind persons receiving aid. Oklahoma's interest in public health was evident when the 20th session of the state legislature passed 17 laws pertaining to the promotion of health. Significant among these were laws requiring blood tests for syphilis of applicants for marriage licences and of pregnant women. State-supported hospitals, eleemosynary, penal and reformatory institutions were (Jan. 1946) two tuberculosis sanatoriums, seven hospitals (including mental), one orphans' home, three schools for deaf and blind, one penitentiary, one sub-penitentiary, one reformatory, four schools of correction.

**Communications.**—Oklahoma spent in the period from 1919 to 1945 (ending June 30) the sum of \$203,586,025 on the improvement of approximately 10,000 mi. of highways. Total road mileage in Oklahoma was 100,858 mi. in 1945. Railroad, steam and electric mileage totalled 6,315 mi.

**Agriculture.**—Floods followed by dry weather reduced crop production in 1945. The approximate total of gross income to farmers from 35 crops in Oklahoma was \$273,430,000. The state department of agriculture in its report Jan. 1945 estimated value of livestock on farms at \$193,108,000.

Leading Agricultural Products of Oklahoma, 1945 and 1944

Crop	1945	1944
Wheat, bu. . . . .	70,917,000	85,914,000
Corn, bu. . . . .	26,268,000	32,958,000
Oats, bu. . . . .	19,855,000	27,569,000
Broomcorn, tons . . . . .	10,500	20,400
Grain sorghums (forage and silo), tons . . . . .	1,652,000	2,267,000
Grain sorghums, bu. . . . .	7,371,000	12,915,000
All hay, tons . . . . .	1,979,000	1,989,000
Cotton, bales . . . . .	295,000	640,000

**Manufacturing.**—Total pay rolls for covered employment in Oklahoma for 1944-45, ending in Sept., was \$222,792,706, with a monthly average of 97,916 persons employed. In addition to the manufacture of petroleum by-products, the manufactured products from glass sands in Oklahoma were making a big industry in the state.

**Mineral Production.**—The total value of minerals, including petroleum, coal, zinc, lead, gypsum and others, produced for the year up to Dec. 1944, was \$253,284,000. Latest available figures for the year ending Nov. 1945 reported the production of 138,282,759 bbl. of petroleum in Oklahoma. (M. H. W.)

**Old-Age Insurance:** see SOCIAL SECURITY.

**Old-Age Pension:** see RELIEF; SOCIAL SECURITY. See also under various states.

**Oleomargarine:** see MARGARINE.

**Olive Oil:** see VEGETABLE OILS AND ANIMAL FATS.

**Olives:** see FRUIT.

**Oman and Muscat:** see ARABIA.

**Ontario.** One of the two central provinces of Canada, Ontario was admitted to the union in 1867. The area is 412,582 sq.mi.; the population, 3,787,655 (1941 census), of which about 62% is urban. The chief cities are Toronto, the provincial capital (667,457); Hamilton (166,337); Ottawa (154,951); Windsor (105,311). Local administration is in the hands of a provincial parliament composed of a lieutenant governor, an executive council, and a legislative assembly of 90 members. Ontario is represented at Ottawa by 82 members in the house of commons and 24 senators. The lieutenant governor in 1945 was Albert Matthews, the provincial premier, G. A. Drew.

**History.**—On June 4, 1945, a provincial general election was held. The Progressive Conservative government of George A. Drew was sustained with an even greater majority than it had in the elections of 1943. As a result of the 1945 elections, current party standing was as follows: Pro. Con. 66; Liberal 11; C.C.F. 8; Labour Progressive 2; Liberal Labour 3. At the dominion general elections (June 11), Ontario returned 48 Progressive Conservatives and 34 Liberals.

**Education.**—The total enrolment of all educational institutions during the period 1941-42 was 730,098. The total revenue of provincially controlled schools in 1943 was \$51,444,653. The University of Toronto, with its seat at Toronto, is the provincial university.

**Communications.**—According to the 1944 official returns (the latest available in 1945), Ontario had 56,439 mi. of surfaced road, and 16,562 mi. of earth road. The number of motor vehicles of all kinds registered in 1943 was 691,615.

**Agriculture.**—In 1944, the estimated gross value of agricultural production was \$620,333,000. Farm income in the same period was placed at \$410,000,000. In 1945, the estimated value of all field crops was \$230,264,000 (1944, \$219,237,000). For the first 50 weeks of 1945, inspected slaughterings were as follows: cattle 449,366; calves 143,646; hogs 1,435,029; sheep 329,254. Production of wheat for 1945 was estimated to be 20,655,000 bu. The flue-cured tobacco crop was estimated to be approximately 70,000,000 lb. (1944, 82,595,000 lb.); that of burley tobacco 10,450,000 lb. Production of honey was placed at 25% below normal. The yield of apples, peaches, cherries, plums

and fruit in general was light.

**Manufacturing and Mining.**—In 1944, the total value of mineral production was \$209,349,689. Iron mining continued at Steep Rock, the ore being sent out via Duluth until the completion of the necessary loading installations at Canadian ports. During 1944, 132,800 bbl. of crude oil were produced.

FILMS.—*Industrial Provinces* (Encyclopædia Britannica Films Inc.). (J. I. C.)

**OPA:** see PRICE ADMINISTRATION, OFFICE OF.

**Opera:** see MUSIC.

**Opium:** see DRUGS AND DRUG TRAFFIC.

**Oppenheimer, J. Robert** (1904– ), U.S. physicist and scientist, was born April 22 in New York city. He was graduated from Harvard university, Cambridge, Mass., in 1925, studied at Cambridge university, England, until 1926 and then at Göttingen university, Germany, where he received his Ph.D. degree, 1927. He became a professor of physics at the University of California, Berkeley, Calif., and the California Institute of Technology, Pasadena, Calif., in 1929. During World War II, the U.S. government placed Dr. Oppenheimer in charge of a special laboratory for development and construction of the atomic bomb at Los Alamos, 20 miles from Santa Fe, N.M. He arrived at the laboratory in March 1943 to start work on the atomic weapon. Henry L. Stimson, then secretary of war, declared in his statement of Aug. 6, 1945, that the development of the bomb itself was "largely due to his (Dr. Oppenheimer's) genius." In addition to his duties as chief of the atomic bomb laboratory, he was a member of a four-man advisory group of leading U.S. scientists that worked with a government interim committee on the establishment of postwar organizations to direct and control the use of atomic energy. Dr. Oppenheimer, testifying before congressional committees seeking information on the atomic bomb, declared (Oct. 17, 1945) that within 10 to 20 years, atomic weapons would be "cheap" and that the U.S. would be particularly vulnerable to attack. Oppenheimer also rejected the navy's contention that the atomic bomb would not seriously affect naval warfare and said (Dec. 5) that an atomic depth charge would be more effective than a surface explosion and that the cost of the future atomic bombs would be only a fraction of their cost in 1945.

**Oranges:** see FRUIT.

**Oregon.** A Pacific northwest state of the U.S.A., admitted to the union Feb. 14, 1859, the 33rd state. Area, 96,981 sq.mi., including 631 sq.mi. of water; pop. (1940) 1,089,684. On July 1, 1944, the bureau of the census estimated the civilian population of the state at 1,214,226. Capital, Salem (1940 census) (30,908); chief city, Portland (305,394). Governor in 1945, Earl Snell. Secretary of state, Robert S. Farrell, Jr.

**History.**—Six large shipyards in the Portland-Vancouver (Washington) metropolitan area turned out 232 sea-going ships in 1945. While this figure represented a considerable reduction from the total of 397 turned out in 1944, the rate of delivery up to the end of World War II was nearly equal to that for the previous year. It was estimated that in the first part of 1945 nearly 130,000 workers were employed in all the Oregon (and Vancouver) shipyards and in closely allied trades. This represented a slight increase in personnel over the previous year.

After the end of hostilities ship production was greatly reduced and in Dec. 1945 it was estimated that there were fewer than 25,000 people working in Oregon yards, including those in Vancouver. A majority of those released from shipbuilding remained resident in the area. During the four-year war construc-

tion period 1,174 ocean vessels were built in Portland and vicinity, with total pay roll outlays amounting to \$1,088,000,000.

Toward the end of 1945 a large part of the lumber industry in Oregon was stopped by strikes. At least two important Oregon lumber producing companies announced that they had closed down for good, due to the shortage of standing timber. In July and August there were unusually severe forest fires in the so-called Tillamook burn area in northwest Oregon, the scene of a devastating fire in 1933.

In midsummer of 1945 it was announced that Portland had been the principal shipping port for lend-lease goods to Russia and that cargo valued at about \$750,000,000 had moved out of the Columbia river in this activity.

The 1945 session of the Oregon legislature appropriated \$40,616,150 as compared with \$24,164,706 in 1943. Most of the increase was for new buildings and permanent improvements at state institutions and for the state system of higher education. At a special election held June 22, 1945, voters ratified the acts of the legislature in respect of these buildings and improvements. A bill to levy state taxes on cigarettes for added income for public schools failed of popular support.

On Nov. 12, 1945, James W. Mott (R), representative in congress from Oregon's 1st district from March 1933, died in Washington, D.C., after a short illness. Governor Earl Snell called a special election to be held Jan. 11, 1946, to elect a successor. Walter A. Norblad (R), of Astoria, was elected.

On May 5, 1945, a small party of picnickers from Lakeview, Ore., found a strange object on the ground near Bly. Some of the children examined the contrivance, which turned out to be a Japanese bomb carried into the country by a balloon. It exploded, killing one woman and five children. The six were the only known casualties by enemy attack in continental United States during World War II.

The city of Portland celebrated the centenary of its founding in 1845 by appropriate exercises and by placing a memorial tablet on a massive boulder near the waterfront. In 1945 the Portland baseball team won the Pacific coast pennant for the first time after 1936.

Despite the letup in shipbuilding activity in Portland, housing conditions remained acute and commercial office space became practically nonexistent. Housing conditions at the smaller cities and towns were equally bad, especially in those places with institutions for higher education.

The Oregon state highway commission in 1945 tentatively adopted a three-year postwar highway construction program calling for an expenditure of \$35,000,000. In addition, the federal government adopted a program calling for about \$5,000,000 for forest highways and similar roads on federal lands in Oregon. At the end of 1945 the state authorities had several of the new projects under construction or under contract.

**Education.**—During the school year 1943-44 there were 226,020 pupils in public schools, including 54,687 in high schools. There were 8,024 teachers. For the school year of 1943-44 the value of school properties, including buildings, grounds and equipment, was \$74,057,365. The superintendent of public instruction, an elective office, was held in 1945 by Rex Putnam.

**Communication.**—As of Dec. 31, 1945, there were 4,806 mi. of primary highways in Oregon, of which 4,612 mi. were improved with various types of surfacing. Expenditures by the state highway commission for 1945 amounted to \$9,928,101, of which \$1,680,914 was for bond redemption and bond interest. As of Dec. 31, 1943, there were 3,629 mi. of steam railways, not including second main track, sidings, etc.

**Finance.**—As of Dec. 1, 1945, Oregon's state gross bonded debt was \$18,517,590, against which there were sinking funds and other applicable assets amounting to \$15,581,391, leaving a

balance of debt of \$2,936,199.

**Agriculture.**—Total cash income of Oregon farmers in 1944 was \$289,714,000, of which \$9,269,000 represented government

*Principal Agricultural Products of Oregon, 1945 and 1944*

Crop	1945 (est.)	1944
Corn, bu. . . . .	1,384,000	1,484,000
Oats, bu. . . . .	7,818,000	10,828,000
Barley, bu. . . . .	6,402,000	7,142,000
All wheat, bu. . . . .	20,889,000	23,105,000

payments. This cash income figure did not include income from certain specialty crops. (L. A. MCA.)

**Osmeña, Sergio** (1878- ), president of the Philippines, studied at the University of Santo Tomas, P.I. He was admitted to the bar, 1903. After serving in various positions of importance in the island government, he became vice-president of the Philippine commonwealth, 1935. Osmeña fled the Philippines, Feb. 20, 1942, when Japanese forces were overrunning his country, and followed President Manuel Quezon to Washington, where the latter set up a government-in-exile. After the death of Quezon, Osmeña was sworn in as president of the commonwealth, Aug. 1, 1944. A few hours after U.S. troops invaded Leyte Island, Oct. 20, 1944, Osmeña stepped ashore and subsequently set up his provisional headquarters at Tacloban. With regard to Philippines-U.S. relations, Osmeña said that while he visualized the Philippines as an independent nation, he stressed that he was "absolutely in favour" of allowing the U.S. to maintain military and naval bases in the islands. Osmeña followed Gen. MacArthur into Manila and swore in a new cabinet of eight members, March 8, 1945. On May 4, he conferred with Pres. Truman, who told Osmeña that he endorsed Pres. Roosevelt's policy of speeding Philippine independence.

**OSRD:** see SCIENTIFIC RESEARCH AND DEVELOPMENT, OFFICE OF.

**Osteopathy.** Osteopathic colleges, along with all others in the field of science, in the U.S., suffered, in 1945, from the fact that, during the later months of hostilities and after, preprofessional college students were not exempted or deferred in the draft. The total number of students in osteopathic colleges changed but little with the end of World War II, but the return of veterans and the release of pressure for the production of war materials in order to free men and women from work in defense plants began to have its effect and was expected to play a real part in the future.

The financial situation of the colleges was unique. They were never the beneficiaries of tax funds directly in support of their teaching functions as was the case with such a large proportion of colleges giving the M.D. degree. They had not approached great philanthropists with the idea of being made beneficiaries of foundations or large grants. From Dec. 1942 more than \$1,000,000 were pledged and most collected, almost entirely, from the alumni of the osteopathic colleges. All of the colleges, at the end of 1945, contemplated presenting their case to the laity for additional funds for the future. Release of building controls and the easing of restrictions relating to the purchase of equipment led to a considerable forward surge in the organization and building of osteopathic hospitals.

The number of hospitals approved for intern training was increased from 51 in 1944 to 56 at the end of 1945. The number of hospitals on the register of the American Osteopathic association in 1945 was 101, not including those listed for intern training. (R. G. HU.)

**Ostland:** see UNION OF SOVIET SOCIALIST REPUBLICS.

**Osubka-Morawski, Edward Boleslaw** (1904?- ), Polish government official, was a member of the "P.P.S." (the Polish Socialist party) before the outbreak of World War II. He had been associated with the Warsaw housing co-operative and was active, although not widely known, in the co-operative movement. In 1943, Osubka-Morawski left the P.P.S. to join a more leftist faction, the R.P.P.S. (the Polish Socialist Workers party) and published an underground paper during the German occupation. Later, he left for Moscow and on July 23, 1944, he became head of the Polish Committee of National Liberation, the organization set up to administer the areas of Poland freed by the Red army. He was selected as premier of the Polish Provisional government (Dec. 31, 1944) and was retained in that post in the permanent government formally installed in Warsaw (June 28, 1945). An advocate of government ownership of all industry of "national importance," he favoured encouragement of private enterprise in the new Poland but asserted that all production and distribution should be regulated by the government. With regard to land reform, he was categorically committed to the abolition of all large estates in Poland, except for land owned by the church. On the question of the national elections, Osubka-Morawski, in the late winter of 1945, agreed with his conservative vice-premier, Stanislaw Mikolajczyk, that the balloting should not be held before the end of 1946 and that the choice should not be limited to a single list of candidates. However, other members of his government were vigorous champions of an earlier election and the single list.

**Ottawa.** The capital of Canada is on the Ottawa river, in the province of Ontario. The city covers 5,295 ac. In common with other urban centres, the population of Ottawa showed a substantial increase. Based upon local estimates, the population during 1945 was 224,826, or 195,223 living in the city and 29,603 in the suburbs. In 1941, the census placed the population at 154,951. The extensive beautification of the city engaged much attention as a war memorial project in 1945, the national government extending its aid for this purpose. The houses of parliament occupy a conspicuous position overlooking the Ottawa river. Other notable public buildings are the Royal Canadian Art gallery, the Supreme Court building, the Parliamentary library, the Public Archives, the Royal Mint, and Rideau hall, the residence of the governor-general. Although primarily an administrative centre, Ottawa possesses some 205 industries, the chief connected with lumbering and wood products. L'Université d'Ottawa has its seat there, and was in 1945 the only officially bilingual university in Canada. (J. I. C.)

## Oumansky, Constantine Alexandrovich

(1902-1945), Russian diplomat, was born in Nikolaev in the Ukraine. He joined the Communist party at the age of 17 and later became a newspaperman with Tass, the official Russian news agency, covering Vienna, Rome and Paris. He entered the Russian diplomatic service in 1931, rising to the post of director of the press department in the commissariat of foreign affairs. In 1936 he was appointed counsellor in the Russian embassy in Washington and was named ambassador to the U.S. in 1939. His reception among the Washington diplomatic corps was courteous but cool because the soviet union had, prior to his appointment, signed a pact with the nazis. After the latter invaded Russia in 1941, the barriers were let down and Oumansky was accorded a more gracious welcome. In Nov. 1941 Oumansky was succeeded by Maxim M. Litvinov and returned to Russia to become director-general of Tass. He returned to the western hemisphere in June 1943 as ambassador extraordinary and plenipotentiary to



## 550 OUTDOOR ADVERTISING—PACIFIC ISLANDS, BRITISH

Mexico. A skilful statesman, he succeeded in renewing diplomatic relations with a number of Latin American countries. In 1944 he was named concurrently soviet minister to Costa Rica. It was during the start of an intended visit to Costa Rica that the ambassador as well as Mrs. Oumansky and three members of his staff were killed; the plane on which they were aboard crashed in flames just outside the Mexico City airport a few minutes after its take-off Jan. 25.

**Outdoor Advertising:** see ADVERTISING.

**Outer Mongolia:** see MONGOLIA.

**OWM:** see WAR MOBILIZATION AND RECONVERSION, OFFICE OF.

**OWMR:** see WAR MOBILIZATION AND RECONVERSION, OFFICE OF.

**Oxford and Asquith, Margot,** COUNTESS OF (1864?-1945), British writer, the daughter of Sir Charles Tennant, was born near the Scottish border. Her early childhood was spent near Edinburgh. Later, she went to London where she made a reputation as a brilliant and witty member of British society. Her friends included the country's literary and political great, of whom she wrote in an intimate, gossiping vein. In 1894, she was married to Herbert H. Asquith, then home secretary. In 1908, when he became liberal prime minister, Lady Oxford took up her new duties as hostess of No. 10 Downing street. During the next eight years she enriched her fund of behind the scenes anecdotes concerning Britain's most prominent statesmen. Eleven British prime ministers were thus portrayed in her last book, *Off the Record* (1944). Her memoirs, published in 1928, mentioned prominent personalities of the Victorian, Edwardian and Georgian eras. She also wrote *More Memories* (1933) and edited *Myself When Young* (1938). Her daughter, Princess Elizabeth Bibesco, who died in April 1945 in Bucharest, was also a well-known writer. Lady Oxford died at her London home, July 28. See *Encyclopædia Britannica*.

**Oxford University.** The academic year 1944-45, which began with 2,562 undergraduates in residence, ended with 2,333. About 59% of the men matriculating were below the age of 18½, the percentage in the previous year having been about 76%. When the war in Europe was seen to be drawing to its close the finishing touches were given to a program which had already been agreed upon in principle with the ministry of works for the release of requisitioned buildings to the extent required for the university population in 1945-46. At the end of July 1945, the government decided to demobilize about 1,000 men and women who held open scholarships or comparable awards in arts subjects, and the program of releases suddenly had to be extended. The examination system was overhauled and temporary modifications made to meet the needs of ex-service candidates.

During the year a professorship of colonial economic affairs was established for seven years in the first instance, through the generosity of the United Africa company. A new faculty of agriculture and forestry was created. Both the biological

sciences and social studies were to be represented on the faculty board. The problems of production and marketing would thus both find their places in the work of the faculty.

Interesting benefactions included an annuity from Stanley Brookes, in memory of his daughter, of £1,500 a year for seven years to enable the university to establish a fellowship for the study of the biochemical factors influencing organic mental disorders. The government grant was increased by £120,000 for the ensuing year.

Sir Arthur Salter and Sir Alan Herbert were elected burgesses of the university at the general election.

The following heads of colleges and professors were elected: Sir Frederick Ogilvie as principal of Jesus; the rev. J. H. S. Wild as master of University; A. H. Smith as warden of New college; B. H. Sumner as warden of All Souls; J. R. R. Tolkien, Merton professor of English language and literature; G. E. Blackman, Sibthorpe professor of rural economy; B. D. Merritt, George Eastman visiting professor; Dr. A. C. Hardy, Linacre professor of zoology and comparative anatomy; S. Kononov, professor of Russian; Dr. R. W. Seton-Watson, professor of Czechoslovak studies.

On Oct. 25, 1945, the university conferred the honorary degree of D.C.L., in recognition of their eminent services during World War II, upon General Dwight Eisenhower, John Winant, General Mark Clark, Professor Max Huber, Lt. Gen. Sir Bernard Freyberg, V.C., Jan Hofmeyr, the earl of Gowrie, Admiral of the Fleet Sir John Tovey, Field Marshal Lord Alan Brooke, Field Marshal Sir Bernard Montgomery and Marshal of the Royal Air Force Sir Arthur Tedder.

**BIBLIOGRAPHY.**—*The Oxford University Handbook*; *The Oxford University Gazette* (especially for Oct. 11, 1945) containing the vice-chancellor's review of the year; *Oxford* (the magazine of the Oxford society). (D. V.)

**Pacific Islands, British.** The British Pacific islands are territories of the British empire in the Pacific ocean, of which certain statistics are given in the accompanying table. See BRITISH EMPIRE for population, capital towns, status and governors.

**History.**—With the end of the war in the Pacific, conditions in the islands returned to normal. The development of air communications brought about tangible results in the shape of improved health, and also emphasized the strategic importance of the islands.

The Colonial Development and Welfare act, 1945, allocated £1,000,000 (£1=403.5 cents U.S.) to Fiji and £800,000 to the Western Pacific for the next ten years. (See also SOLOMON ISLANDS; WORLD WAR II.)

Pacific Islands, British				
Territory and Area Square miles	Principal Products (short tons)	Imports and Exports (in \$)	Revenue and Expenditure (in \$)	Education: Elementary and Secondary
Fiji 9,435	gold (1940) 3.96 (exports 1940) sugar \$5,178,600 copra \$503,750 bananas \$168,050	(1943) imp. \$10,933,400 exp. \$7,580,430	(1942) rev. \$5,129,400 exp. \$4,644,700	(1940) schls. 417; scholars 31,530
Papua (administered by the Commonwealth of Australia; see also Pacific Islands, Mandated) 87,786 (mainland), 2,754 (islands)	rubber (1939-40 exports) \$614,575 gold (1940) 1.2 copra (1939) 10,450	(1940-41) imp. \$1,740,900 exp. \$1,592,390	(1940-41) rev. \$612,085 exp. \$611,440	Mission schools with compulsory attendance for native children (1939-40) Europ. schls. 3; scholars 63
Gilbert and Ellice Islands Colony (including the Gilbert group; the Ellice group; Ocean Island, [seat of administration]; Fanning, Washington and Christmas Islands; and the Phoenix group*) c. 296	natural phosphates (1940-41) 347,664 copra (1941) (exports) \$292,080	(1938-39) imp. \$556,100 exp. \$1,136,500	(1940-41) rev. \$235,800 exp. \$347,400	(1939) schools 236; scholars 6,828
New Hebrides (a condominium administered jointly by the British and French governments) 5,700	(1939) copra 16,317 cocoa 2,167	(1941) imp. \$357,900 exp. \$434,000	(1943) rev. \$240,200 exp. \$128,160	Numerous Presbyterian and Catholic mission native schls., 1 Fr. govt. sch., and 1 Catholic mission sch. for whites
British Solomon Islands Protectorate, 11,458	(1940-41) copra 14,300	(1940-41) imp. \$541,642 exp. \$491,700	(1940-41) rev. \$206,740 exp. \$265,175	(1937-38) elem. schls. 6; scholars 4,697
Tongan Islands Protectorate, c. 250	(export 1941) copra 4,769 bananas 54,210 cases	(1941) imp. \$290,160 exp. \$227,700	(1940-41) rev. \$196,400 exp. \$233,200	(1940) schools 125; scholars 9,324

\*Canton and Enderbury Islands, in the Phoenix group, are shared with the U.S.A. under the Anglo-American pact, Aug. 10, 1938.

**Pacific Islands, French.** The latest statistics available in 1945 for this French colony were: area (Society, Tuamotu, Tubuai and Marquesas islands) 1,545 sq.mi.; pop. (est. Dec. 31, 1939) 45,000 (whites, c. 3,700). Chief town: Papeete (in Tahiti), cap. 8,460. Governor (1945) Col. Georges Orselli.

**Finance.**—Local budget (est. 1939) \$690,000.

**Trade.**—(1941): imports \$111,000; exports \$260,000. Roads (1937): Tahiti 48 mi.; Raiatea 19 mi. Shipping (1938) cleared, 162,927 net tons.

**Production.**—Export (1941): copra 15,000 short tons; natural phosphates 212,000 short tons. (See also SOLOMON ISLANDS.)

**Pacific Islands, Mandated.** The former German possessions in the western Pacific comprise part of New Guinea with adjacent archipelagos, Western Samoa, the Marshall, Caroline, Palau and Ladrone, or Marianas islands, and the islet of Nauru. Statistics for these territories are given in the accompanying table. For capital towns and governors of New Guinea, Western Samoa and Nauru, see BRITISH EMPIRE. After the Japanese entry into World War II in 1941, these islands became the scene of hostilities, for which see WORLD WAR II. (See also NEW GUINEA.)

Mandated Pacific Islands

Territory and Area sq. mi.	Population and Status	Principal Products (short tons)	Imports and exports (000's omitted)	Revenue and Expenditure (000's omitted)
New Guinea, mandated territory (69,700), including Bismarck archipelago (19,200) and Solomon Is. (4,100)	(1941) native 684,284; European 4,101; Asiatic 2,228. Under mandate of the Commonwealth of Australia	(Exports) gold (1941) 8.58; copra (1938) 81,840	(1940-41) imp. \$3,107 exp. \$10,488	(1940-41) rev. \$1,381 exp. \$1,392
Western Samoa (1,133)	(1943) 64,661 (white 280). Under mandate of New Zealand	(Exports 1940) copra 6,321; bananas \$331,300	(1941) imp. \$500 exp. \$787	(1943) rev. \$690.5 exp. \$716.4
Marianas Is., Caroline Is., Palau and Marshall Is. (829.7)	(1939) 113,562 (Japanese, 73,028). Under Allied military occupation	cane sugar (1939-40) 77,330; phosphates (export 1938) 114,400	(1938) imp. \$8,722.6 exp. \$13,350.3	(1940) rev. \$2,564.1 exp. \$2,540.2
Nauru (8.5)	(1941) 2,672 (European 68, Chinese 584). Under British mandate, held jointly by Great Britain, New Zealand and Australia; administered by Australia	(Export 1941) natural phosphates 111,048	(1941) imp. \$345.4 exp. \$224	(1941) rev. \$38.7 exp. \$77.4

**Pacific Islands, U.S.** In addition to such large island possessions in the Pacific as Hawaii, the Aleutians, American Samoa and Guam (the latter occupied by the Japanese in 1941 and retaken by U.S. forces in 1944) the United States possesses a dozen tiny islands in the Pacific, negligible in size and economic value, but important, both in peace and in war, from the standpoint of aviation and naval security. Increasing interest was shown in these formerly neglected islets in the later 1930s, as air flights across the Pacific were organized on a regular commercial basis and as the threat of war with Japan became more evident.

**Midway and Kure (Ocean) Islands.**—The Midway Islands are a group in the North Pacific, 1,200 mi. northwest of the Hawaiian Islands. Area of the group: 28 sq.mi. Pop. (1936) 118. Midway consists of two low-lying islands, Sand (area 850 ac.) and Eastern (328 ac.). These are surrounded by a coral reef five miles in diameter and by numerous islets. Sand and Eastern islands are little more than sand-spits, but they acquired importance, first, as the site of a trans-Pacific cable station (installed 1903), second, as a stopping point on the Pan American Airways route from San Francisco to the Philippines via Hawaii, Midway, Wake and Guam (inaugurated 1935), third, as an important U.S. air and naval station in the war against Japan. One of the first big Japanese defeats was sustained in a three-day battle in the neighbourhood of Midway, fought June 4-6, 1942.

Midway was discovered by a Captain N. C. Brooks in 1859 and was first known as Brooks Island. The name was later changed to Midway, because of the group's position in the mid-

Pacific, 2,800 mi. from California and 2,200 mi. from Japan. It was formally declared a U.S. possession in 1867. Kure (Ocean) Island is a coral reef 14.7 mi. in circumference, lying 56 mi. northwest of Midway. It was placed under the control of the navy department by an executive order of Feb. 1936.

**Wake Island.**—Wake Island, famous as the scene of a gallant last-stand defense by a garrison of a few hundred U.S. marines against a greatly superior Japanese attacking force in Dec. 1941, consists of three islets, Wake, Peale and Wilkes, and is located in the North Pacific, 2,130 mi. due west of Honolulu. The total land area of the islets is about 2,600 ac. (4 sq.mi.), Wake, the largest, being about 2 sq.mi. It was formally annexed to the United States on Jan. 17, 1899. For many years it was neglected and uninhabited, except for occasional visits of Japanese bird-hunters; but it was placed under U.S. navy department jurisdiction in 1934 and later contained an air station, a hotel for air travellers and quarters for a small garrison of marines. It was discovered by the British ship, "Prince William Henry," in 1796.

**Johnston Island.**—Johnston Island consists of two islets on an eight-mile reef, located 600 mi. southwest of Hawaii. It was discovered by the British naval vessel "Cornwallis" in 1807 and named after the vessel's captain, Charles James Johnston. Competing U.S. guano interests lent some activity to this barren

sand bar in the '50s and '60s of the 19th century. The final U.S. assertion of claim to the island was an executive order of June 29, 1929, placing the island under the control and jurisdiction of the department of agriculture as a refuge for native birds. An appropriation of \$1,150,000 was provided by congress for the construction of seaplane facilities.

**Kingman Island.**—Kingman reef, 150 ft. long by 120 ft. wide

at high tide, is the smallest land area in the world over which the United States claims sovereignty. The reef is about 8 mi. long and 5 mi. wide, counting in submerged shoals. Two other tiny islets in the reef appear at low tide. The strategic importance of this desolate reef lies in the fact that it is the only possible seaplane base between Honolulu (1,067 mi. to the N.) and Pago Pago, in American Samoa (9.v.), 1,797 mi. to the S.W.

**Palmyra Island.**—A U-shaped atoll, with its 53 islets containing an area of about 500 ac., located 960 mi. S.W. of Hawaii. Its possession was disputed for a time between the United States and the kingdom of Hawaii; it was specifically mentioned when the U.S. annexed Hawaii in 1898; but sporadic British claims to the possession of the island were put forward later. It is a possible air base on the route from Hawaii to New Zealand.

**Swains Island.**—A coral atoll, one sq.mi. in area, pop. 150, of Polynesian race, formally brought under the jurisdiction of American Samoa in 1925 after remaining for a time under the patriarchal rule of a U.S. whaling captain named Eli Jennings, who had himself accepted as a local chief, and his descendants.

**Howland, Jarvis and Baker Islands.**—Baker and Howland Islands are small coral atolls, located where the international date line crosses the equator. Jarvis Island is 1,150 mi. further E. and slightly below the equator. Rectangular Baker Island is 1 mi. long and 1,500 yd. wide, elongated Howland Island is 2 mi. long and 750 yd. wide. Both were discovered by U.S. whaling captains early in the 19th century. Jarvis Island, a bare coral plateau, 1.8 mi. long and 1.3 mi. wide, was discovered in 1821.



These islands were "colonized" by students of a Hawaiian boys' school in 1935 and placed under the jurisdiction of the department of the interior in 1936. Radio and aerological stations were established there.

**Canton and Enderbury Islands.**—Geographically part of the Phoenix group and located 1,850 mi. S.S.W. of Hawaii, Canton (area 8.5 sq.mi.) and Enderbury (2.5 sq.mi.) figured in a prolonged dispute as to ownership between the U.S. and the British empire. Aviation experts consider Canton an excellent base for seaplanes and Enderbury suitable for land planes. The dispute was settled on Aug. 11, 1938, when the United States and British governments jointly announced an arrangement for "the use in common" of the islands, "for purposes connected with international aviation and communication."

(See also GUAM; HAWAII; PHILIPPINES; SAMOA, AMERICAN.)  
(W.H.CH.)

**Pacifism.** With the abrupt termination of World War II, demobilization became one of the major concerns of conscientious objectors and pacifist organizations in the United States. One group of C.O.s, those who were classified as 1AO in the draft and accepted noncombatant service in the medical corps of the army, were discharged at the same rate as combatants. They and their dependents were entitled to the same privileges as the excombatants.

Those C.O.s who could not conscientiously accept any service in the armed forces and who had been assigned to Civilian Public Service camps and units were not so fortunate. The

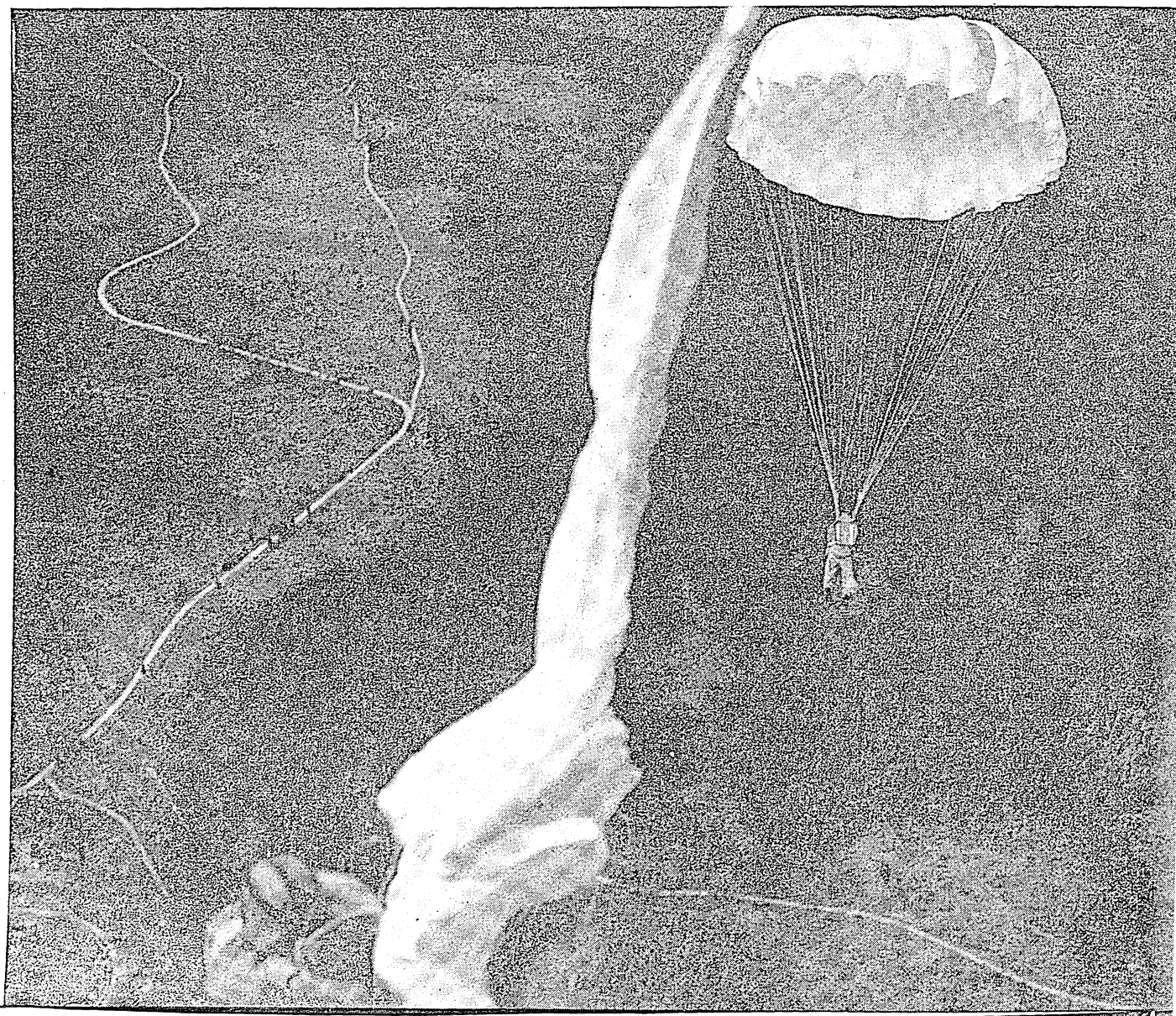
best available estimates were that as of Dec. 31, 1945, about 50% of the men in the armed forces would have been demobilized as against 12% of C.P.S. men. The rate of discharge was, however, being accelerated and it was expected that by the end of March 1946, the figure for the latter would be approximately 60%.

At the end of 1945 there were still from 3,000 to 6,000 objectors to war and conscription, the exact figure depending upon the classification used, in the federal prisons. During World War II these men were denied parole on terms available to ordinary law offenders. Parole was granted in a limited number of cases for work in hospitals and subject to the stipulation that parolees might receive maintenance plus no more than \$50 per month wages. There were indications that the department of justice and the U.S. board of parole were inaugurating a policy of permitting C.O.s the same right as other prisoners to find their own jobs and to receive the going rate of pay. If this policy were adopted, it would in a short time reduce materially the number of imprisoned C.O.s.

This by itself would not, however, solve the problems of men who had been or were in prison for conscience' sake. These men are legally felons.

In many if not all states this would bar them from such professions as law, medicine and dentistry. Some church and civic groups had by 1945 accordingly joined the pacifist or-

A SMOKE-JUMPER of the Civilian Public Service in northwestern U.S. drops into a forest fire area to combat the flames. Conscientious objectors served in this highly dangerous work in 1945. Note the apparent rip in the chute; it is a slot used by the jumper for steering





ganizations in a movement to secure an executive amnesty—i.e., commutation of sentence with full restoration of civil rights—for those remaining in prison and restoration of civil rights for those who had completed their sentences.

The prevailing attitude toward pacifists remained tolerant, or even friendly, and free from hysteria. During 1945 the daily press and the magazines gave increasing space to important experiments in control of jaundice, poliomyelitis, typhus and hookworm and other such projects in which C.O.s served as "guinea pigs" or research assistants.

Pacifist organizations continued to be concerned throughout 1945 about the threat of peacetime universal military training or conscription. After the discovery and use of the atomic bomb, they joined with many nonpacifist individuals and organizations in placing increasing emphasis upon an attempt to secure abolition of national military establishments and of conscription by international agreement as the only effective means to provide "security in the atomic age."

Among pacifists there was a fairly sharp difference of opinion as to what provision for C.O.s ought to be asked or accepted if peacetime conscription should be enacted. There was a growing conviction that conscription and the consequent inevitable militarization of U.S. youth would be an intolerable evil, heralding the advent of totalitarianism, even if seemingly generous provision were made for C.O.s; and that all energies should therefore be devoted to an uncompromising effort to abolish the institution.

Pacifists were in the main highly critical of certain features of the United Nations charter adopted at San Francisco, Calif., such as the veto power in the hands of the big nations; and were disposed to emphasize the danger that the United Nations organization would serve as a camouflage for a "peace" based on the precarious foundation of a military alliance of victor powers.

Pacifists in the U.S. re-established contact with surviving pacifists not only in France and Switzerland but in Czechoslovakia, Germany, the Low Countries and Scandinavia. It appeared that religious pacifists in these lands earned general respect for a position which combined steadfast refusal to collaborate with foreign or native dictators and considerable material and spiritual aid to Jews and to the resistance forces with an equally steadfast refusal to resort to hate and violence. Both governments and churches were calling them to responsible positions in the work of reconstruction.

Pacifist agencies in the U.S., such as the American Friends Service committee, the Brethren Service committee and the Mennonite Central committee, had already made substantial beginnings with relief work, supplementing the utterly inadequate public provision, in war-stricken European countries. Plans to re-establish contact with pacifist forces in oriental countries had also been made.

There was a general feeling among pacifists that the advent of the atomic bomb had made abolition of war a matter of extreme urgency, that it would result in greatly increasing the number of individual pacifists and would also lead large numbers of nonpacifists to join in vigorous efforts during the following five decisive years (1946-50) to secure the establishment of genuine international organization, whether by amending and strengthening the United Nations organization or by some other means.

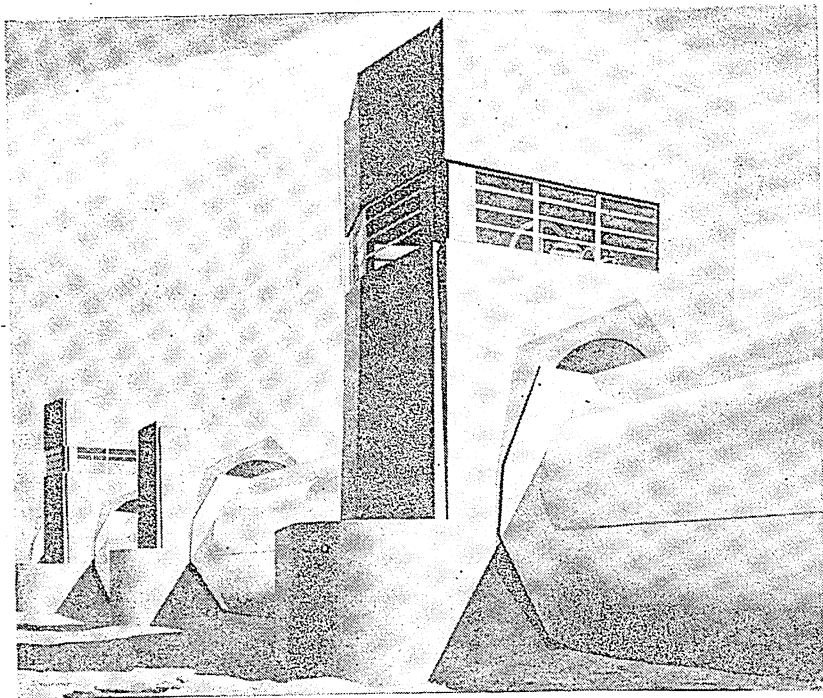
**BIBLIOGRAPHY.**—Reports of the National Service Board for Religious Objectors; publications of the World Council of Churches (American section); reports of Maj. Gen. Lewis B. Hershey, director of Selective Service; annual report 1945 attorney general of U.S. (Francis Biddle); "The Experience of the American Friends Service Committee in Civilian Public Service" (pamphlet); *Conscientious Objectors in Prison*, by Mulford Sibley and Ada Wardlaw (Pacifist Research Bureau pamphlet); *Peace Is The Victory*, edited by Harrop Freeman. (A. J. M.)

**Painting.** When assaying the weight of the artistic endeavours of any one year, a definite trend in art cannot be easily charted. However, accounts of public taste and predilections are often clearly enough marked to be easily discerned. These predilections in 1945 seemed to have been in the direction of the expressionistic, abstract, primitive, exotic and baroque in art, rather than toward the classic. This was borne out by the choice of prize-winning paintings and by the works which, during the year, made their way into public collections. A rather striking fact was the comparatively large number of paintings of nonobjective orientation, a trend which had been, generally speaking, dormant in Europe for several decades, but had become revitalized in the United States. It was also noteworthy that, within the confines of a nonobjective ornamentation, the painters produced works of excellence far surpassing the efforts of most of the European pioneers. Especially interesting paintings were produced by Walter Quirt, Kurt Roesch, Bradley Walker Tomlin, Byron Browne and a score of others. In contrast to the creative capacity of the younger painters, the older veterans, such as Morris Kantor and Fernand Léger sought refuge in worn-out formulas and repetitious clichés.

With World War II ended, a survey of its effect on the art production of U.S. painters could be made. A number of artists served as official war correspondents and some were engaged in reporting for *Life* magazine and for the Abbott laboratories. There were many others staying at home whose work nevertheless mirrored the distant cataclysm. As could have been expected from past experience, the particular kind of emotion under which the artists labour—the aesthetic emotion—eclipsed their preoccupation with the tragic events. This emotion, it would seem, was the directive and the real preoccupation whether the theme were a battle-torn inferno or a peaceful still life. Out of a great mass of war pictures no climactic performances could be cited. But, besides straight pictorial reporting, a number of works emerged which would probably retain validity on purely artistic grounds. Such were the paintings of the correspondents Aaron Bohrod, Howard Cook, Frede Vidar, David Fredenthal, Barse Miller. Excellent illustrations of army and navy medicine for the Abbott laboratories were done by Joseph Hirsch, Lawrence Beall Smith, Howard Baer and others.

There was a heightened interest in the art of drawing, shown by the many exhibitions in 1945 such as the first Drawing Biennial of the Los Angeles (Calif.) Museum, the show of drawings by Hilaire Degas, and the graphic contributions to various shows by Pavel Tchelitchew, Rico Lebrun, Marshall Glasier, Georges Rouault and Paul Cadmus.

Commercial art galleries offered unusually varied and interesting exhibitions. Significant among them were two first shows by the Negro painters, Jacob Lawrence and Romare Bearden, the first representing a primitive and, at the same time, highly sophisticated style, and the second patterned on various abstract manners skillfully and intelligently assimilated. An expressionism peculiarly American but of Nordic origin was revealed in the shows held by B. J. O. Nordfeldt and Everett Spruce of Texas. Julio de Diego made a fine contribution with his very personal brand of decorative fantasia; and Walter Stuempfig, Jr., with extraordinary effects, revealed himself as a full-blown modern Philadelphia Guardi. Stimulating exhibitions were held by John Heliker and Nahum Tschabassov. The fantastic fairytale world of the latter, kindred in conception to that of Marc Chagall, showed an obvious artistic superiority of the Russo-American over the Russo-French painter. As a special event, notice should be taken of the first exhibition of the 22-year-old David Aronson of Boston. Out of various exploits ranging from the art of Byzantium to that of Chaim Soutine, Aronson created in encaustic (taught to him by Karl Zerbe, who was the first



Left: "WATER" by Charles Sheeler was awarded the Norman Wait Harris Silver Medal and Prize in 1945 at the Chicago Art Institute's exhibition of American paintings

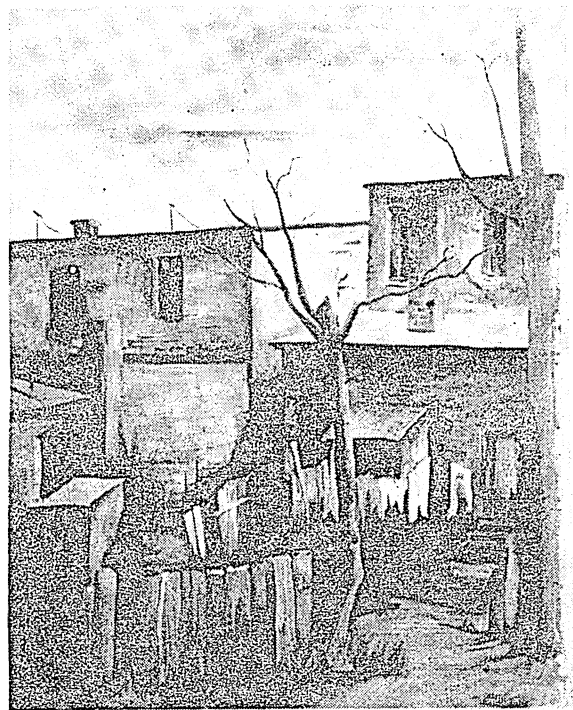
Below: "SENTIMENTAL MOMENT" by Philip Guston was awarded first prize at the Carnegie Institute's exhibit of "Painting in the U.S., 1945." The awards were announced on Oct. 11, 1945



Right: "BETWEEN TRAINS" by T/4 Robert Niles, Jr., was awarded the first prize in oils in the National Army Arts contest, exhibited at the National gallery, Washington, D.C., during the summer of 1945



Above: PAINTING BY RICHARD PREYER, 17, of the Woodberry Forest school, Va., which was awarded first prize in oils at the National Scholastic Art Awards exhibition. Sponsored by *Scholastic Magazines*, the exhibit of high school art was held at the Carnegie Institute from May 13 to June 3, 1945





to revive and develop this ancient technique) expressionistic works of great persuasion, audacity and technical resourcefulness rarely encountered in such a young painter. There was a Salvador Dali exhibit accompanied by the customary fanfare and spectacular public relations strategy. His work had lost nothing of its elegant eloquence. On the negative side of the ledger Max Weber's eclecticism, Marc Chagall's vacuous theatricalisms and Yasuo Kuniyoshi's superficial sophistications failed to convince.

As usual, official honours and prizes in 1945 were bestowed bountifully and often equivocally. On several occasions strong protests were heard from various quarters at some of the juries' verdicts. The first prize of the Carnegie institute went to Phillip Guston for the not particularly outstanding "Sentimental Moments." Guston made considerable impression in the course of the year with his first one-man show in New York city, where he displayed taste, technical proficiency and a remarkable capacity to organize designs of great complexity. The second prize went to George Grosz for "The Survivor," a beautifully realized fantasy echoing the ravages of war. The year 1945 was the year of the Corcoran Biennial in Washington where a minor stir was created over the mal-chosen, trivial caricature "Strip-Tease in New Jersey" by Reginald Marsh, which was the prize-winning painting. The decision of the jury which selected Kenneth Hayes Miller's tasteless "Reverie" for top honour at the annual show of the Art Institute of Chicago was also badly received. The personal taste of the jurors, however, was not reflected in the rest of the exhibition, which, hand-picked by the institute's director, touched a high level. Another major national exhibition was that of the Pennsylvania academy, with Abraham Rattner's "Kiosk" as a meritorious choice for the first prize.

A happy thought brought together a collection named "Four Hundred Years of Landscape Painting" in the Brooklyn museum. In the absence of celebrated, glamorous show pieces, intimate paintings by Joachim Patinir, Piero di Cosimo and Hercules Seghers shared space with Joseph Mallord Turner, Jean Baptiste Corot, Vincent van Gogh, Paul Cézanne and a few contemporaries, the old masters showing on the whole marked superiority over the moderns. Equally delightful was the "Hudson River-School" exhibition assembled by the Art Institute of Chicago and also shown at the Whitney museum. The Whitney Annual had a large proportion of well-chosen nonobjective works, but the collection as a whole suffered from the inclusion of too many trivia. On the other hand, due to a liberal policy, the exhibit of the National academy was on a much more animated level than usual, Guy Pène du Bois winning top honours. Other major exhibitions were held at the Institute of Modern Art in Boston, Mass.; the Wisconsin annual (first prize going deservedly to Marshall Glasier); the local show at the Art Institute of Chicago (the Logan prize going to Aaron Bohrod for "Joan of Arc in Montebourgh"). Regional shows were held in practically every state of the union, and numerous travelling exhibitions were in constant circulation throughout the country. All of this amounts to impressive evidence of tremendous public interest in painting far surpassing that of previous years.

A major art event in 1945 was the forming of an unusually comprehensive and well-chosen collection by the *Encyclopaedia Britannica*, comprising more than 140 paintings by American artists. It was first shown in April at the Art Institute of Chicago and then in New York city at Rockefeller Center, and it aroused uncommon interest. The collection later started on a nation-wide tour.

Three large retrospective exhibitions were held in New York city's Museum of Modern Art: Pieter Mondriaan's rigid and frigid patterns in oil colour; Stuart Davis' work of about 30

years, most of his characteristic paintings closely approaching the realm of applied art; and Georges Rouault's work spanning almost half a century. An unusually rich collection of this artist's graphic work revealed sustained power and sensibility. Some of his late oil paintings, although not equal to the work in black and white, attained a rare alliance of the emotional and the decorative. Another retrospective show was given to Wassily Kandinsky at the Museum of Non-Objective Paintings in New York city.

Industry was to the fore again as a generous art patron. The ill-arranged Pepsi-Cola competition was conspicuous for generally inferior contributions, among the exceptions being the third, fourth and fifth prize winners, Gregorio Prestopino, Mark Tobey and Zoltan Sepeszy, respectively. A project of rather large scope was the commissioning of 16 artists by the Standard Oil Company of New Jersey for a series of paintings depicting "The Story of Oil." Probably because of the freedom given to the artists, an unusually high level was reached in these paintings. Other industrial commissions were those of the Upjohn Collection of Contemporary American Paintings and the Ohrbach collection, which had for its theme New York city subjects.

Not enough attention by half was given to an event of great magnitude—the cleaning of a number of masterpieces which revealed an undreamed-of beauty in paintings which had become yellowed or blackened. The restorer, William Suhr, succeeded in freeing Giovanni Bellini's "Saint Francis in Ecstasy" (Frick collection) from layers of decaying varnish, thus bringing again to light the colouristic splendour of the picture, which is probably unsurpassed by any other Renaissance painting. After the removal of dirt and grime from the surface of the paintings, the portraits of Frans Snyders and his wife by Sir Anthony Van Dyck, which previously one would not have given a second look, showed Van Dyck's great mastery. The large Jean Fragonard (Frick) panels gained immeasurably by skilful and intelligent cleaning, and, after the revelation of the heretofore unsuspected colours, a new light was cast on the importance of this artist as a precursor of atmospheric painting. The François Bouchers (restored by Gaston Lévi) commanded a new interest. El Greco's "View of Toledo" (Metropolitan Museum of Art), cleaned by Murray Pease, gained in brilliance. Vittorio Carpaccio's "Meditation on the Passion" (Metropolitan), formerly an inconspicuous painting, emerged after its restoration as a masterpiece of overwhelming beauty.

After four years of isolation, insight into the artistic fortunes of Hitler Germany and Occupied France was at last disclosed in 1945. In both cases these fortunes were at a low ebb. The official art of Germany was revealed as an enfeebled academism more commonplace and sentimental even than that of the Hohenzollern era. The younger French generation seemed to have drifted into a modernistic academy labouring over formulas of several previous decades which, although they might have been strong at one time, appeared tenuous and faded. (See also SCULPTURE.)

(FR. T.)

**Paints and Varnishes.** Records indicated that paint production in the United States during the year 1945 should approximate the record year of 1944 of some \$690,000,000. Military paints of course continued to receive primary attention during the first half of the year. The raw material shortages continued to plague the industry even for military finishes. Reconversion problems within the industry primarily dealt with reformulation of products so as to utilize the previously restricted raw materials in civilian coatings. Toward the close of the year, phthalic alkyd resins, chrome pigments, aluminum and other previously restricted pigments were available for civilian work.



Vegetable oils, glycerin, rosin, titanium and a few other items were still short of demand and subject to various controls. The U.S. government's program on the planting of increased acreage to flax received considerable popularity and was quite successful.

During the year it was announced that phthalic anhydride production facilities had been increased and the annual U.S. rate could be expected to approach 190,000,000 lb. per year. Synthetic xylene of the petroleum industry was used for phthalic production as well as the traditional naphthalene. As a result, phthalic prices were reduced and the trend to synthetic products was hastened at the expense of rosin materials, especially since rosin advanced in price.

Sales figures showed that during World War II, the percentage of national income in the U.S. spent for paint production dropped to .45%; whereas the previous average of 1935-41 was .63%.

In paints the inclusion of insecticides, such as gammexane (gamma isomer of benzene hexachloride) and the popular DDT (dichloro-diphenyl-trichloroethane), was the subject of much work and literature and, it was thought, undoubtedly would result in the offering of paints with insecticidal value.

In the field of solvents, petroleum, xylol and toluol became readily available in large volumes at lower prices. Some of the new varnish raw materials included a line of driers known as "octoates." Certain improved catalyzed heat bodying oils were offered to the trade. Pentaerythritol resins continued to gain in popularity, being offered in a wide variety of modification.

(A. B. Ho.)

**Palaeontology.** As in previous war years research in palaeontology was curtailed in 1945 because many active research men participated in military activities. This was especially true in the old world. Despite the war, however, much important work was accomplished during 1945.

Perhaps of the broadest general interest was the renewed activity on studies concerning the mechanics of evolution. New work on this problem, started by geneticists and workers on recent groups, spread to palaeontology. Dr. George Gaylord Simpson of the American Museum of Natural History published a most important book very late in 1944 on *Tempo and Mode in Evolution*. In this book he made the first serious effort to synthesize information derived from both genetics and palaeontology as related to the "how and why" of evolution. Dr. Bruce L. Clark published a paper on "Problems of Speciation and Correlation as Applied to Mollusks of the Marine Cenozoic." With this start important work on the basis of evolution seemed certain to follow.

Probably the most important single book published in 1945 was *The Principles of Classification and a Classification of Mammals*, by Dr. George G. Simpson. The book contains a complete classification of the Mammalia including all known genera, living and extinct. The part of the book dealing with the principles of classification covers the important phases of good taxonomic procedure and should be of value to all biologists. Another important section of the book is a review of mammal classification with a discussion of the many controversial points.

In vertebrate palaeontology probably the most important faunal report was that by Dr. W. B. Scott on *The Mammalia of the Duchesne River Oligocene*. This fauna is of particular interest because it fills the gap that existed between the Uinta Eocene and Chadron Oligocene. There remained considerable controversy as to with which epoch the Duchesne river beds should best be included.

Two significant invertebrate faunal reports appeared. One was by Dr. B. L. Clark and Dr. A. S. Campbell on the radiolarian faunal assemblage from the Kreyenhagen shales of the San Joaquin valley, Calif. This is a continuation of other similar

studies made by the same authors on other radiolarian faunas of California. Dr. Stanley Smith published an extensive report on the Upper Devonian corals of the Mackenzie river region of Canada.

The only extensive morphological research, results of which were published in 1945, was by Prof. Erik von Stensiö, of Stockholm, on the heads of certain arthrodires.

Among other research published were the following: Birger Böhlin discussed Jurassic mammals and their significance with respect to the origin of mammalian molar teeth. Dr. C. L. Camp reported on the morphology of a new skull of *Prolacerta* from the Triassic of South Africa. Dr. C. W. Gilmore and Dr. G. L. Jepsen described a new amphisbaenid lizard from the Eocene of North America. A new camel from the Pleistocene of Kansas was described by E. S. Riggs. An important review of the late Paleocene and early Eocene Mammalia faunas was published by Dr. F. B. Van Houten.

The *Journal of Paleontology* published some 35 short reports concerning a variety of subjects in invertebrate palaeontology.

Field work in palaeontology was curtailed even more than research because of wartime shortages. Brief expeditions were conducted by several U.S. institutions. Dr. R. A. Stirton, of the University of California, conducted an expedition to Colombia, South America, and made the discovery of an important new fossil vertebrate locality. Nearly all knowledge of the unique extinct life of South America comes from Argentina, at the southern, temperate end of that continent. Dr. Stirton's discovery of an extensive fossil field of Miocene age in Colombia was particularly important to students of South American fossil mammals.

The end of 1945 saw the return of many palaeontologists who were in war services, and for the first time after 1941 the Paleontological Society of America and the Society of Vertebrate Paleontology held general meetings.

**BIBLIOGRAPHY.**—B. L. Clark and A. S. Campbell, "Radiolaria from the Kreyenhagen Formation, Los Banos, California," *Geol. Soc. Amer.*, Mem. 10; William B. Scott, "The Mammalia of the Duchesne River Oligocene," *Trans. Amer. Phil. Soc.*, vol. 34, pt. 3; George Gaylord Simpson, "The Principles of Classification and a Classification of Mammals," *Bull. Amer. Mus. Nat. Hist.*, vol. 85 (Oct. 5, 1945); Stanley Smith, "Upper Devonian Corals of the Mackenzie River Region, Canada," *Geol. Soc. Amer. Special Paper No. 59*; Erik A. von Stensiö, "On the Heads of Certain Arthrodires. II. On the Cranium and Cervical joint of the Dolichothoraci (Acanthaspida)," *Kungl. Svenska Vetenskapskad. Handl.*, Tredje Ser., Band 22, No. 1 (1945). (P. O. McG.)

**Palestine.** Palestine lies on the western edge of Asia, and is bounded on the west by the Mediterranean, on the southwest by Egypt, on the south by the Gulf of 'Aqaba, on the east by Trans-Jordan, on the northeast by Syria and on the north by the Lebanon. Area 10,100 sq.mi.; pop. (est. 1945) 1,750,000. Chief towns: (pop. est. 1944): Jerusalem (cap. 155,314); Haifa (125,498); Jaffa (93,443); Tel Aviv (155,277). High commissioner, Field Marshal Viscount Gort, succeeded in Nov. 1945 by Lt. Gen. Sir Alan Gordon Cunningham; languages: English, Arabic, Hebrew; religions: (1944) Mohammedan 1,061,277; Jewish 528,702; Christian 135,547.

**History.**—In Palestine, and for those interested in Palestine, 1945 was a year of growing expectancy. The end of World War II, the victory of the Labour party in the British elections, the plan for a system of international trusteeship adopted at San Francisco, Calif., and the impending exhaustion of the immigration certificates provided under the White Paper of 1939, all suggested that a fresh statement of British policy was inevitable.

The interested parties took up their positions in advance. In March, the independent Arab states signed the constitution of an Arab league, with an annex in which they declared that, the independence of Palestine having been acknowledged in the covenant of the League of Nations, it should participate as an

Arab country in the activities of the league. Until its independence was fully effective, the council of the league would itself select a Palestinian Arab to participate in its work. The choice fell on Musa al-Alami.

At a world Zionist conference held in London during August approval was given to the demands of the Jewish agency for an immediate decision that Palestine should be established as a Jewish state, and for an international loan to be used for the transfer of the first 1,000,000 immigrants and for the economic development of the country. Dr. Chaim Weizmann subsequently announced that the Jewish agency had also demanded an immediate instalment of 100,000 immigration permits and had begun in August to refuse the monthly quotas of 1,500 offered by the British government in accordance with their existing policy. At about the same time advantage was being taken of the conditions created by the cessation of hostilities in Europe to organize a flow of illegal immigrants into Palestine. The efforts of the British authorities to check this traffic led, in October, to one or two clashes between troops and Jewish para-military formations. The latter were continuing to accumulate weapons and ammunition, and the former were being reinforced. The Jewish formations carried out widespread sabotage, particularly of the railways, on the night of Nov. 1.

The attitude of the United States to the problem aroused almost as much interest as did the intentions of the British government. In February President Roosevelt, on his way home from Yalta, met Ibn Sa'ud, with whom he subsequently exchanged letters on the subject of Palestine. The president assured the king of the desire of the United States government that no change should be made in the basic situation in Palestine without full consultation of both Jews and Arabs (*see also under ARABIA*). In August President Truman, after revealing that he had discussed the question with Churchill and Attlee at Potsdam, declared that he favoured the entry into Palestine of as large a number of Jews as was consistent with the maintenance of peace in that country. He was not prepared to send U.S. troops to keep the peace there. He envisaged consultation with Great Britain and the Arab states. In the following month it was made known that the president, after receiving a report from Earl Harrison on the condition of displaced persons in Germany, had written to Attlee requesting the admission of the Jews among them—estimated at from 60,000 to 100,000—into Palestine. The administration was under constant pressure from the U.S. Zionists, and certain of its declarations evoked strong protests from the Arab states. Finally, on Nov. 13 it was announced that the British and U.S. governments had agreed to set up a joint committee of inquiry, charged with making recommendations both on the problems of Palestine and on measures for improving the situation of the Jews in Europe, either by remedial action in European countries or by emigration to countries outside Europe. The British government declared that they hoped that the committee's report would facilitate arrangements for placing Palestine under trusteeship. They also announced their intention of consulting the Arabs on the continuance of Jewish immigration while the committee's report was being prepared and considered, and stressed the importance of consultation with the parties concerned at every stage in the development of the new policy.

The death of the Moslem mayor of Jerusalem in Oct. 1944 had reopened the conflict between the Arab and Jewish communities for control over the municipality. The government proposed in March 1945 that the mayoralty should rotate, being held in turn by a Moslem, a Jew and a Christian (the last not necessarily an Arab). When the Arabs rejected this compromise and the Jews gave it only a conditional acceptance, the municipal council was replaced by a temporary commission of British offi-

cials and a commission was appointed to inquire into the problem. The Greek patriarch of Jerusalem was visited in June by the Russian patriarch Alexei. On Nov. 2, 1945, it was announced in London that Field Marshal Viscount Gort had resigned as high commissioner of Palestine because of ill health, and on Nov. 8 Lt. Gen. Sir Alan Gordon Cunningham was appointed to succeed him in that post.

**Education.**—(1941-42): Arab public system maintained by government, 404 schools (12 with secondary sections), 56,558 scholars; Moslem schools, private 177 (2 with secondary sections), with 14,751 scholars; Jewish public schools 442 (including 5 training colleges and 26 secondary, 6 trade and vocational schools), with 62,655 scholars; Jewish private schools 309, with 23,971 scholars; Christian schools 189, with 25,619 scholars; Hebrew university, Jerusalem, 132 teachers, 657 students.

**Banking and Finance.**—Revenue and expenditure (est. 1943-44): revenue \$34,936,000; expenditure (1943-44) \$61,223,760; public debt (March 31, 1943) \$14,508,000; currency in circulation (Nov. 30, 1944) \$165,230,000; exchange rate £P1=£1 sterling=403.5 cents U.S.

**Trade and Communication.**—Overseas trade (merchandise): (est. 1945) imports \$112,840,000; exports \$44,330,000. Communications and transport: roads (1939) all weather 1,451 mi.; seasonable 985 mi.; railways (1942) broad gauge 302 mi.; narrow (Hedjaz ry.) 111 mi.; airways (1942): passengers 6,740, mail 53.4 short tons; shipping (1939) entered 1,857 vessels; 4,370,085 net tons; (1942) 1,061 vessels, 1,455,471 net tons. (Dec. 31, 1942) motor vehicles licensed: 5,659 private cars, 1,283 public cars, 1,289 buses; 4,357 trucks and vans, 2,262 cycles; 25 tractors; wireless receiving set licences (April 30, 1945) 57,749; telephone subscribers (June 30, 1945) 22,833.

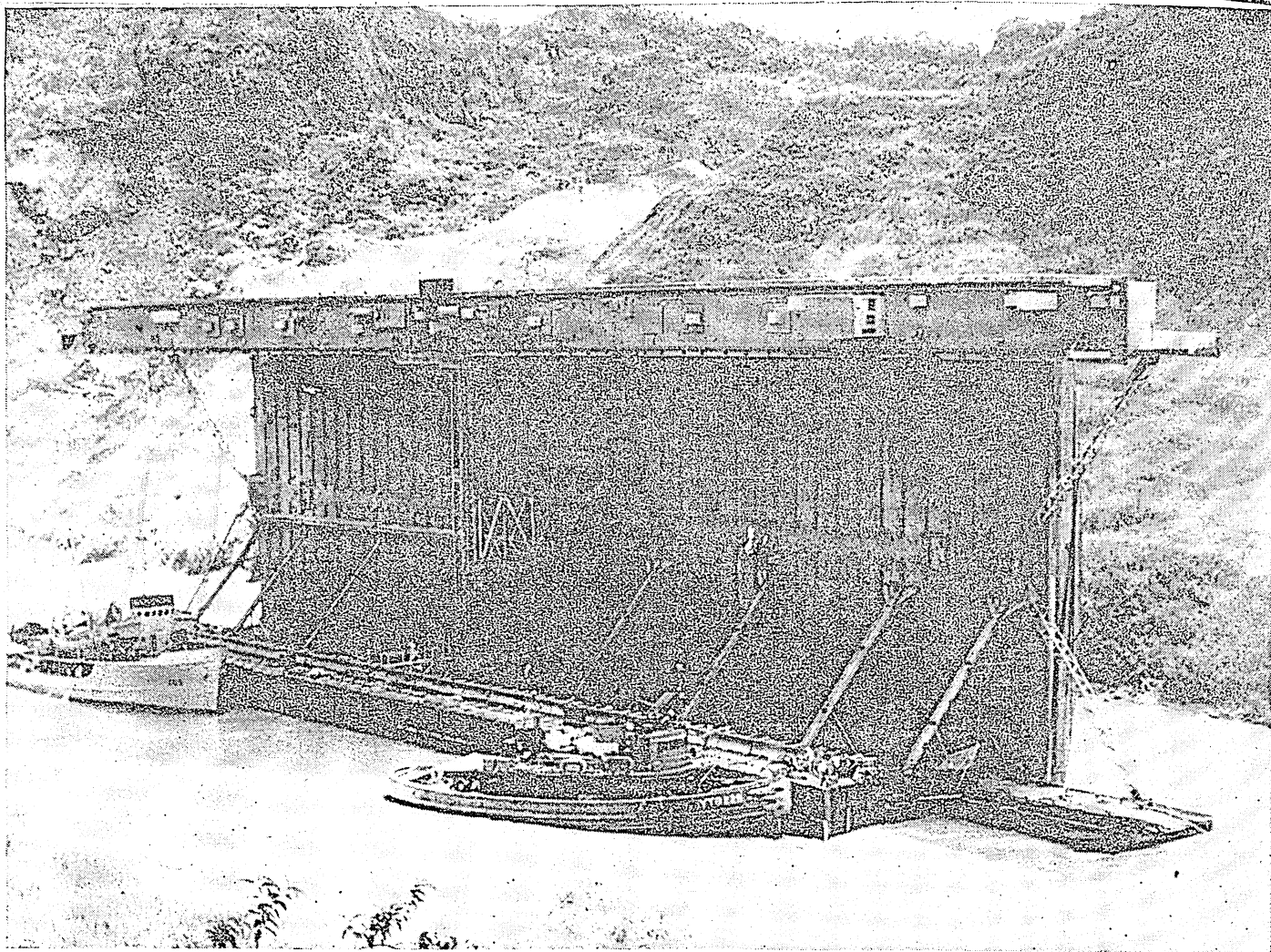
**Agriculture and Mineral Production.**—Production 1943 (in short tons): potash (exports 1939) \$1,533,000; citrus fruits (exports 1941-42) 15,730; barley (1943-44) 45,726; wheat (1943-44) 63,334; olive oil (1943) 1,089; wine 1,135,200 gal.; maize 2,750; tobacco 1,410; potatoes 16,100; sesamum (1943-44) 7,041.

**Palmyra Island:** *see* PACIFIC ISLANDS, U.S.

**Panamá.** A republic of Central America, nearest to South America. It is bisected by the Canal Zone, which is leased to the United States. Area: 28,575 sq.mi.; pop. (1940 census): 631,549 (not including the Canal Zone, which had a pop. of 51,827). The capital is Panamá city (111,893); other cities are Colón (44,393), David (9,222), Chitré (4,790), Santiago (4,253). Presidents in 1945: Dr. Ricardo Adolfo de la Guardia and Dr. Enrique A. Jiménez (provisional).

**History.**—Following disturbances in the last days of 1944, President de la Guardia suspended the constitution and the legislature and on Jan. 9, 1945, announced that government would be in the hands of the cabinet until a new national assembly could be elected in May. The election was carried out quietly on May 6, with a six-party coalition backing the administration, winning 39 of 51 seats. On June 11, President de la Guardia declared a political amnesty, and on June 15 resigned his post. The national assembly had already elected the former ambassador to the U.S., Enrique A. Jiménez, as provisional president and he was installed the same day.

The national assembly also had power to establish a new constitution and turned immediately to consideration of a draft document; the new constitution was not completed during 1945. A new ministry of labour, social welfare and public health was created June 30. Some controversy took place during the year over a proposal to include in the constitution a provision limiting commercial activity to nationals only.



A FLOATING DRY DOCK, too wide for the Panama canal, was upended and floated through on its beam end in 1945; an operation devised by the U.S. Naval Civil Engineer corps

Some opposition to the government was evidenced in occasional incidents throughout 1945. In August the government authorized the return of former President Arnulfo Arias who had left the country in 1941 because of opposition to his policies. He was arrested on Oct. 29 and charged with inciting rebellion, but was released on bail. On Dec. 22 he was again taken into custody, with a number of his followers, under suspicion of participation in an extensive conspiracy against the government. Several persons were reportedly killed or injured in an attack on a Colón police station. President Jiménez earlier (Nov. 8) had been granted all powers necessary to suppress subversive activity.

In the field of foreign affairs the national assembly late in June 1945 approved establishment of diplomatic relations with the soviet union, and severance with the Franco regime of Spain. In September the Spanish Republican government-in-exile was granted recognition. Ratification of the United Nations charter was deposited in Washington, D.C., on Nov. 13. Panamá's quota to the United Nations Relief and Rehabilitation administration was \$400,000, to be paid in three cash instalments. The government cancelled axis trade-marks and patents in April, and wartime passport and visa restrictions were lifted Dec. 17. Gasoline rationing ended Nov. 1.

Panamá in 1945 continued plans for an extensive public works program. Bond issues totalling about \$20,000,000 in value were authorized to finance the building of an international airport, a national tuberculosis hospital, a new manual arts school and a university city, and for repair and rehabilitation works of various types. The financial condition of the republic was generally sound throughout the year, although the cost of living remained high and some shortages, notably in rice and sugar, were felt.

**Education.**—In 1942 Panamá had 670 primary schools with

an enrolment of 74,039; 29 intermediate schools, enrolment 8,407; a national university with 857 students. In the budget for the 1945-46 fiscal year education was allotted 5,140,000 balboas.

**Finance.**—The monetary unit is the balboa, maintained at par with the U.S. dollar. Receipts for the biennium ended Dec. 31, 1944, amounted to 54,836,215 balboas (1940-42: 39,931,500 balboas); expenditures, 47,756,506 balboas (1940-42: 39,392,600 balboas). Surplus for the biennium was estimated at about 8,000,000 balboas. Government income for the first half of 1945 amounted to 13,042,000 balboas, expenditures to 16,342,600 balboas. Total payments on the internal debt for the first half of 1945 amounted to 1,256,000 balboas, and on the external debt 1,819,000 balboas.

**Trade and Resources.**—Imports for the first half of 1945 were valued at 19,741,815 balboas (first six months of 1944: 17,507,256 balboas), and exports 1,802,415 balboas (first half of 1944: 1,178,033 balboas). Imports from the U.S. were valued at 13,145,184 balboas; Mexico 1,445,117 balboas; Argentina 1,270,927 balboas. Sugar output for the crop year ended March 31, 1945, amounted to 93,000 quintals. Rice production (1944) was estimated at 1,016,680 quintals (1943: 1,356,892 quintals); cocoa exports 1,454,950 kg. (1943: 2,789,103 kg.). Abacá exports for the first half of 1945 amounted to 6,027,627 lb., and banana exports to 790,719 stems. The coffee crop for 1945 was estimated at only 12,000 quintals, 5,000 quintals less than the estimate for 1944. Rubber production for the first half of 1945 amounted to 393,014 lb. (2,269 lb. salvage rubber).

**Communications.**—Railway mileage in 1942 was 396 mi.; highway mileage about 750 mi. Good air service by three lines linked Panamá city with the outside world. Completion was planned in 1946 of a national airport to cost more than \$7,000,000, with bids already advertised. (See also CENTRAL AMERICA.)

FILMS.—*Central America* (Encyclopædia Britannica Films Inc.). (D. Rd.)



**Pan-American Highway:** see ROADS AND HIGHWAYS.

**Pan American Union.** The Pan American union is the international organization of the 21 American republics, created in 1890 to promote closer political, economic, juridical, social and cultural relations among them. Headquarters: Washington, D.C.; director general in 1945, Dr. L. S. Rowe; assistant director, Dr. Pedro de Alba.

At the Inter-American Conference on Problems of War and Peace held at Mexico City from Feb. 21 to March 8, 1945, provision was made for a reorganization of the inter-American system. For the first time the governing board of the Pan American union was entrusted with political powers when it was authorized to take action "on every matter that affects the effective functioning of the inter-American system and the solidarity and general welfare of the American republics." The resolution further provided that the governing board should be composed of special representatives appointed by the governments and specifically precluded the appointment of members of the diplomatic corps in Washington. Subsequently, however, the application of this particular feature was suspended until it could receive further study. The conference also agreed that the chairman of the board should be elected annually and should not be eligible for immediate re-election. On Dec. 5 the representative of Brazil, Carlos Martins, was elected chairman in place of Secretary of State James F. Byrnes; at the same time Celso R. Velázquez, of Paraguay, was elected vice chairman. A complete plan of reorganization of the system was to be prepared by the governing board and submitted to the Ninth International Conference of American States which was scheduled to meet at Bogotá, Colombia, in 1946.

Another significant result of the Mexico City conference was the Act of Chapultepec, which was a guarantee of the territorial integrity and the political independence and sovereignty of each state by all the other signatory states. The act was a provisional agreement to operate only for the period of World War II. It had been planned to hold a conference at Rio de Janeiro beginning Oct. 20 to draw up a permanent treaty embodying the principles of the act, but the unwillingness of the United States to participate in such a conference with representatives of the existing Argentine government caused the meeting to be postponed.

The Argentine situation and the position of Argentina in relation to the other members of the inter-American community, continued to create much uncertainty throughout the year 1945. Argentina was not invited to the Mexico City conference, but the Argentine question was thoroughly discussed and a resolution adopted inviting Argentina to orient its international policy with that of the other American republics. Shortly after the meeting Argentina declared war against Germany and Japan and the Argentine representative in Mexico signed the final act of the conference, following which normal diplomatic relations were resumed with Argentina by the other nations of the continent.

Toward the end of the year the situation took another unfavourable turn when the United States refused to participate with Argentina in the projected inter-American mutual assistance conference. In November, also, the minister of foreign affairs of Uruguay suggested a limitation on the doctrine of non-intervention and advanced the possibility of collective intervention to assure respect for certain fundamental rights and the fulfilment of freely contracted international obligations. The proposal was formulated in general terms but was generally construed as aimed at Argentina.

The position of the inter-American system in relation to the United Nations organization occupied a prominent place in the

discussions at the San Francisco conference, where a strong desire was manifested by the Latin American delegations for a maximum degree of autonomy in the settlement of disputes and the preservation of peace in the western hemisphere. As finally adopted the charter recognizes the right of any group of states to enter into agreements for self-defense and to repel acts of aggression pending action by the security council, and places upon regional agencies primary responsibility for the pacific settlement of disputes. (See also ARGENTINA; INTER-AMERICAN CONFERENCE ON PROBLEMS OF WAR AND PEACE; INTER-AMERICAN DEFENSE BOARD; UNITED NATIONS CONFERENCE ON INTERNATIONAL ORGANIZATION.) (L. S. Ro.)

**Paper and Pulp Industry.** A shortage of paper supply characterized the pulp and paper industry in the United States during 1945 even though production was about 3,000,000 short tons greater than 1940. With the end of World War II some relief was experienced in the wood pulp supply, with 600,000 short tons arriving during the last half of the year. Although the labour supply in the mills became adequate, the woods labour situation was not good and would be further handicapped for some time due to the removal of prisoners of war. This was expected to keep the paper market tight for several months in 1946. Although government requirements for paper were drastically reduced, the inventories throughout the U.S. were nearly exhausted and would require some time to be satisfied. At the same time there was a huge export demand since the U.S., Canada, and Sweden were the only nations in 1945 capable of exporting paper. Neither Great Britain nor France, former large suppliers were in a position to enter the paper export market. There was considerable speculative buying in anticipation of increases in the price ceilings. Paper and paperboard production in 1946 was expected to total about 18,000,000 short tons. This would be an increase of about 600,000 short tons more than 1945.

Table I.—U.S. Paper Production Capacity for 1944

Kind of paper	Short tons
Newsprint . . . . .	900,000
Groundwood . . . . .	660,000
Book . . . . .	1,800,000
Writing, cover, text . . . . .	1,060,000
Wrapping, sulphite and kraft . . . . .	3,100,000
Tissue . . . . .	1,030,000
Paperboard . . . . .	9,500,000
Building . . . . .	1,100,000
All other . . . . .	110,000
Total . . . . .	19,260,000

Table II.—U.S. Paper Production, 1940-44

	(short tons)				
	1940	1941	1942	1943	1944
Newsprint . . . . .	1,056,304	1,043,999	967,211	811,309	720,752
Book papers . . . . .	1,666,488	2,025,891	1,704,029	1,592,878	1,435,785
Paperboard . . . . .	6,449,548	8,399,960	7,969,184	8,620,434	8,962,568
Wrapping . . . . .	2,500,818	2,778,441	2,713,738	2,470,039	2,559,447
Writing . . . . .	599,452	913,727	1,019,921	982,983	929,577
Cover . . . . .	26,944	36,287	35,554	37,618	44,795
Tissue . . . . .	761,712	912,874	981,996	968,789	965,433
Groundwood . . . . .	550,453	642,676	610,168	585,673	593,094
Building . . . . .	682,460	917,912	1,001,383	877,582	881,246
All other . . . . .	189,530	90,598	80,678	88,383	90,107
Total—all grades . . . . .	14,483,709	17,762,365	17,083,862	17,035,688	17,182,804

Table III.—U.S. Production and Consumption of Paperboard and Paper

Year	U.S. population	Production—short tons		Per capita consumption—pounds	
		Paperboard	Paper	Paperboard	Paper
1904	82,601,384	559,700	2,546,900	13.6	61.7
1909	90,691,354	883,100	3,238,500	19.5	71.3
1914	97,927,516	1,291,800	3,860,900	26.4	78.8
1919	105,003,065	1,867,100	4,099,000	34.4	78.1
1925	114,867,141	3,286,600	5,895,600	77.2	102.7
1930	123,090,000	4,060,700	6,108,490	66.0	99.4
1935	127,521,000	4,616,000	5,784,000	73.6	90.7
1940	131,669,275	6,450,000	8,034,000	98.0	122.0
1944	136,000,000	8,962,500	8,219,000	131.8	120.9

**Canada.**—The Canadian pulp and paper industry followed a pattern similar to that of the U.S. The newsprint branch of the

## PAPUA—PARAGUAY

Table IV.—U.S. Production and Consumption of Paper, Wood Pulp and Pulpwood

Year	Paper (short tons)		Wood pulp (short tons)		Receipts of pulpwood (cords)		Total
	Production	Consumption	Production	Consumption	Domestic	Imported	
1899	2,167,593	2,158,000	1,179,525	1,216,254	1,617,093	369,217	1,986,310
1909	4,216,708	4,224,000	2,495,523	2,856,593	3,207,653	793,954	4,001,607
1920	7,334,614	7,846,827	3,821,704	4,696,935	5,014,513	1,099,559	6,114,072
1925	9,182,204	10,590,090	3,962,217	5,590,304	5,005,445	1,088,376	6,093,821
1930	10,169,140	12,314,819	4,630,308	6,463,185	6,089,852	1,105,672	7,195,524
1935	10,506,195	12,490,886	4,925,664	6,877,869	6,590,942	1,037,332	7,628,274
1941	17,762,365	20,418,188	9,978,400	10,801,223	15,400,000	1,292,640	16,692,640
1942	17,083,862	19,817,925	10,783,430	11,038,020	14,480,000	2,232,000	16,712,000
1943	17,035,688	19,493,824	9,680,462	10,635,320	13,581,000	1,712,000	15,293,000
1944	17,182,804	...	10,108,443	10,502,204	15,349,000	1,650,000	16,999,000

Table V.—U.S. Wood Pulp Production

Year	(short tons)						Total
	Unbleached sulphite	Bleached sulphite	Total sulphite	Ground-wood	Soda	All others	
1925	790,510	612,576	409,768	1,612,019	472,647	64,697	3,962,217
1930	815,897	751,166	949,513	1,560,221	474,230	79,281	4,630,308
1935	634,947	944,620	1,467,749	1,355,819	485,162	144,002	4,925,664
1938	601,855	1,004,621	2,443,057	1,333,308	394,307	155,418	5,933,560
1940	990,668	1,601,016	3,725,135	1,762,821	548,047	164,940	8,851,740
1942	1,212,354	1,718,192	4,725,133	1,889,607	453,459	228,975	10,783,430
1943	883,306	1,553,196	4,235,724	1,556,810	418,868	405,309	9,680,462
1944	862,298	1,523,221	4,548,810	1,557,681	412,755	540,380	10,108,443

Table VI.—Cellulose Consumption by the U.S. Rayon Industry

Year	Total pulp	Wood pulp		Linters pulp		Raw cotton linters bales
		Short tons	%	Short tons	%	
1930	72,000	45,000	62	27,000	38	115,000
1935	137,000	86,000	63	51,000	37	218,000
1939	194,500	145,000	75	49,500	25	211,000
1940	238,000	178,000	75	60,000	25	256,000
1942	330,000	280,500	85	49,500	15	211,000
1943	336,500	281,000	84	55,500	16	237,000
1944	367,000	285,000	78	82,000	22	350,000

Table VII.—Canadian Paper Production

Kind	(short tons)		
	1942	1943	1944
Newsprint	3,257,000	3,046,442	3,040,000
Book and writing paper	121,000	122,174	154,000
Wrapping paper	166,000	145,545	157,000
Paperboard	619,000	568,101	538,000
Tissue	38,000	43,247	46,000
Other paper	41,000	40,835	59,000
Total	4,242,000	3,966,344	3,994,000

Table VIII.—Canadian Wood Pulp Production

Kind	(short tons)		
	1942	1943	1944
Groundwood	3,236,983	2,998,913	3,076,296
Sulphite, bleached	603,390	587,538	586,699
Sulphite, unbleached	1,157,138	1,125,033	1,023,930
Sulphate	460,986	441,421	467,726
Screenings, chemical	51,294	51,053	48,826
Screenings, mechanical	51,277	34,838	36,846
All other pulp	33,728	34,034	31,814
Total	5,594,796	5,272,830	5,271,137

Table IX.—World Production of Chemical Pulp, 1938

(thousands of short tons)		
United States	4,596	87
Sweden	2,620	60
Finland	1,621	52
Germany	1,469	50
Canada	1,147	46
Japan	643	45
U.S.S.R.	600	41
Norway	502	32
Austria	300	23
Czechoslovakia	280	16
France	139	3
Poland	120	
Total		14,492

industry was stimulated late in 1945 by receiving an increase of \$6 per ton more than the previous ceiling. In net value of production the paper industry led the list of Canadian peacetime industries. It passed the sawmill industry in 1920, and held the lead until 1942 when it was overtaken by the war industries. Newsprint constituted more than 75% of the paper production.

**United Kingdom.**—Statistics relative to paper production in the United Kingdom were not released up to the close of 1945. The latest export statistics showed that 508,529 cwt. of papers

and boards were exported in nine months of 1945. Newspapers were limited to four pages, consuming 23% of prewar newsprint use. Straw, old papers and a small amount of Canadian wood pulp were the principal raw materials.

(R. G. M.)

**Papua:** see BRITISH EMPIRE; NEW GUINEA; PACIFIC ISLANDS, BRITISH.

**Paraguay.** A landlocked republic in south-central South America. Area 154,165 sq.mi.; pop. 1,108,040. Racially the people are a homogeneous blend of Spanish, Portuguese and Italian stocks, with a good deal of Guarani Indian blood, discernible especially in the remote thinly populated regions. Official language: Spanish. The Guarani tongue has survived more than the blood, but is secondary and recessive. The capital and chief centre is Asunción, pop. (est. Dec. 31, 1943) 126,280 (Greater Asunción, 186,875). Other cities: Villarrica, 30,176; Concepción, 16,007; Encarnación, 15,610. The official religion is Roman Catholicism. President in 1945: Gen. (Marshal) Higinió Morínigo.

**History.**—In power from Sept. 7, 1940, Gen. Morínigo in 1945 found few effective elements of opposition, and his cabinet became almost wholly military when the minister of finance went into exile after advocating greater expenditures for civilian functions such as education. Negotiations with Argentina looking toward a customs union of the two countries gave no definite result during the year; and on the other hand, the highway planned by former President Estigarribia to connect Paraguay with Brazil also remained far from completed. Paraguay's relations with these two powerful neighbours were affected by its attitude favouring the United Nations, and likewise by its economic and geographic vinculations with the River Plate basin. Negotiations with the United States for a Hull trade agreement continued during 1945.

**Education.**—There were some 60,000 pupils in the elementary schools, estimated at 2,000. In the absence of official data, it may be said that while the great majority of the people are literate, the actual use of reading and writing is very slight in a good many areas. The University of Paraguay, founded at Asunción in 1888, had 11 faculties and 1,200 students; and a number of normal and agricultural schools, as well as a national junior college, were active.

**Defense.**—An efficient army of more than 8,000 is maintained. As the Paraguay river is the country's life-line, a fairly modern navy of some 1,500 men is also maintained. The Paraguayan air corps received instruction from a United States army air mission in 1945. The Paraguayan army war college had the assistance of a United States army instruction mission, which had been preceded by Argentine and French missions. The share of the national budget devoted to defense was variously calculated at from 39% to 53%.

**Finance.**—The Paraguayan currency unit is the guarani, which in 1945 was equal to 32.4 U.S. cents. The official Bank of Paraguay has a monetary department which performs central banking functions, a banking department for ordinary commercial banking, and a mortgage and savings department. The government also operates an agricultural bank with many diversified functions relating to co-operative purchase of farm equipment, farm price stabilization, farm loans and credits, and produce grading. No United States bank operated in Paraguay in 1945, but the (British) Bank of London and South America

continued its well-established and extensive services. The Bank of the Argentine Nation, opened in 1943, continued a fairly rapid expansion, and the Bank of Brazil in 1945 expanded on a smaller scale the branch which it opened at Asunción in 1942. Commercial loan rates ranged around 8%.

**Trade and Communication.**—The foreign trade figures for 1944 (announced in mid-1945), showed exports valued at (U.S.) \$13,700,000 and imports valued at \$12,957,000. The leading exports were canned beef (\$3,099,000), quebracho tannic extract (\$1,772,000), raw cotton (\$1,680,000), salt hides (\$1,594,000), logs, tobacco, vegetable oils, petitgrain (perfume base) and yerba maté. The leading imports were textiles, foodstuffs, manufactures of metal, vehicles and boats, minerals and fuels, machinery, paints, soaps and chemicals. In 1945, as during previous war years, the Allied purchasing commissions made direct contracts for canned meat, cotton, hides and tannic extract. The United Kingdom, which received beef and cotton, and the United States, which received hides and tannic extract, thus figured as destinations equally important with Argentina for Paraguay's exports; while Uruguay purchased substantial quantities of tobacco and hides, and Brazil remained negligible as a customer. As sources of imports into Paraguay, the course of the war increased the importance of Brazil and the United States, while diminishing that of the United Kingdom, Germany and France, but left Argentina easily leading the field.

Progress was made in 1945 on the construction of the railway which was to enter northeastern Paraguay from western central Brazil. Local road-building continued in southeastern Paraguay, but the through highway from central Paraguay to the Brazilian border, surveyed by U.S. engineers in the autumn of 1944, was not commenced. The principal development in air lines in 1945 was the attempt to maintain local air connections between Asunción and northern Paraguay, as well as the Gran Chaco, by a domestic Línea Aérea de Transporte Nacional (L.A.T.N.) under the aeronautics bureau of the ministry of defense.

A land-line telegraph cable connects Paraguay with Buenos Aires. The International Telephones company (Swedish-Argentine-Paraguayan) had in 1945 524 mi. of telephone circuits, with 33 exchanges, and served 3,596 subscribers. The principal international radio services are furnished by Radiovia (U.S. in part) and Citradio (formerly German-Argentine); but the Paraguayan National Telegraph offers radio communication direct with Uruguay and Brazil, while a Mackay Radio connection with New York is managed by Radiovia.

While the river traffic is largely monopolized by an Argentine steamship company, believed to have British affiliations, the Brazilian governmental line, Serviço de Navegação da Bacia do Prata, in 1945 continued effectively its scheduled voyages via Montevideo and Asunción to Corumbá, Brazil.

**Agriculture.**—Paraguay is predominantly a cattle country, and its ratio of population to cattle (1,000,000 to 3,000,000) was once the highest in the world. The principal field crop is mandioca, which is used in place of the breadstuffs whose production the climate does not favour. Bananas and citrus fruits are grown and consumed on a large scale. Sugar cane is likewise widespread, although the 16,000 tons of sugar estimated for 1945 was consumed locally. The ordinary Paraguayan farmer, as distinct from the large-scale cattle raiser, depends upon cotton for his cash crop. The 1945 cotton crop was curtailed by unfavourable weather and pests, however; the last estimate being 29,762 short tons as compared with 51,256 short tons in 1944. A U.S. agricultural mission began tapering off its activities in Paraguay in 1945.

**Manufactures.**—Paraguayan official estimates include the production of canned meat and quebracho tannic extract in the figures for manufacturing, and on this basis the share constituted in Paraguay's total output of wealth by manufactures in 1943 was 38% (the total output being \$56,000,000). Aside from the two industries named, the manufactures of the country are rather small, but have shown steady growth. U.S. experts in 1945 professed the view that Paraguay could become a substantial producer of oils.

**Forestry.**—There are some 23,500,000 acres of forests in that portion of Paraguay which lies east of the Paraguay river, and the exports of logs and plywood are in most years valued at more than \$1,000,000.

**Mineral Products.**—Paraguay's mineral deposits are small, except for manganese in the northeast in inaccessible regions. The outstanding mineral development of the year 1945 was the conclusion of a contract between the Paraguayan government and a U.S. petroleum company for exploration

and experimental exploitation of oilfields believed to exist in the western Chaco near the Bolivian oilfields. (W. Ft.)

## Parents and Teachers, National Congress of.

The National Congress of Parents and Teachers, popularly known as the P.T.A., was founded in 1897 as the National Congress of Mothers. In 1945 its membership was composed of nearly 3,500,000 parents, teachers and other interested persons, of whom more than 900,000 were men. These members were organized into 25,000 local parent-teacher associations, functioning in each of the 48 states, the District of Columbia and Hawaii.

The P.T.A. recognizes no social, economic, political, cultural or religious distinctions among its membership. Anyone can join who is concerned with the best interests of children and pledges himself to work toward the five long-established objects of the organization: "to promote the welfare of children and youth in home, school, church, and community; to raise the standards of home life; to secure adequate laws for the care and protection of children and youth; to bring into closer relation the home and the school, that parents and teachers may co-operate intelligently in the training of the child; and to develop between educators and the general public such united efforts as will secure for every child the highest advantages in physical, mental, social, and spiritual education."

Guided by its theme, "All Children Are Our Children," the national congress has always worked unceasingly for world peace and world fellowship. Recognition of the practical effectiveness of this activity came in April 1945 when the congress was asked by the department of state to send a consultant to the U.S. delegation at the San Francisco conference.

The national congress maintains an extensive publications program, including its official monthly magazine, the *National Parent-Teacher*, and a monthly newsheet, the *National Congress Bulletin*. Among the many other individual publications are the books *Community Life in a Democracy*; *The Parent-Teacher Organization: Its Origins and Development*; and *Schools for Democracy*.

Special projects of the congress include its widely known summer round-up of the children, the community school lunch, the traffic safety education project, parent education study courses, and the nation-wide weekly radio program, *The Baxters*. In these and many other phases of its work the organization co-operated closely with national, state and civic organizations and agencies having similar aims and interests.

The office of the National Congress of Parents and Teachers in 1945 was at 600 South Michigan Boulevard, Chicago 5, Ill. (M. A. Hs.)

**Paris.** Capital and largest city of France, pop. (1936) 2,829,746; of greater Paris, including the belt of suburban factory towns, 4,962,967. The year 1945 was one of continued privations and slow recovery for the French capital.

During the first months after the liberation of Paris from the Germans on Aug. 25, 1944, communication with other parts of France was difficult and irregular. The prosecution of World War II demanded all the energies of the government headed by Gen. Charles de Gaulle. The German surrender in May 1945 removed the pressure of war and the authority of the government was gradually extended to the whole country.

Life in Paris, however, remained bare and austere, with little of the epicurean comfort for which the city was noted in pre-war times. Food rations remained meagre and prices of meals in restaurants were astronomically high, measured in terms of the official rate of 50 francs to the dollar. Late in Dec. 1945



this rate was written down to approximately 120 francs to the dollar on the eve of the inauguration of the Bretton Woods scheme for an International bank and an International Monetary fund.

Rationing of bread, always a staple of French diet, was lifted temporarily in the latter part of 1945, but had to be reimposed at the end of the year.

A severe shortage of coal made Paris homes bleakly uncomfortable in the colder months and hindered the resumption of industrial production.

Paris was the scene of the trial of many Frenchmen who were accused of collaboration with the Germans. The two most prominent figures in these trials were Marshal Henri Philippe Petain, former chief of state in the Vichy regime, and Pierre Laval, former prime minister in that government.

The trial of Petain led to a death sentence; but Gen. de Gaulle commuted this to life imprisonment in a fortress for the aged hero of World War I. Laval's trial was marked by some unseemly brawls and in this case the capital sentence was carried out. Laval failed in an attempt to commit suicide. The high tide of the purge of collaborationists was apparently passed during 1945 and Gen. de Gaulle threw his influence against indiscriminate revenge and proscription.

Parliamentary life in Paris was resumed after a national election was held for a constituent assembly. Three parties, the Communists, the Socialists and the Popular Republican movement, emerged with almost equal strength from this election, while the Radical Socialist party and political groupings of the

right came out very much weakened.

A parliamentary crisis was threatened because De Gaulle proposed to resign rather than give the Communists one of the three key ministries to which they felt entitled because of their voting strength.

These ministries were war, foreign affairs and the interior, which carried control of the police. A compromise was worked out, however, the Communists receiving a subordinate department in the war ministry and also several of the economic ministries. The cabinet remained a coalition of the three leading parties.

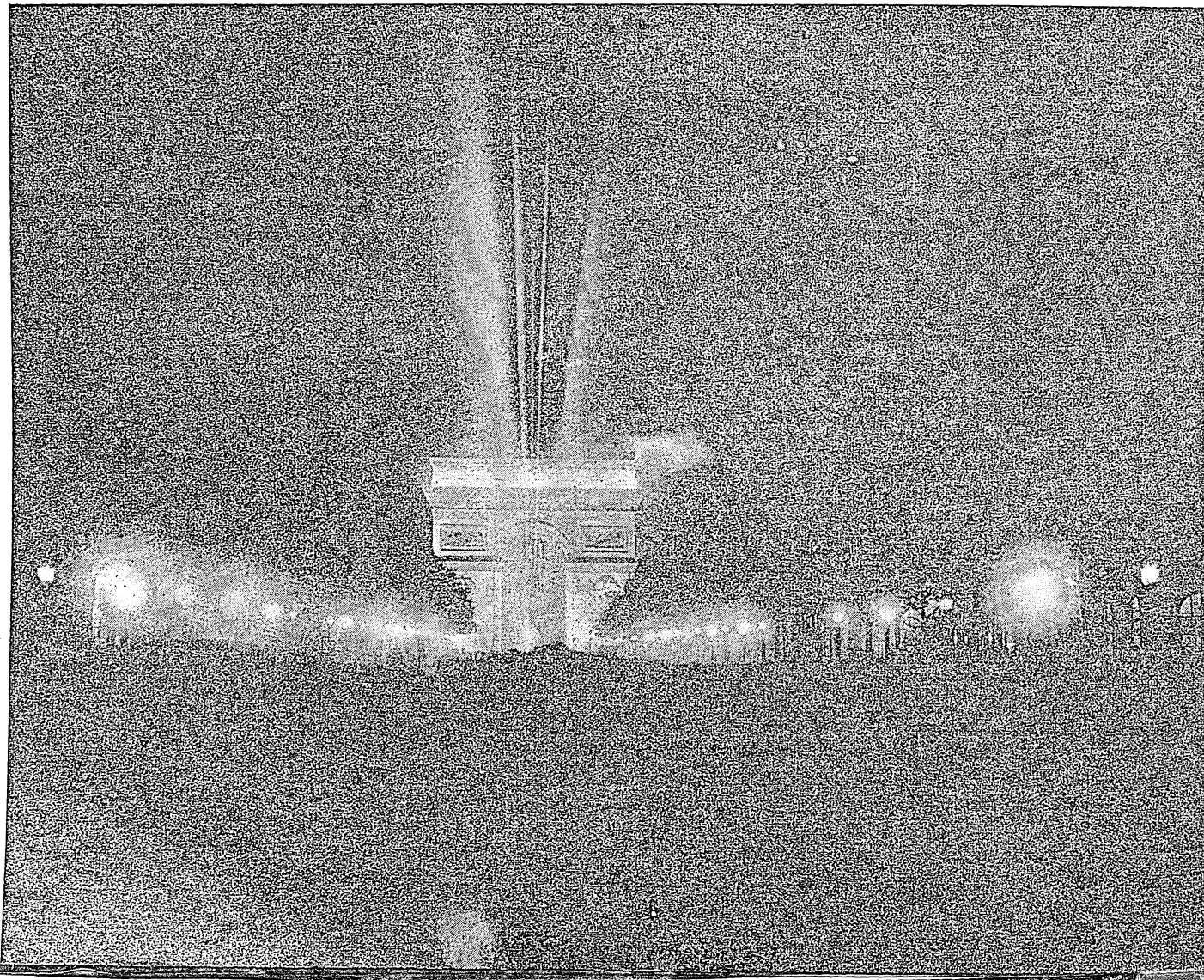
Paris was stirred by an antivice crusade launched by a woman member of the city council, Mme. Marthe Richard. She called for the closing of the city's 178 legalized houses of prostitution, and the police prefect, Charles Luizet, declared that this would be done within three months.

The hotel and local transportation systems in Paris remained difficult. Many hotels were taken over for the use of government departments and U.S. military organizations. The metro, or subway, remained the chief means of transportation, although some buses reappeared. Taxicabs were restricted to the use of persons in the most essential occupations, such as physicians, because of the shortage of gasoline. The difficulties of life in Paris for visiting U.S. businessmen were eased by the opening of a special hotel, the California, for transient guests, with the co-operation of the U.S. embassy and the military authorities.

(W. H. CH.)

**Parks and Monuments:** see NATIONAL PARKS AND MONUMENTS.

VICTORY in Paris, 1945. Floodlights illumined the Arc de Triomphe and street lamps studded the broad Champs Élysées



**Parliament, Houses of.** An eventful parliamentary year in 1945 saw the ending of the 37th parliament of the United Kingdom and of the coalition government formed in 1940 by Winston Churchill. This fell through the withdrawal of its Labour party members and those Liberal ministers who followed Sir Archibald Sinclair. On May 29 Churchill faced the commons afresh with a "caretaker" government which, mainly Conservative, also included ministers from the National Liberal wing, led by Ernest Brown and others, like Sir John Anderson (chancellor of the exchequer), without party allegiance. Parliament was then dissolved by the king on June 15. It had first met on Nov. 25, 1935, and its life, protracted by annual enactments, was the fourth longest in history.

The new parliament was elected under the provisions of a Redistribution of Seats act, passed in 1944, enlarging the membership from 615 to 640. Polling was on an interim register, also compiled under a wartime act, enabling electors serving in the forces overseas to vote by post or proxy. Most constituencies voted on July 5, but for 23 another act postponed the date in special circumstances. Counting, deferred until July 26, showed that the Labour party had won a clear majority over all others combined. Final classification among the parties was (with figures for the former parliament in brackets): Labour 393 (164); Conservative 198 (368); Independents 14 (23); Liberal National 13 (26); Liberal 12 (18); Independent Labour party 3 (3); National 2 (4); Communist 2 (1); Commonwealth 1 (3); Irish Nationalist 2 (2). The two last-named had refrained from attending the last house, but took their seats in the new. The National Labour party with five seats in the old house submitted no candidates and the solitary Scottish Nationalist was defeated. More than half the members of the new house (345) were new to parliament. Of the 23 women elected 20 were of the Labour party, and one each, Conservative, Liberal and Independent.

Churchill resigned on July 26 and Clement Attlee formed a Labour government on strictly party lines. The small cabinet of wartime was replaced by one of 20, with 12 other ministers holding cabinet rank without being members of it. No appointments were made to the wartime offices of minister resident overseas, of which toward the end of the coalition there had been four. The ministry of aircraft production was merged in that of supply, but the ministries of civil aviation and of national insurance, both new creations within the year, were retained. So was the post of minister of state and the ministries of food, fuel and power, information, and town and country planning, all established in wartime. As lord president of the council Herbert Morrison was charged with the leadership of the house of commons.

In Churchill's resignation honours list four Conservative M.P.'s with the three chiefs of the services staffs were made peers and in Attlee's government Sir William Jowitt (lord chancellor) and F. W. Pethick-Lawrence (secretary for India) also received baronies. Lord Addison, advanced to a viscounty, became leader of the upper house. The new house of commons meeting on Aug. 1 re-elected Colonel Clifton-Brown as speaker, but later restored Major James Milner to the chairmanship of committees and elected H. Beaumont as deputy chairman.

On Aug. 15 the king opened the 38th parliament in state. The date corresponded with the announcement of the surrender of Japan and restoration of peace throughout the world. Less than nine months before, the king, on Nov. 29, 1944, had opened the ninth session of the preceding parliament. On both occasions he was accompanied by the queen but the two ceremonies were sharply contrasted. The first—unannounced in advance for security reasons—took place in the small temporary house of lords used after the commons chamber had been wrecked by bombs.

For the opening of the new parliament the thrones were re-erected in the lords' own chamber, while the commons assembled after more than a century in St. Stephen's hall. Their majesties again rode to parliament through acclaiming crowds, but in an open landau instead of the gilded state coach and without the crowns and robes of royalty. On Aug. 21, the king and queen again attended parliament in state to receive from both houses, in the presence of representatives of the dominions, the empire and the United Nations, addresses of congratulation on victory.

A second budget within 12 months was introduced on Oct. 23, but in the new parliament, and by the new chancellor, Hugh Dalton. Most of the changes in taxation announced would become effective only from the following financial year and might be modified by the ordinary budget for that year.

Seven additional baronies were conferred on Oct. 24 "as a wholly exceptional measure of state policy designed to increase the representation of the government in the house of lords." With two peerages conferred shortly before they raised the number of Labour peers to 30. (See also CABINET MEMBERS; GOVERNMENT DEPARTMENTS AND BUREAUS.) (L. DU.)

**Parrado y Garcia, Augustin** (1872— ), Cardinal archbishop of Granada, was born at Fuentes de Saldana, province of Valladolid, Spain, on Oct. 5. Ordained in 1895, he was professor of Latin, literature and theology at the Valladolid seminary until named chancellor of the diocese of Astorga and Salamanca. He was consecrated bishop of Palencia in 1925 and nine years later elevated to the metropolitan see of Granada.

Celebrating his golden jubilee to the priesthood in Oct. 1945, Archbishop Parrado was accorded nation-wide homage. He presided at a recent Episcopal conference of the ecclesiastical province of Granada, and on Dec. 23, 1945, was nominated to the Sacred College of Cardinals by Pius XII. He was created and proclaimed a cardinal at consistory on Feb. 18, 1946.

**Parri, Ferruccio** (1890?— ), Italian statesman and politician, was born in Turin. A school-teacher during World War I, Parri joined the army when Italy entered that war. He was wounded four times and received four decorations for heroism. After the war, he became assistant editor of the liberal newspaper, *Corriere della Sera*, but resigned in 1925 after its editor-in-chief had been replaced by a fascist. He opposed the Mussolini dictatorship and joined an underground antifascist organization. Parri was kept under continual surveillance by Mussolini's police and he spent a number of years in Italian prisons for his revolutionary activities. Following the Allied landings in Italy (Sept. 1943), Parri headed a well organized Italian partisan group that effectively battled the Germans in north Italy. He helped to establish the Action party, a mildly leftist group, and on June 17, 1945, Parri was designated to form a cabinet. His government contained representatives of the six major Italian parties. However, as real power was still vested in the Allied military government, Parri's political authority was restricted. He pleaded (July 13) for a revision of the armistice terms, asserting that an effective "moral and material" reconstruction of Italy was not possible without such revision. He also deplored (Sept. 26) the failure of the London conference of foreign ministers to settle the Italian peace issue and said it was hampering Italy's rehabilitation. In the late fall of 1945, the conservative parties in the government engineered a crisis that resulted in Parri's ouster (Nov. 24) and his replacement as premier by Alcide de Gasperi.

**Partridge, Sir Bernard** (1861–1945), British artist, was born Oct. 11, in London. Chief



## 564 PATCH, ALEXANDER M., JR.—PATTON, GEORGE S., JR.

cartoonist for *Punch* for the last 35 years of his life, Sir Bernard's artistic talents extended into the fields of architecture, stained-glass designing, press and book illustrations and painting. He had an established reputation as a political cartoonist and he lampooned world celebrities from Queen Victoria to Franklin D. Roosevelt, Churchill, Stalin, Hitler and Mussolini. His black-and-white delineations were conservative and minutely detailed and preserved their strong Victorian character throughout. He died at his home in London, Aug. 9. (See *Encyclopædia Britannica*.)

**Patch, Alexander McCarrell, Jr.** (1889-1945), U.S. army officer, was born Nov. 23, at Ft. Huachuca, Ariz., the son of an army officer. He was graduated from West Point in 1913 and was commissioned a second lieutenant. During World War I, he saw active duty in France and on his return to the U.S. he became a member of the faculty at Staunton Military academy, Virginia, 1920-24. He attended the Command and General Staff school, 1924-25. Promoted to the rank of major general in March 1942, Patch was placed in command of operations on Guadalcanal, Jan. 1943, when army troops relieved marines on the island. By Feb. 10, the Japanese had been driven from Guadalcanal. Patch then moved to the European theatre of war and on March 21, 1944, was given command of the 7th army. On Aug. 16, the 7th army invaded southern France. Two days later Patch was named for promotion to the rank of lieutenant general. His forces established contact with Patton's 3rd army north of Dijon, Sept. 11, and joined the general assault on the reich. In 1945 the 7th army drove northward through the Vosges and the Siegfried line, over the Rhine and into Austria. Patch was replaced as head of the 7th army in June 1945 by Lt. Gen. Wade H. Haislip, and returned to the United States where he was given command (July 7) of the 4th army with headquarters at Fort Sam Houston, Tex. On Oct. 8 it was announced that he had been named head of a special board designed to study the size and requirements of the army of the postwar era. He died of pneumonia in San Antonio, Tex., Nov. 21.

**Patents.** In the 12 months ending on Nov. 30, 1945, the number of applications filed in the U.S. for patents on mechanisms, chemical compositions, designs; etc., and for reissues was 74,007, or 15,372 more than in the equivalent period of 1943-44, and exceeded the total in any, corresponding time during several preceding years. In the same interval there were filed 15,301 applications for the registration of trade-marks. This increase in applications reflected a revival of interest and activity in the field of invention following the return of peace.

Patents granted in the calendar year 1945 for mechanical inventions, chemical compositions, etc., were 25,702, a considerable decrease. The number of trade-marks registered in the same 12 months was 7,493.

Both the income and the expenses of the patent office mounted in the fiscal period ended June 30, 1945. Receipts were \$4,128,122, or \$381,587.23 above those in the preceding 12 months. Expenditures were \$5,041,186.58, as against \$4,858,850.79 in 1943-44.

There was inaugurated in June 1945 a public register of patents whose owners are willing to sell or license to others the use of their inventions, etc. Many patentees took advantage of this service, which is administered by the office.

(C. W. O.)

**Patrick, Edwin Daviess** (1894-1945), U.S. army officer, was born Jan. 11 in Tell City, Ind. He attended the universities of Indiana, 1912-15, and

Michigan, 1915-16. Commissioned a 2nd lieutenant in the U.S. army in 1917, he served on the Mexican border, 1917-18, with the A.E.F. in France during World War I and with the army of occupation after the armistice. Maj. Gen. Patrick saw duty in China in the late 1920s and was attached to the staff of the commanding general in the South Pacific from Dec. 1942 to June 1943. He then became chief of staff of the 6th army in the South Pacific and Southwest Pacific areas. He was commanding the 6th division in the battle of Luzon when he was wounded by machine-gun fire. Gen. Patrick died shortly afterwards, according to a war department announcement, March 15.

**Patten, George William (Gilbert)** (1866-1945), U.S. author, who also wrote under the pen name of Burt L. Standish, was born Oct. 25 at Corinna, Me. At one time, he hoped to be a preacher; at the age of 17, however, he sold his first story and later had a brief try at newspaper work. He went to New York, worked for publishers of dime novels and in 1896 he began to write a series for boys. Patten created Frank Merriwell, a hero whose name was as commonly known in the decorous early 1900s as Superman in the 1940s. The Merriwell books vied with the Nick Carters and Horatio Algiers in popularity. A prolific writer, Patten once declared that he had written a weekly dime novel, averaging 20,000 words, for his publishers for 986 weeks. The Frank Merriwell series totalled 208 books and the Dick Merriwells filled another 245 volumes. In addition Patten turned out nearly 500 other books. While some 125,000,000 copies of his books were sold, the author himself worked on a straight salary; the most he ever received was \$150 weekly. The interest in the Merriwell books waned with the advent of gangster fiction and the radio and were replaced by the superheroes of the contemporary comic books. Patten died in Vista, Calif., Jan. 16.

**Patterson, Robert Porter** (1891- ), U.S. government official, was born Feb. 12 in Glens Falls, N.Y. He was graduated from Union college, 1912, took his law degree from Harvard, 1915, and practised law in New York city. He saw military action in the Mexican campaign, 1916, and in World War I, during which he rose to the rank of major and was awarded the D.S.C. Patterson was appointed judge of the U.S. district court for the southern New York district, 1930, and became judge of the U.S. circuit court of appeals, 1939. He resigned his seat on the bench in July 1940 to accept an appointment as assistant secretary of war and five months later became undersecretary of war. Following Stimson's resignation, Sept. 18, 1945, Pres. Truman named Patterson as his successor as secretary of war. On Oct. 17 Patterson proposed creation of a single department of national defense headed by a cabinet officer with authority over the army, air and navy. This proposal, while almost universally supported by ground and air force officers, was opposed by the great majority of naval men.

**Patton, George Smith, Jr.** (1885-1945), U.S. army officer, was born Nov. 11 in San Gabriel, Calif. He was graduated from West Point, 1909, began his army career as cavalry lieutenant, 1913, and was aide-de-camp to General Pershing in Mexico, 1916-17, and in England, 1917. An expert on mechanized warfare, he was made a tank brigade commander in July 1940. On April 4, 1941, he was promoted to major general and two weeks later he was made commander of the 2nd armoured division. Soon after Pearl Harbor, he was made corps commander in charge of both the 1st and 2nd armoured divisions and organized the desert training centre at Indio, Calif. Patton was commanding general of the western task force during the U.S. operations in Africa in Nov.



1942, and handled the landing of U.S. forces on the western coast of Africa. He was promoted to the rank of lieutenant general in March 1943, and led U.S. forces in the Tunisian and Sicilian campaigns. In both operations, Patton displayed boldness and daring and emerged as a colourful figure. He had several sobriquets, the most popular of which was "Old Blood and Guts." Patton had a short temper which frequently landed him in "incidents," and during the Sicilian campaign he fell into temporary disgrace for striking a shell-shocked soldier. Patton, reprimanded by Gen. Eisenhower, later apologized to all present at the episode. Eisenhower later placed Patton in command of the U.S. 3rd army which, during the fighting in France and Germany in 1944 and 1945, distinguished itself with charging tank drives that broke through German lines. In the Ardennes battle, Patton helped to contain the German counterattack and to rescue the isolated garrison at Bastogne. His forces were whipping their way through Bavaria and western Austria when the war ended. Patton was nominated by Pres. Truman, April 17, 1945, to the rank of four-star general. In September, Patton minimized the slowness with which the de-nazification program was being carried out; he likened the nazi party to the losers in an election between Democrats and Republicans back home. Eisenhower removed Patton from command of the 3rd army and as military governor of Bavaria on Oct. 7, and put him in charge of the U.S. 15th army, whose function was to compile a tactical history of the war. Patton was seriously injured in an auto accident near Mannheim on Dec. 9, and he died at a 7th army headquarters station hospital at Heidelberg, Dec. 21.

"Pay-as-you-earn" System: see TAXATION.

Peaches: see FRUIT.

**Peanuts.** The 1945 peanut crop of the United States was estimated at 2,174,300,000 lb. by the U.S. department of agriculture, which was an all-time record, 6% above 1944 and more than 50% above the ten-year average of 1,478,000,000 lb. The acreage in 1944 was 3,238,000 or about 3% above the 3,150,000 harvested in 1944; the prewar average for 1934-43 was 2,080,000 ac. Yields were slightly higher, 672 lb. per ac. in 1945 compared with 670 lb. in 1944 and an average of 728 lb. The total acreage of peanuts grown for all purposes including both pig feed and nuts for harvest was about 4,000,000 ac. in 1945, the same as in 1944 and about double the average 1935-39.

The yield of peanuts picked and threshed in North Carolina was 1,125 lb. per ac., Virginia 1,100 lb. and Tennessee 825 lb. Weather was favourable for digging and picking in this area. In Alabama and Georgia, leading peanut states of the southeast, yields were lower than usual and below the record. In Texas and Oklahoma yields were 450 lb. and 520 lb. respectively, lower than usual.

Peanut prices were stable through the year at about the same level as in 1944, or \$8.20 per 100 lb. In the fall of 1945 this represented 96% to 99% of parity. Peanuts sold as nuts were expected to be supported, but peanuts for oil might meet sharp competition following the war and prices were beginning to decline at the end of 1945. The amount of peanut oil used in manufacture reached a high total of 81,905,000 lb. in 1941, then declined to 61,249,000 in 1944 and remained about the same amount in 1945.

(J. C. Ms.)

U.S. Production of Peanuts by States, 1945 and 1944

State	1945 lb.	1944 lb.	State	1945 lb.	1944 lb.
Georgia . . .	704,700,000	683,620,000	Florida . . .	71,550,000	72,800,000
Texas . . .	354,600,000	325,800,000	South Carolina . . .	25,000,000	25,400,000
Alabama . . .	339,300,000	327,600,000	Mississippi . . .	13,000,000	12,555,000
North Carolina . . .	287,850,000	343,910,000	Tennessee . . .	6,600,000	8,250,000
Virginia . . .	152,100,000	191,180,000	Arkansas . . .	5,100,000	6,000,000
Oklahoma . . .	117,000,000	111,180,000	Louisiana . . .	2,800,000	2,480,000

Pears: see FRUIT.

**Peat.** The chief use of peat in the United States is as a soil conditioner, an abundant supply of coal making it unnecessary as a fuel. Previous production had to compete with imported material, and was never large, but during World War II imports were restricted, and domestic production increased temporarily to 86,503 short tons in 1941, followed by a decline to 60,002 tons in 1943 and 57,987 tons in 1944.

Peat production in Canada declined from 64,360 tons in 1943 to 63,149 tons in 1944.

(G. A. Ro.)

Pecans: see NUTS.

Pemba: see BRITISH EAST AFRICA.

**Pendergast, Thomas Joseph** (1872-1945), U.S. politician, was born July 22 in St. Joseph, Mo. Pendergast went to Kansas City in 1893 where he learned the rudiments of municipal politics from precinct captains. An astute pupil, he was rewarded for his vote-getting ability with the post of street commissioner in 1900. Soon Pendergast's power spread, and by 1916 he became political "boss" of Kansas City's Democrats, a position he held for almost 25 uninterrupted years. He created a powerful political machine that not only exerted predominant influence in the city but in the state as well. At Democratic national conventions, as controller of Missouri's bloc of votes, he participated in many "behind-the-scenes" parleys that determined the choice of presidential nominees. Without his endorsement, Democratic aspirants for low or high office in Missouri stood little chance of being elected and he was castigated by his political foes as a ruthless leader of a corrupt political machine that had made Kansas City a hotbed of vice and crime. Pendergast was toppled from his throne as "boss," not by his political opponents, but by the U.S. government, which found him guilty of evading payment of income taxes on \$443,550. This sum allegedly included a \$315,000 bribe he had received from some fire-insurance companies for favouring their side in a rate-increase dispute. Pendergast was sentenced to federal prison, May 1939, serving a year and a day. He died in Kansas City, Jan. 26.

**Penicillin:** see AGRICULTURAL RESEARCH ADMINISTRATION; CHEMOTHERAPY; DENTISTRY; DERMATOLOGY; MEDICINE; SURGERY; UROLOGY.

**Pennsylvania.** A middle Atlantic state and one of the original 13 states of the union, popularly known as the "Keystone state." Area, 45,333 sq.mi., including 288 sq.mi. of inland water; pop. (1940) 9,900,180, of whom 8,453,729 were native-born white, 973,260 foreign-born white and 470,172 Negroes. The urban population in 1940 numbered 6,586,877 and the rural 3,313,303. Capital, Harrisburg (83,893). Cities with a larger population: Philadelphia (1,931,334); Pittsburgh (671,659); Allentown (96,904); Wilkes-Barre (86,236). The Pennsylvania State Planning board estimated the state's total population, including its citizens in military service, as 10,146,952, as of Aug. 1, 1943; U.S. census estimate (July 1, 1944), 9,247,088.

**History.**—Among the most important achievements of the state government in 1945 was the passage of various acts implementing Governor Edward Martin's recommendation for the conservation of the state's resources and the development of a postwar program of public works. Legislation was passed forbidding the dumping of industrial waste and sewage into the streams of the state.

Appropriations were granted for the development and protection of the water, mineral, soil and forest resources of the commonwealth and for the improvement of state parks. An extensive program of state highway and institutional construction was also authorized.

Appropriations provided assistance in the preparation of plans for local public works and for the planning and construction of airports. The legislature granted public school teachers a permanent increase in pay, making Pennsylvania's salary schedule the highest of any state, and set up a new system of physical examinations for all school children. Unemployment compensation benefits were liberalized, while contributions to the compensation fund were reduced for those whose employment records were stable.

By 1945 nearly 1,200,000 Pennsylvanians had seen military service, almost one-eighth of the total population. Estimated casualties of the war from Pennsylvania were 80,000, including 20,000 killed. Throughout the period of the war the commonwealth produced more than 31% of the nation's coal, coke and steel requirements. Latest figures on government contracts showed that the state stood seventh in over-all war production, sixth in communication equipment, fourth in shipbuilding, third in ordnance and first in expansion of industrial facilities.

The civilian defense corps organized April 23, 1941, which at one time included 1,600,000 citizens, was demobilized Oct. 15.

The principal officers in 1945 included: Edward Martin, governor; John C. Bell, lieutenant governor; James H. Duff, attorney general; William S. Livengood, Jr., secretary of internal affairs; G. Harold Wagner, auditor general; Ramsey S. Black, state treasurer; and George W. Maxey, chief justice.

**Education.**—The latest figures available showed an enrolment of 1,573,307 pupils in the public schools in 1943-1944, including 35,755 in the kindergarten, 962,227 in the elementary and 575,325 in the secondary schools, with 35,622 teachers in the elementary schools and 24,525 in the secondary. Approximately \$221,897,021 was spent for the support of the system.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—An appropriation of \$88,220,000 was made for public assistance for the biennium ending May 31, 1947. During 1945, relief was provided for an average of 83,000 old-age assistance cases, 23,000 cases receiving aid to dependent children, 19,000 general assistance cases and 13,000 blind pensioners. The state maintains eight penal and correctional institutions for the support of which a biennial appropriation of \$10,100,000 was made for 1945-47. In addition, it owns and operates ten medical and surgical hospitals, which received an appropriation of \$4,250,000; four institutions for the feeble-minded and epileptic, \$5,350,000; eighteen mental hospitals, \$30,750,000; it contributed \$9,154,000 for the aid of privately operated hospitals and homes.

**Communication.**—Of the approximately 100,000 mi. of highways in 1945, 40,673 mi. were in the state highway system. Included in this mileage were 663 mi. in the cities and 2,140 mi. in the boroughs. As of Nov. 30, 1945, 34,368 mi. were of improved type, 6,305 mi. unimproved. In addition there were 160 mi. of superhighway operated by the Pennsylvania Turnpike commission. At the close of 1945 there were 193 licensed public airports.

**Banking and Finance.**—In 1945 there were 375 state banks, including 8 savings banks, with assets of \$5,452,685,069, and total deposits of \$4,882,601,954; 872 building and loan associations with assets of \$322,308,146, as of Dec. 31, 1944; and 665 national banks with assets of \$6,087,964,000, demand deposits of \$2,655,859,000 and time deposits of \$1,379,339,000.

Appropriations for the biennium ending May 31, 1947, were \$579,800,000. The estimated receipts from taxation were \$560,500,000. The gross debt Nov. 30, 1945, was \$87,688,000, which securities in the sinking fund reduced to a net of \$50,419,000.

**Agriculture.**—The total farm income for 1944 was \$611,432,000, including \$29,508,000 received from the federal government.

Table I.—Leading Crops of Pennsylvania, 1945 and 1944

Crop	Production 1945	Acreage 1945	Production 1944
Corn, bu. . . . .	59,576,000	1,354,000	53,580,000
Wheat, bu. . . . .	20,194,000	940,000	20,288,000
Oats, bu. . . . .	24,583,000	806,000	23,912,000
Barley, bu. . . . .	3,150,000	90,000	2,632,000
Buckwheat, bu. . . . .	2,016,000	109,000	2,940,000
Tame Hay, tons . . . . .	3,444,000	2,233,000	3,216,000
Tobacco, lb. . . . .	52,724,000	35,600	52,893,000
Potatoes, bu. . . . .	16,724,000	148,000	19,140,000
Apples, bu. . . . .	2,470,000	...	9,100,000
Peaches, bu. . . . .	1,222,000	...	1,886,000

**Manufacturing.**—In 1943 there were 15,373 manufacturing establishments in the state employing 1,648,630 persons to whom \$3,625,521,700 were paid in wages and salaries. The capital invested was \$3,905,491,100 and the value of the goods produced was \$13,263,392,500.

Table II.—Principal Industries of Pennsylvania, 1943 and 1940

Industry	Value of Products	
	1943	1940
Metals . . . . .	\$7,093,398,700	\$2,944,848,400
Textiles . . . . .	1,302,289,600	795,457,200
Food . . . . .	1,224,878,000	740,801,600
Chemicals . . . . .	878,796,000	518,062,300
Paper and printing . . . . .	501,019,200	372,074,400
Leather . . . . .	315,581,700	174,963,900
Tobacco products . . . . .	120,841,300	92,272,300
Lumber and its remanufacturing . . . . .	123,138,900	79,733,100

Table III.—Principal Mineral Products of Pennsylvania, 1944 and 1943

Important Mineral Products	Value	
	1944	1943
Bituminous coal . . . . .	\$464,256,000	\$397,634,020
Anthracite . . . . .	354,582,884	306,816,018
Pig iron . . . . .	397,395,665	399,568,279
Petroleum . . . . .	46,600,000	46,960,000
Natural gas M cubic feet . . . . .	45,080,000	45,272,000
Cement . . . . .	20,689,765	27,907,236
Stone . . . . .	22,516,282	23,566,298

**Mineral Production.**—The value of the principal mineral products of the state in 1944 and 1943 is shown in Table III. (E. MN.)

**Pennsylvania, University of.** An institution of higher learning at Philadelphia, Pa. In 1945, the chief aim of the university was the reconversion of its facilities and operation toward peacetime programs. Two new laboratories were started—in the Towne Scientific school, the Thermodynamic Research laboratory with the active support of the navy department, bureau of ships; and, in the Moore school, a new laboratory of electronics and electrical machinery. Development of laboratories for the physics department and for the medical and veterinary schools was projected. For the women students, a social centre, gymnasium, and playing fields were provided.

To enable the university to assist the country in catching up the lag in undergraduate and graduate education due to World War II, alumni and friends undertook in the fall of 1945 the raising of a reconversion fund of \$500,000. The chief objectives of this program were: Providing for the return of 350 faculty members and 3,000 students from war service and the addition of other distinguished scholars and teachers for the faculty; giving the right of way back to fundamental research; revising curricula to take advantage of what was learned from accelerated education; and establishing a faculty retirement fund.

(For statistics of enrolment, faculty, endowment, library volumes, etc., see UNIVERSITIES AND COLLEGES.)

(G. W. McC.)

**Pension, Old-Age:** see RELIEF; SOCIAL SECURITY. See also under various states.

**Pensions, Army and Navy:** see VETERANS' ADMINISTRATION.

**Pepper:** see SPICES.

**Performing Right Societies:** see SOCIETIES AND ASSOCIATIONS.

**Perfume:** see SOAP, PERFUMERY AND COSMETICS.

**Permanent Joint Board on Defense** (U.S. and Canada): see CANADIAN-U.S. WAR COMMITTEES.

**Perón, Juan Domingo** (1896?— ), Argentine army officer and politician, was born in southern Argentina, the son of a rancher. He received a military education and taught for a period in military schools. While travelling in Europe in 1941 he was impressed by the

trappings of fascism; on his return to Argentina he launched a vigorous crusade for "spiritual renovation" and became one of the leaders of the G.O.U. (Grupo de Oficiales Unidos), a clique of nationalistic young army officers which was instrumental in the coup d'état that overthrew the regime of Pres. Ramón S. Castillo, June 4, 1943. When Gen. Edelmiro Farrell became president in Feb. 1944, he promptly raised Perón to the war ministry and then to the vice-presidency and submitted obediently to the latter's "suggestions." Argentina's growing nationalistic trends under Perón's pro-fascist guidance were sharply and bluntly criticized by both U.S. Secretary of State Hull and President Roosevelt in 1944. In 1945, Perón consolidated his grip on the government, despite a short-lived army coup, staged Oct. 9, which ousted him from power for a two-week period. On his return, Perón was more strongly entrenched than ever, although he declined a cabinet post in order to campaign for the presidency. In order to win labour support for his candidacy, the "Perón" cabinet ordered employers to pay their workers a wage increase and a year-end bonus. The employers protested and on Jan. 14, 1946, staged a three-day lockout which virtually paralyzed all commerce and industry in the country.

**Persia:** see IRAN.

**Peru.** A west coast republic in South America, bounded by Ecuador and Colombia on the north, Brazil and Bolivia on the east, Chile on the south and the Pacific on the west. Area 482,133 sq.mi.; pop. (1940 census) 7,023,111; (pop. est., 1943) 7,395,687. The population is estimated as 52.9% white and mestizo and 45.9% Indian, but more than 51% normally speak Indian languages. The capital is Lima (pop., 1940 census, 533,645); other important cities are Callao, the port of Lima (84,438), Arequipa (79,185), Cusco (45,158), Trujillo (38,961), Iquitos (34,231), Chiclayo (32,646) and Huancayo (28,679). Presidents in 1945: Manuel Prado y Ugarteche until July 28, José Luis Bustamante y Rivero thereafter.

**History.**—The principal event of 1945 was the presidential election, June 10, alleged to be the first free election in several decades. Maj. Gen. Eloy G. Ureta, ex-inspector general of the army, announced his candidacy March 16, and on March 19 the candidacy of José Bustamante Rivero, ambassador to Bolivia,

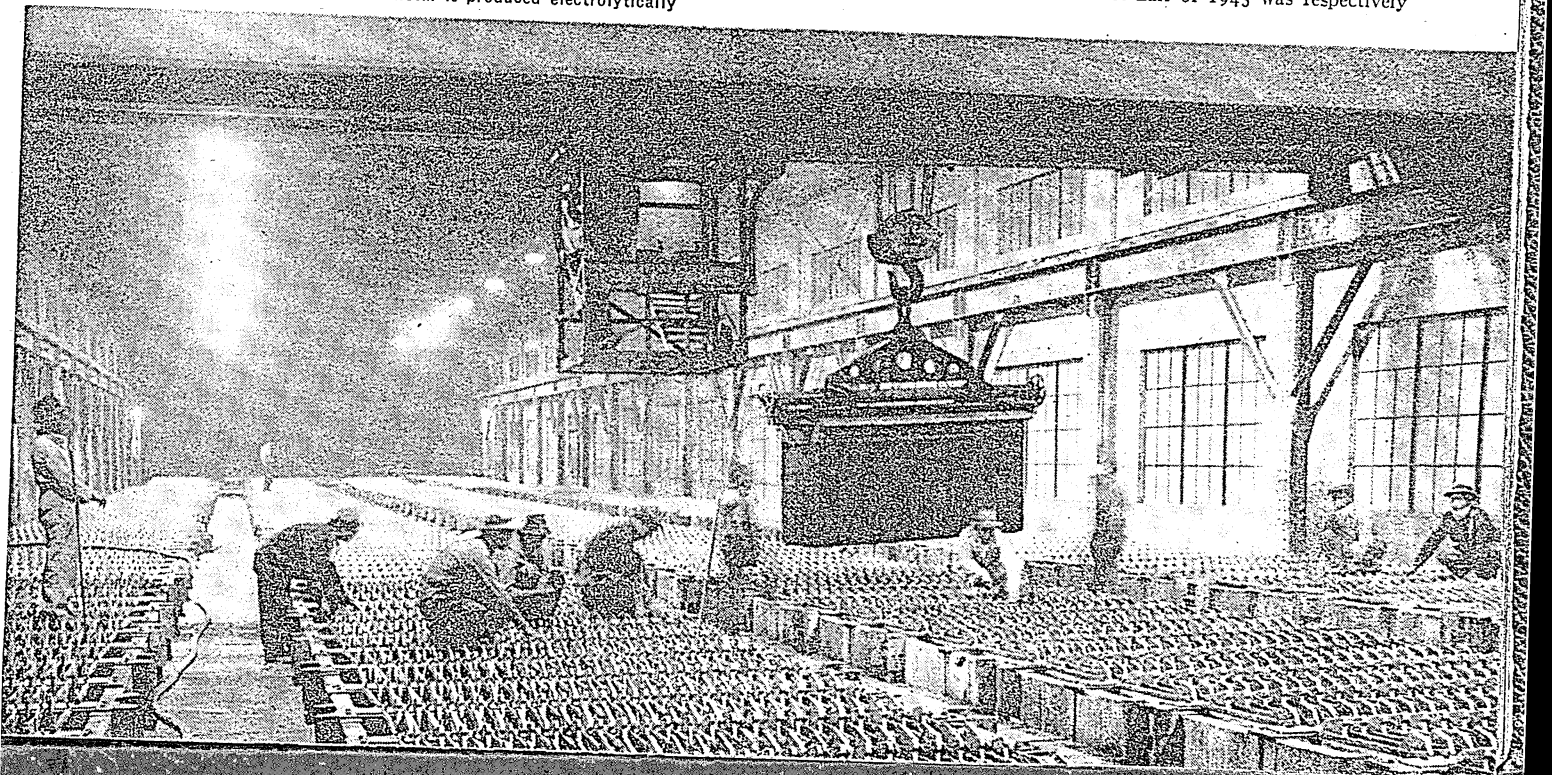
was launched by the *Frente Democrático Nacional*, anti-administration coalition with the long-suppressed *Alianza Popular Revolucionaria Americana* (A.P.R.A.) as its chief component; the latter group was later legalized as the *Partido del Pueblo*. Various Aprista exiles, including the well known Luis Alberto Sánchez and Manuel Seoane, returned to Peru May 8 after amnesty had been granted. The election was held as scheduled, without serious disorder, with a large vote cast. Final results gave Bustamante 305,590 to 150,720 for Ureta. Democratic elements hailed the election as one of an increasing number of instances in Latin America in which the candidate of the "outs" triumphed. Bustamante was inaugurated July 28. The government on Feb. 12 acknowledged a state of belligerency with Germany and Japan; Peru signed the United Nations pact Feb. 14. The United Nations charter was ratified Oct. 15. A serious flood Jan. 17 killed an estimated 169 persons. The government on March 18 frustrated a revolutionary plot at the Ancón air base north of Lima. Ex-president Oscar Benavides died at Lima on July 2. Foreign office announcements in Feb. and March indicated the end of the long-standing boundary dispute with Ecuador; presidents of the two countries exchanged letters July 17 regarding the settlement. The chamber of deputies on Aug. 6 approved a diplomatic break with Spain and urged establishment of relations with the U.S.S.R. A political crisis in early October resulted in the choice of a complete new cabinet on Oct. 5.

**Education and Religion.**—A total of 6,059 primary schools enrolled 688,377 in 1942, 74 intermediate schools enrolled 99,325 and five universities enrolled 5,033. Literacy was estimated in 1944 at 42%. Roman Catholicism is the predominant religion. Pope Pius XII on Jan. 12 created three new Peruvian dioceses and on Dec. 23 announced the elevation of Giovanni Guevara, archbishop of Lima, to be Peru's first cardinal. A government decree Jan. 6 required all non-Catholic religious activities to be held privately inside their respective churches.

**Finance.**—The monetary unit is the sol, valued in Dec. 1945 at 15.38 cents (U.S.). The 1946 budget totalled 648,703,447 soles, an increase of 102,156,780 soles more than that of 1945. The public debt, largely in default, was regularized by announcement on Aug. 27 of plans to resume servicing. Finance Minister Montero Bernalles on Oct. 24 introduced three bills aimed at controlling inflation, restoring foreign and domestic credit and reforming the functions of the Central Reserve bank. Peru's nine banks reported combined assets Jan. 1, 1945, of 1,255,900,000 soles. Commercial bank deposits on that date were 1,005,700,000 soles. A system of exchange, export and import controls was begun Jan. 24.

**Trade and Communications.**—Foreign trade in 1944 totalled 2,408,761 metric tons valued at 1,061,759,328 soles as against 2,588,282 metric tons valued at 637,208,765 soles in 1939. The U.S. ranked first as a supplier (53.9% in 1944) and as a destination for exports (35.5% in 1944). Principal imports by value in 1944 were foodstuffs, machinery and motor vehicles, iron and steel products and chemicals and pharmaceuticals; principal exports were sugar, petroleum and products, copper bars and concentrates and cotton. Imports in the first nine months of 1945 were valued at 399,961,045 soles and exports at 454,963,537 soles. Volume of imports and exports in the first half of 1945 was respectively

A TIN PLANT at Oroya, Peru, where the metal is produced electrolytically





209,524 and 907,140 metric tons as against 208,191 and 922,989 metric tons in the same period of 1944.

On Jan. 1, 1945, highway mileage totalled 18,480 of which 7,260 mi. were hard-surfaced; the Pan-American highway had a total Peruvian length of 1,818 mi. Railway mileage was 2,764. Panagra, Cia. de Aviación Faucett and a government company, Línea Aérea Nacional, operated domestic and international air lines. Vehicle registration Jan. 1, 1945, included 15,774 automobiles, 12,269 trucks and 1,278 buses.

**Resources.**—Cotton, sugar and rice were the important crops; their 1944 production was estimated at 66,700, 402,000 and 89,700 metric tons respectively. Production of crude petroleum in 1944 was 14,385,900 bbl.; copper, lead and zinc production was respectively 32,700, 52,500 and 50,800 metric tons. U.S. purchases of metals and minerals were cut back considerably in 1945. Livestock population was estimated to include 13,750,000 sheep, 2,500,000 cattle and 490,000 horses.

**BIBLIOGRAPHY.**—*Peruvian Year Book, A Record of the Progress and Development of the Republic of Peru* (Lima, 1944); Theodore D. McCown, *Pre-Incaic Huamachuco* (1945). (R. H. FN.)

**Pétain, Henri Philippe** (1856– ), French soldier and statesman. See *Encyclopædia Britannica* for his biography. He was French ambassador to Spain after Franco's triumph in the civil war, from early 1939 to May 18, 1940. On June 16, 1940, he succeeded Paul Reynaud as premier, and, ignoring those cabinet members who wanted to continue the war against Germany from the colonies, he signed an armistice, June 22. He moved his government to Vichy on July 2, and assumed dictatorial powers July 10, 1940. In succeeding months he submitted largely to German dictates on the administration of France. In April 1942 he ousted Darlan from his government and reinstated Pierre Laval, who derived his authority directly from Pétain. Thenceforth, Vichy's policy seldom deviated from German wishes. Pétain broke off relations with the U.S. after the invasion of French North Africa, Nov. 8, 1942, and on Nov. 18 he empowered Laval to make laws and decrees on his own authority. Pétain strove to win over the French masses to support his totalitarian conception of government, but with little success. On D-day, June 6, 1944, he broadcast an appeal to the French people to refrain from actions which would bring "tragic reprisals" and urged them not to listen to "outside voices." The German radio reported Sept. 30 that Pétain had fled to Germany.

Pétain entered Switzerland in April 1945. He voluntarily returned to France, April 26, to stand trial and was arrested at the border. After a long and spectacular trial in a Paris court, he was found guilty on Aug. 15, on charges of intelligence with the enemy, and was sentenced to death. Gen. de Gaulle commuted this sentence to life imprisonment, Aug. 17.

**Peter II** (1923– ), king of Yugoslavia, was born Sept. 6, in Belgrade, the son of Alexander I of the house of Karagjorgjevitich. When Alexander was slain in Marseilles in 1934, Peter succeeded to the throne and a regency headed by Alexander's brother, Prince Paul, was set up to rule until Peter reached his majority. Paul and the pro-axis government were ousted when the army revolted against signature of an axis pact, March 25, 1941, and Peter was placed on the throne. The boy king's government refused to honour the treaty; as a result Hitler's wehrmacht invaded Yugoslavia, crushing its army in a fortnight. Peter and his government fled, and a Yugoslav government-in-exile was set up in London. The rise of Marshal Tito's partisan movement in Yugoslavia was attacked by Peter and his government, until the Allies discovered that Tito enjoyed overwhelming popularity among his own countrymen, and decided to support the partisan movement. Thereupon Peter's position became precarious. He was violently opposed to coming to terms with the Tito regime, but was persuaded, Feb. 12, 1945, to permit the royal delegates to proceed to Belgrade and participate in the formation of a single government under a regency. Tito, however, declared Aug. 7, that a monarchy was "incompatible" with a democracy in Yugoslavia. Peter countered by disowning his three regents and assailed Tito for hav-

ing proclaimed a dictatorship. However, on Nov. 29, the Yugoslav constituent assembly proclaimed a republic and abolished the monarchy. Peter refused to accept the decision, but the United States and Great Britain recognized the new Yugoslav republic, Dec. 22, thus writing off his regime.

**Petit de Julleville, Pietro** (1876– ), Cardinal archbishop of Rouen, France, was born at Digione on Nov. 22, son of the celebrated French literature historian, Louis Petit de Julleville. He was ordained in 1903, and served as superior of the Diocesan college near Paris. He was cited for courage under fire while serving as chaplain in World War I, and was seriously gassed.

Elevated to rank of bishop in 1927, he was named archbishop of Rouen and primate of Normandy in 1936. He remained with a few inhabitants of the city during the German invasions of 1940, and ordered his priests to leave their parishes only after the last inhabitant had departed. He remained steadfastly in his residence at the foot of the cathedral as the edifice was under continual bombardment, and when his residence was later ransacked, the archbishop moved to a little room in the Faubourg convent.

On Dec. 23, 1945, an announcement was released to the effect that he had been nominated by Pius XII to the Sacred College of Cardinals. He was created and proclaimed cardinal at consistory Feb. 18, 1946.

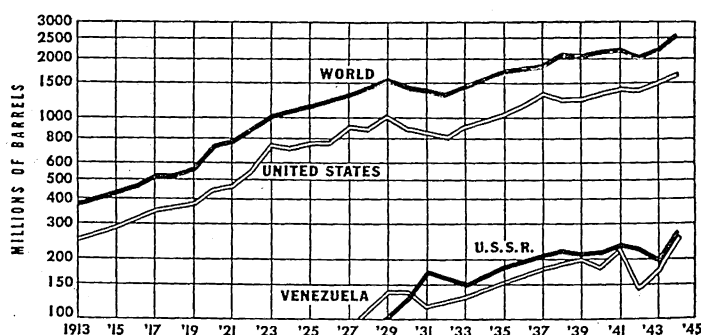
**Petroleum.** With the collapse and unconditional surrender of Germany and Japan and subsequent military revelations, the vital part played by petroleum in assuring Allied victory became increasingly evident. That petroleum was to hold a place of strategic importance in postwar counsels followed as a matter of course.

At one time the advance of Gen. Patton's 3rd army in France was slowed because gasoline could not keep up with his tanks. But, with the United Nations, such delays were temporary. Twenty oil and gasoline pipe lines were laid from England across the channel to France and others followed close on the heels of all advancing armies, even across the Rhine. The sources of supply remained adequate and the long sea supply lines were made increasingly safe from raiding enemy submarines.

With Germany and Japan it was different.

Destruction of enemy oil facilities, a vital factor in United States air victories over Germany and Japan, is one lesson that should be remembered in planning the strategy of any future war, according to Gen. H. H. Arnold, commanding general of the U.S. army air forces.

Systematic bombing of Germany's oil and transportation facilities is credited in his report with greatly reducing the force of the nazi Ardennes offensive, launched Jan. 1, 1945, and generally with destroying the German will to resist.



TOTAL WORLD PRODUCTION OF PETROLEUM and output of the three principal producing countries, as compiled by *The Mineral Industry*

Destruction of oil facilities proved equally effective in the war against Japan, the report makes clear, stating that prior to V-J day, "Japanese home island rates of production of petroleum products had been reduced to 65% of requirements at the July 1945 monthly rate of consumption."

World War II air attacks had at least temporarily put out of operation 100% of Japan's high-grade lubricating oil capacity. While the Japanese had a considerable surplus of refining capacity at the end of the war, B-29 attacks during 1945 against 11 of the largest and most modern refineries in the home island had, nevertheless, rendered these refineries useless. Japan's inability to ship oil from the southern areas had also given it a large excess oil storage capacity, but air attacks reduced that capacity by nearly 6,000,000 barrels.

At the annual meeting of the American Petroleum institute in Nov. 1945, Ralph K. Davies, deputy petroleum administrator, read the following letter written by members of the Army-Navy Petroleum board (Adm. F. J. Home, Gen. Brehon Somervell, Adm. John H. Cassady and Gen. Edward M. Powers) acknowledging the accomplishment of the U.S. oil industry in furnishing 90% of the oil requirements of the United Nations:

The Army-Navy Petroleum Board extends to you and through you to the entire staff of the Petroleum Administration for War and the entire American petroleum industry its deep appreciation and admiration for the superb contribution which has been made to the victory of the United Nations by providing in full and on time the vast flood of petroleum products required by the Armed Forces during World War II.

The fulfillment of this gigantic task was without question one of the great industrial accomplishments in the history of warfare. The urgent demands of the Army and the Navy for unprecedented volumes of aviation gasolines, motor gasoline, diesel oil, fuel oils, lubricants and countless other petroleum products vital to victory were unending and often appeared impossible of fulfillment.

It is a very special tribute, therefore, that at no time did the Services lack for oil in the proper quantities, in the proper kinds and at the proper places. Because of the resourcefulness, untiring and unceasing efforts, and outstanding accomplishments of the Petroleum Administration for War and the petroleum industry, not a single operation was delayed or impeded because of a lack of petroleum products. No Government agency and no branch of American industry achieved a prouder war record.

Yours must be a deep satisfaction in the knowledge that your agency and the petroleum industry have made so outstanding a contribution to the victory of the United Nations, a contribution fully and gratefully recognized by the Armed Forces.

A summary of accomplishments by the petroleum industry during the war follows:

Drilled in the U.S. a total of 13,400 wildcat wells—more than in any like period in prewar history.

Produced 5,800,000,000 bbl. of crude oil domestically—one-fifth of all the oil ever produced in the U.S. Another 750,000,000 bbl. came from U.S. properties abroad.

Refinery crude runs at home and abroad were increased to 5,071,000 bbl. per day—31% above the prewar high. Production of 100 octane aviation gasoline was increased more than 1,600%.

Nearly \$1,000,000,000 worth of new refining facilities were built in the U.S. In addition, roughly \$260,000,000 was spent for refining expansion abroad.

Produced in the U.S. more than 13,000,000,000 cu.ft. of natural gas, equivalent in heat value to more than 2,000,000,000 bbl. of oil.

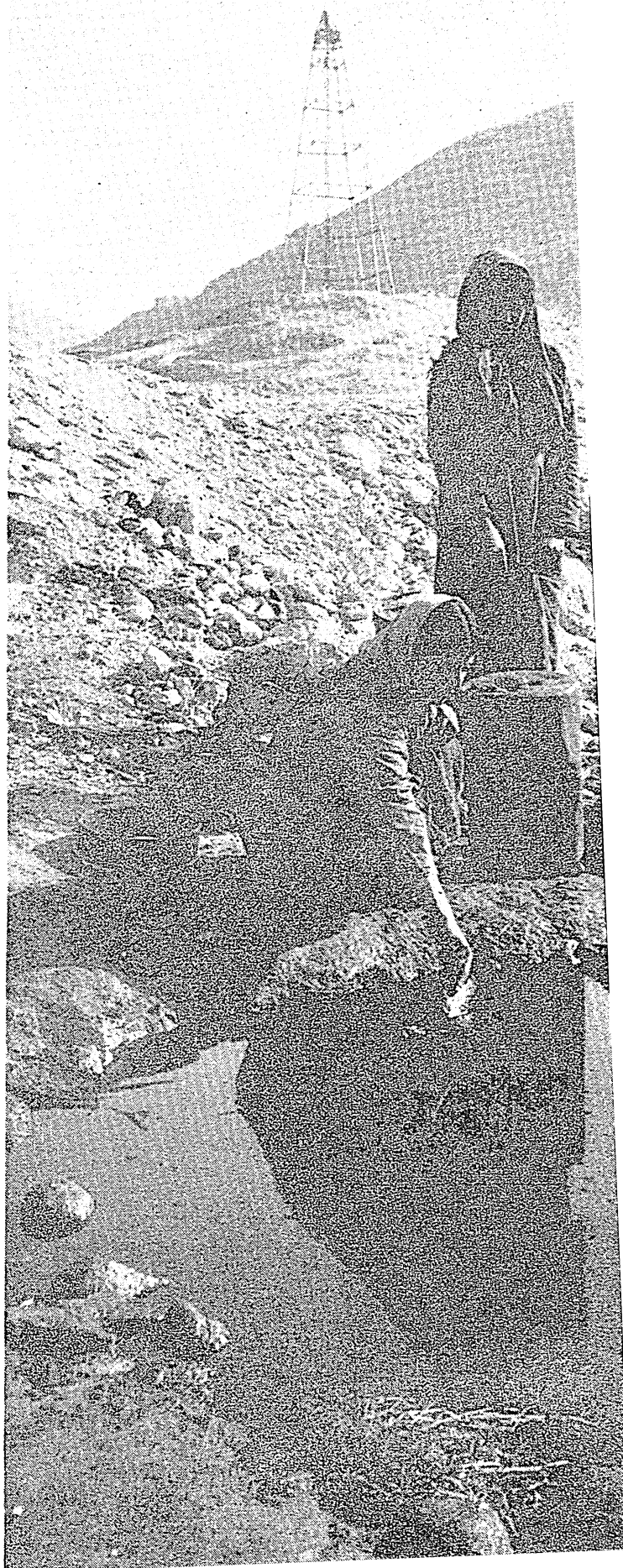
Pipe lines built, relaid and reversed would reach from New York to Yokohama via the sea route through Suez and Singapore.

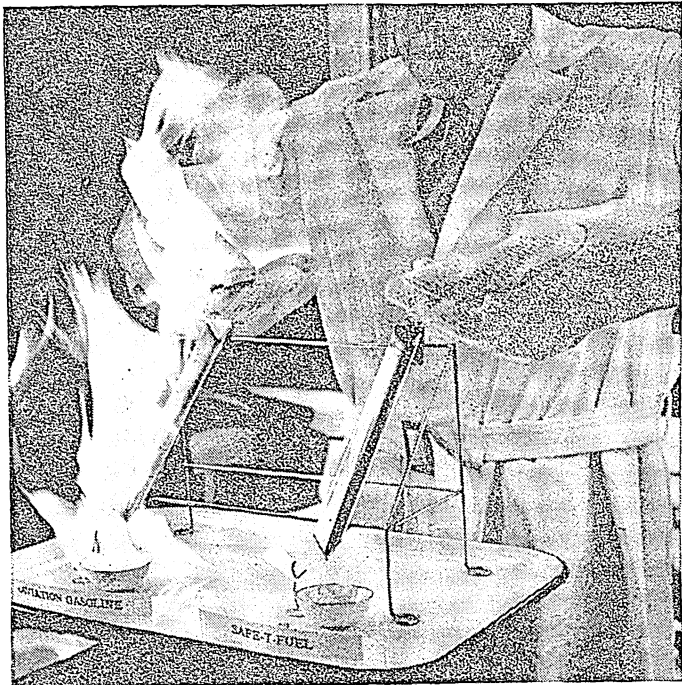
Tank car movements to the east coast were expanded from 5,000 bbl. per day to more than 1,000,000 bbl. at the peak.

Despite all losses, the U.S. tanker fleet was increased four and one-half times in total tonnage.

The two "Big Inch" pipe lines, built from inland Texas oil fields and refineries to the Atlantic coast as emergency war car-

IRANIAN WOMEN scooping up oil for home use at the Masjid-i-Sulaiman field. The land is so rich in oil that puddles such as this one are formed by seepage to the surface





TESTING a new safety high octane gasoline developed in 1945. Safe-T-Fuel poured within an inch of open flame, failed to ignite while regular aviation gasoline caught fire immediately. The new fuel was expected to reduce casualties from fire in the event of accidental ignition

riers, delivered to the Atlantic seaboard up to Sept. 1, 1945, a total of more than 368,000,000 bbl. of petroleum and refined products. This had a decided bearing on the successful conclusion of the war against the axis. As compared with the expense of shipping an equivalent volume by tank car the pipe lines returned in freight savings to the government not only their original building cost but also all operating expenses involved and, in addition, a margin of more than \$156,000,000.

The end of World War II caused various countries to take inventory as to their position with respect to oil resources. In the U.S. a senate committee investigating petroleum resources, of which Senator Joseph C. O'Mahoney was chairman, was to attempt to define a national oil policy for the U.S. The U.S. industry was aware of the probability that the country would increasingly become a greater importer of foreign petroleum and urged strong diplomatic support in the activities of U.S. companies in foreign countries.

A report to the senate committee brought out that at the end of 1939 11 U.S. oil companies had total assets employed in foreign countries of nearly \$2,500,000,000; net assets of \$1,700,000,000 and a net worth of foreign investment of about \$1,300,000,000. These companies represented 93% of the total net worth of the investment of all U.S. oil companies in foreign countries. The figures also indicate that 29% of the combined net worth of these same 11 companies in 1939 (totalling about \$4,400,000,000) was invested in foreign operations. Investment data was incomplete for some foreign countries for the years 1940-44 because of war conditions. However, the incomplete figures for 1944 show total assets employed of \$2,300,000,000.

The accumulative amount invested abroad up to the end of 1944, plus all amounts written off or revalued after the end of 1918, shows the grand total amount of total assets employed of nearly \$3,200,000,000; net assets of \$2,200,000,000 and a net worth of investment of \$1,700,000,000.

Considerable interest attached to the position of the U.S., Great Britain and Russia in relation to petroleum reserves. The U.S., which had in 1945 a per capita oil consumption 30 times greater than the rest of the world, was in a reasonably strong position if the total reserves of the western hemisphere

were considered. Great Britain was strong in relation to her share with the Dutch in the middle east and East Indies, as well as in the western hemisphere. Although Russia's position was strong because of large domestic production and reserves, she could be expected to evidence more active interest in acquiring middle eastern reserves outside its borders. In fact, the potential area of conflict over control of petroleum reserves lay primarily in the middle east.

Total world oil reserves were estimated in 1945 at nearly 64,000,000,000 bbl. with the U.S. given 20,000,000,000.

According to the report to the senate committee the total foreign oil reserves controlled by U.S. companies amounted to 17,400,000,000 bbl. Jan. 1, 1945. The reserves of the British-Dutch group in countries other than the U.S. totalled 17,300,000,000 bbl. Proportionately, the position of the U.S. amounted to 46.3% vs. 46.0% for the British-Dutch interests. If Russia were included, the position of the U.S. and Dutch group was about 40% each. The remaining 20% or 8,700,000,000 bbl. was owned by all other foreign interests. Included in this group were the government company-operated reserves in Argentina, Bolivia, Mexico and Russia, amounting to 6,500,000,000 bbl. or nearly 75% of the "remaining" classification.

It was estimated that on Jan. 1, 1945, the reserves in the western hemisphere, excluding U.S., totalled 8,900,000,000 bbl. In the eastern hemisphere, exclusive of Russia, the U.S. companies owned reserves totalling 11,600,000,000 bbl., a 40% share. The British-Dutch group owned 15,000,000,000 bbl. or nearly 53% of the total reserves in the eastern hemisphere and all other companies owned about 2,000,000,000 bbl. or 7% of the total reserve.

The near and middle east combination of countries contained a proved reserve of 26,800,000,000 bbl. or about 70% of the total foreign reserve outside of Russia.

It was obvious the U.S., Britain and Russia had to reach an accord on world oil policy if confusion and conflict were to be prevented. At any rate, a start had been made for such accord in the Anglo-American oil agreement which after its first promulgation in Aug. 1944 hit many snags, finally to be re-drafted and reapproved by British and U.S. conference participants late in 1945. The agreement in the form of a treaty was to be placed before the senate for ratification in 1946. It was prepared as a model for multilateral oil treaties with the principal producing and consuming countries of the world.

Probably the most dramatic illustration of the contribution of research in the petroleum industry to the war effort was in the case of 100 octane aviation gasoline. Prior to the start of World War II, output was about 40,000 bbl. per day. When the war ended output was at the rate of more than 500,000 bbl. per day. The petroleum industry, by furnishing large quantities of butadiene, aided in the establishment of a synthetic rubber industry in the U.S.

Spurred by the needs of war, new discoveries were made. Crude oil was revealed as a veritable treasure house, a source from which more than 500,000 of all known organic chemicals can be produced. The first peacetime benefit was expected to come in improved aviation and motor fuels.

Petroleum derivatives, to mention but a few, included medicinal, fertilizers, insecticides, dyes, alcohols, plastics, plant growth stimulants and fruit ripeners and DDT. (See also BUSINESS REVIEW.)

(L. M. F.)

**Philadelphia.** Philadelphia is the third largest city of the United States, and although the 1940 census gave the population as 1,931,334, it was estimated in 1945 at 2,100,000. Mayor: Bernard Samuel (1944-48).

Some of the major objectives of the City Planning commis-



sion of the city of Philadelphia in 1945 were: completion of the sewage collection and treatment program; completion of the water works rehabilitation program; active continuance of the city-state program of highway construction; city projects related to the removal of the Chinese Wall and attending subway extensions and other access highway construction; and improvement of airports.

Under the constitution of Pennsylvania, the 1945 general debt limit of the city of Philadelphia, based on 10% of the assessed valuation of taxable real and personal property, was about \$306,000,000. The net debt in 1945, after deducting the assets in the sinking funds and excluding debt invested in the self-supporting water facilities and the Frankford Elevated, was approximately \$289,000,000. There was available, therefore, power to incur \$17,000,000 of new debt for general purposes in addition to any indebtedness incurred for self-supporting projects, not chargeable against the general borrowing power. The sum of \$18,000,000 was already authorized for water improvements, of which authorization \$7,000,000 had been issued and \$11,000,000 could be issued as required. About \$4,000,000 of the amount provided had been spent and more than \$14,000,000 was available for the completion of this project.

The city budget for 1946 called for a total expenditure of \$89,942,908.27, broken down as follows: public safety, \$21,570,345; public works and city planning commission, \$16,305,689.50; public health and welfare, \$10,070,784.74; civil rights and benefits, \$9,008,803.20; city and county administration, \$7,009,927; to pay for interest and retirement of city investments, \$24,142,358.83; pensions and workmen's compensation, \$1,835,000. It should be noted that the city budget did not include the cost of operation of the board of public education, which was a separate entity. The board's budget for 1946 was about \$33,000,000. (B. SA.)

**Philately.** There was a flood of issues of enemy and enemy-occupied lands which became legal to collect after the close of hostilities. Avid collectors snapped up many issues—but what price and what ones were official?

No answer was forthcoming. The annual issue of *Scott's Catalogue* (the last word for most U.S. and Canadian philatelists) offered no light. But in Dec. 1945, announcement was made of a forthcoming Scott listing of all issues, with illustrations, but without prices. Meanwhile, the prices had been dropping abysmally on such material as more and more came to hand.

**Prices.**—With this exception, the stamp market maintained a level price keel during the first days of "reconversion." There were plenty of forecasts that when the take-home pay of collectors dropped, so would the demand, and to a certain extent this was borne out, but the general trend of good material was to keep its wartime value.

**New Issues.**—The U.S. had a "field day"—if a year can be called a day—in 1945, with ten stamps issued and one on the boards for issue early in 1946 as part of a series begun in 1945. This latter was the 5-cent value of the Roosevelt Memorial series, the 1-, 2- and 3-cent values of which were issued following the president's death. At the opening of the San Francisco Conference of the United Nations, a 5-cent United Nations stamp was put on sale and more than 1,000,000 copies were bought the first day. A hurried last-minute change added the name of Franklin D. Roosevelt, the author of the phrase that was simply and chastely presented—"Toward United Nations."

Not so happy in design were the "Armed Forces" stamps—four 3-cent values in honour of the marines, army, navy and coast guard. The first and last of these did have a design that merited better presentation than the colours vouchsafed them. The marines stamp, printed in "marine green," was a graphic

presentation of a news photograph taken on Iwo Jima, when the flag was raised, under fire, on Mount Suribachi, in the first invasion of Japanese soil in the war. The army stamp, in olive drab, depicted the liberating forces under the Arc de Triomphe in Paris. The navy stamp, in baby blue instead of navy blue, drew howls of artistic protest at a disorganized mass of heads crowned with Navy white caps. The dark green of the coast guard stamp masked the good design of two landing craft leaving a transport.

The surprise stamp of the year, that honouring Alfred E. Smith, once governor of New York and defeated candidate for the presidency, seemed clearly a political gesture. The centenary of the republic of Texas was marked with a stamp showing the star in the American flag that symbolizes Texas joined to the "Lone Star" that was the insigne of the Texan republic.

**Other Issues.**—Many nations produced mourning stamps in honor of the president of the United States, Franklin D. Roosevelt. But it remained for Brazil to produce the first Victory stamp—or, better, Victory issue—which was ready for issuance on V-E day!

Brazil also issued a set to commemorate the Brazilian troops fighting in Europe.

The United States issued two more "A.M.G." sets for the military governments in Germany and Austria. The former of these was first produced in Washington, but later emissions were printed in Germany, possibly from duplicate plates, and present marked differences of paper and perforation. The Russians issued a set in Berlin, utilizing the heraldic bear of Berlin in the designs, which misled many commentators who saw in the heraldry a "threat" of the Russian bear!

The passing of extraterritoriality in China, by the voluntary abrogation of century-old treaty rights possessed by various western nations, was celebrated with an issue of Chinese stamps. The liberation of Luxembourg was signaled by a series of four stamps, thanking, in their own languages, France, Britain, Russia and the U.S.A.

Switzerland's annual "pro-Juventute" issue of semi-postal stamps paid philatelic homage, this time to the famed Basle "dove" stamps of a century ago. The annual "Health" stamps of New Zealand were bi-coloured presentments of the Peter Pan statue in Kensington park, London.

Perhaps the low points of the year were the multiplicity of issues, rather speculatively controlled, by Mexico, and the Greenland stamps—a new issue for a limited population that had yet to see the older issues.

**Literature.**—The immense collection of material that served as a source for C. F. Dendy-Marshall's famed *History of the British Post Office* (1926) was put on sale at auction in London late in 1945, and many early books and documents were once more put in circulation. The American library of W. R. Ricketts was auctioned in New York during 1945, but not until the Collectors Club of New York had its choice of material to fill gaps.

The 1946 edition of *Scott's Catalogue* (published in 1945) contained more than 110,000 listed items.

**Other Events.**—The collection of the president of the United States, Franklin D. Roosevelt, was to be "in the market," it was announced. The stamps were to be sold at auction early in 1946.

An auction of donations of stamps and philatelic material for the American Red Cross realized more than \$50,000.

Alvin Meissner, head designer of the bureau of printing and engraving of the U.S. treasury department, retired upon reaching the age of 70 years. His first design of a postage stamp was the Lindbergh airmail stamp of 1927, and in his 18 years of service he co-operated in many others. (M. HA.)

## Philippines, Commonwealth of the.

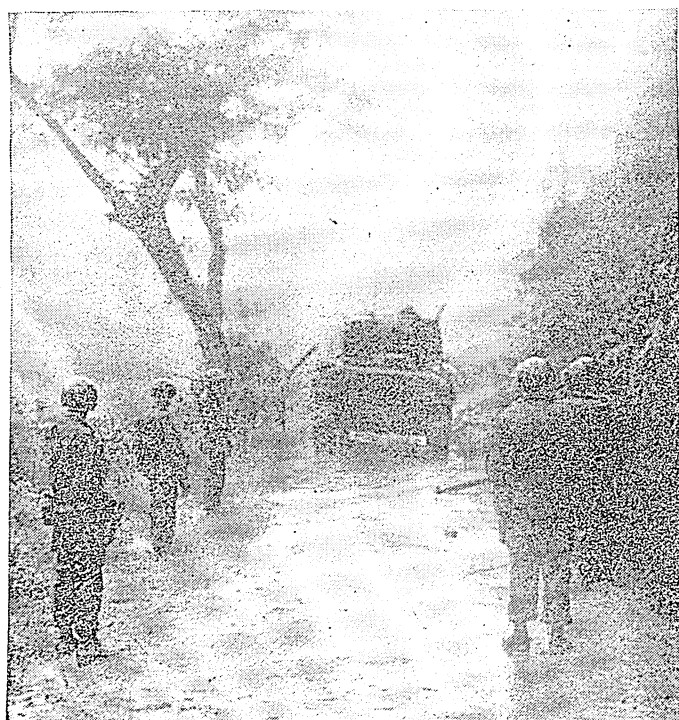
The commonwealth of the Philippine Islands comprises the archipelago of the same name ceded by Spain to the United States in the treaty of Paris, 1898. The chain of approximately 7,100 islands falls between north latitudes 4° 21' and 21° 10' and between east longitudes 116° and 127°. Lying about 800 mi. off the east coast of Asia, the islands of the Philippines stretch from Formosa on the north to Borneo on the south.

By regular steamship routes, Manila is 631 nautical miles southeast of Hong Kong, 1,757 mi. southwest of Yokohama, 1,370 mi. northeast of Singapore, 4,838 mi. west of Honolulu and 6,929 mi. southwest of San Francisco.

The total area is 115,600 sq.mi. The last official census, 1939, gave the population as 16,000,313, including the following non-Filipino nationalities: Chinese 117,487; Japanese 29,057; Americans (U.S., exclusive of armed forces) 8,709; Spanish 4,627; Germans 1,149; British 1,053. Calculated on previous rates of increase without allowance for the effects of war and invasion, the population at end of 1944 should have been somewhat in excess of 17,900,000. Principal religions according to census of 1939: Roman Catholic, 12,603,365; Aglipayan (Independent Philippine Catholic), 1,573,608; Mohammedan, 677,903; Protestant, 378,361. In addition about 680,000 were pagans following various animistic cults. The principal cities and their populations were: Manila, the political and commercial capital on the northern large island of Luzon, 623,492 (not including several large suburbs); Cebu, 146,817; Iloilo, 90,480; Legaspi, 41,468.

Apparently in view of its quasi-dominion character and approaching independence the commonwealth government was accorded in 1942 the status of a United Nation and participated in all conferences held by the United Nations. In Sept. 1945, President Sergio Osmeña signed the document ratifying adherence of the Philippine commonwealth to the United Nations charter, the first document of this kind to have been ratified formally by the Philippine government. The commonwealth government joined the United States as a member of the Far Eastern Advisory commission which held its first meeting in Washington on Oct. 30.

ADVANCING on the Wawa dam in Luzon, U.S. troops of the 38th infantry division follow a tank-led attack along the Marikina river bed. Occupation of the dam in May 1945 ended six weeks of vicious fighting



From Sept. 16, 1942, to Sept. 14, 1945, the authority of the high commissioner was vested in Harold L. Ickes, secretary of the interior. On that date, upon confirmation by the senate of the appointment of Paul V. McNutt as United States high commissioner to the Philippine Islands, the functions, powers and duties of that office were re-transferred to the high commissioner by executive order. McNutt had previously served as high commissioner from Feb. 1937 to July 1939.

**History.**—The outstanding event of 1945 was the liberation of the Philippines, which General MacArthur announced on July 5. U.S. forces made their major landing in Lingayen gulf north of Manila on Jan. 9; their first troops entered Manila on Feb. 3; before the month was over they had recaptured Bataan, Cavite and Corregidor. In March and April all large prison camps on Luzon were liberated and landings were made at several southern ports.

**Re-establishment of the Commonwealth Government.**—From the time of the first landing on Leyte it was General MacArthur's policy to turn over to the government headed by Pres. Osmeña civil administration of local affairs as the areas were liberated. On Feb. 27, following the recapture of the capital city of Manila, but before enemy resistance had completely ceased, Pres. Osmeña took over the civil functions of the commonwealth government, and on March 8 inducted into office the members of his new cabinet. By midsummer General MacArthur announced the Philippine campaigns as virtually closed. On Sept. 1 he stated his command would discontinue further participation in Philippine civilian administration and that all areas of the archipelago had been restored to the commonwealth government.

The congress did not assemble in 1942, 1943 or 1944 because of the Japanese invasion. On June 9, 1945, Pres. Osmeña called the first Philippine congress into its first 30-day special session. Of the 98 representatives elected in 1941, 70 were present: 11 had lost their lives during the war and the remainder were detained under suspicion of collaboration. Of the 24 senators, 2 had died and 7 were under detention. Manuel A. Roxas was chosen president of the senate and José Lulueta speaker of the house.

**General Conditions.**—In May, by authority of a joint resolution of the U.S. senate, Senator Millard E. Tydings headed a mission to Manila to investigate conditions. On his return he presented to the senate a picture of dire distress. For the most part, the large cities and many of the towns and villages were in ruins; the devastation in Manila was city-wide; tens of thousands of persons were without food, clothes, housing or medicine; light, water and communication systems were almost totally destroyed; all transportation by boat between the islands, as well as by rail, bus and truck lines, was nonexistent. Most bridges were destroyed. There was no sugar crop; many sugar mills and other industrial plants were wholly or partly destroyed; there was a shortage of primitive farming implements and of seeds and plant stock. From 10% to 15% of the buildings in the Philippines were destroyed and possibly another 10% were damaged. The population of carabaos, the universal work animal of the Filipino farmer, was greatly diminished. The food situation was tragic; the people were almost solely dependent upon the United States army for the necessities of life. In Manila alone the United States army fed 600,000 persons. Finances were in a chaotic condition due to the various currencies in use. The Japanese, during their three and one-half years of occupation, had printed billions of dollars of worthless paper money which was widely circulated and used for all business purposes. This condition was accentuated by the issuance of millions of pesos through guerrilla organizations to maintain fighting units so vital to the ultimate success of the U.S. The issuance of this currency was authorized by the United States





U.S. RANGERS and Filipino guerrillas who made a daring raid on Cabanatuan prison to rescue 513 prisoners of war on Jan. 30, 1945. Most of the prisoners were survivors of Corregidor and the infamous Bataan "death march"

army. After the fall of Manila, the Philippine National bank was empowered to issue local currency within certain limits. In addition, the U.S. armed forces brought with them the "victory pesos" with which to pay United States troops, Filipino labour, etc. The whole system of taxation and revenue was destroyed. There had been no import or export revenue coming to the Philippines during enemy occupation: the government had functioned on worthless Japanese currency. The Philippine government's only funds were in the United States.

Agrarian unrest, which existed before the Japanese invasion, continued to be a serious problem. Thousands of share croppers organized some years earlier to demand a more equitable division of the product of their labour. During the war they organized a guerrilla army which reportedly did good work against the enemy, but they did not disband and constituted a special problem which threatened the stability of government.

**Rehabilitation.**—Much was done by both federal and commonwealth officials to alleviate the worst aspects of distress. To meet immediate needs, a temporary banking division of the treasury was set up in May with capital transferred from commonwealth funds held in the United States. Before the end of 1945 it was closed as no longer necessary. As each area was liberated, the army provided free distribution or sale at ceiling prices of essential goods and foodstuffs through civil affairs units later turned over to the commonwealth government. On instructions from President Harry S. Truman, U.S. engineers were drawn from the army, the navy and the Federal Works agency

and sent to the islands to determine the extent of the damage to roads, bridges and port facilities and to lay plans for their restoration. The War Damage corporation also conducted a survey of damages. Transportation facilities improved. The War Shipping administration allotted shipping space of 8,000 tons a month for June–August and 30,000 tons a month thereafter. Under its sponsorship several U.S. steamship lines were designated to handle shipping out of Pacific coast ports. The first civilian ship bringing commercial cargo to the Philippines arrived in Manila late in August. September marked the first commercial export of U.S. textiles to the Philippines after Pearl Harbor, consisting of 6,000,000 linear yards of cotton goods allocated by the Foreign Economic administration. Interisland transportation improved with the operation of additional boats. The United States Maritime commission approved the transfer of 16 coastwise vessels to Philippine registry but there was need for a much larger fleet. The first civilian boat left Manila for Iloilo in June; efforts were made to run such trips at least every ten days and to maintain monthly schedules between Manila and Mindanao ports. Traffic was restored on the Pasig river running through the city of Manila. The metropolitan service was organized in July to take over about 250 trucks and buses. At the end of July the Manila railroad was handling an average of 800 civilian passengers and 96 tons of civilian traffic a day between Manila and San Fernando, La Union. Arrangements were made in October for resumption of air transportation service. Late in August the motor vehicles registered totalled 7,023, an increase during the month of 1,000 vehicles.

In response to a request from Pres. Osmeña, the United Na-



tions Relief and Rehabilitation administration set aside a provisional fund of \$1,000,000 for emergency relief supplies for distribution in the islands. President Truman reported that by June 30 approximately \$600,000 had been spent for wheat, evaporated milk and medical supplies. In July an office of the U.N.R.R.A. was opened in Manila in expectation of the arrival of approximately 4,000 tons of flour.

As the year closed, the islands' economic problems were on their way to solution. Trade was slowly recovering. The businessmen were moving ahead, organizing their facilities to aid in the exportation of items shipped in prewar days. The FEA sent a mission to the Philippines to arrange for the procurement of strategic commodities, such as copra, fibres and sugar, and to assist the commonwealth government in re-establishing private trade between the islands and the United States, and took measures to make it possible for United States exporters to help supply Philippine civilian needs. In October a shipment of 2,000,000 lb. of Manila hemp arrived in the United States—the first substantial shipment of the fibre after 1941. The largest of Manila's cordage factories resumed operations on June 1.

The National Development company was authorized to resume operations and granted a credit of \$2,250,000 for loans to sugar planters. The National Power corporation was re-established. In October the National Coconut corporation, another prewar government agency, was revived to engage in the purchase of copra throughout the islands. At least one company was prepared to start production of coconut oil for the manufacture of soap. Of the eight desiccated-coconut factories in the islands before the war, all of the larger ones were completely destroyed; only two were in condition to operate. One of the principal cigar manufacturers started bringing tobacco to Manila and engaging cigarmakers. The insurance business was rapidly being revitalized. Living costs in Manila jumped to eight times greater than in prewar days. Official ceiling prices were established for a variety of goods, but black market sales were patronized. Most retail prices declined during August in anticipation of the arrival of civilian imports and the possibility that army surplus products might be available.

The Philippine congress dealt particularly with economic and rehabilitation problems. Its early legislation included an act to rehabilitate the Philippine National bank. That bank and four others reopened for business. The congress amended existing laws governing the use of the exchange standard fund so that

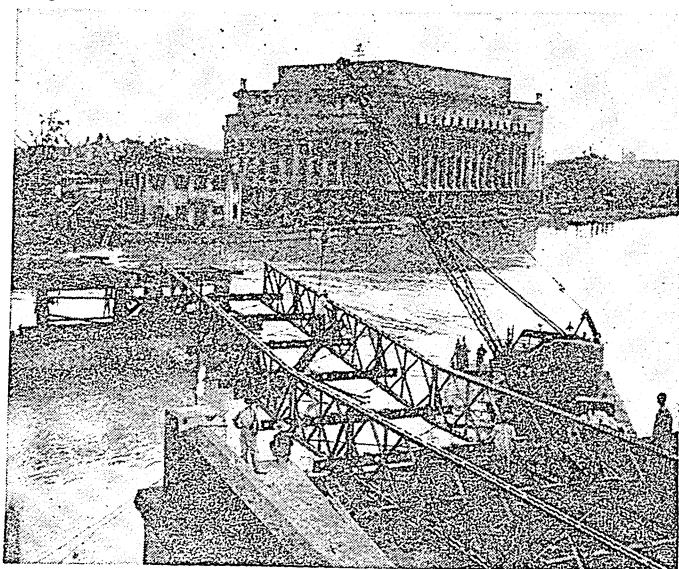
about \$25,000,000 could be released for general expenditures.<sup>1</sup> It authorized negotiations for the establishment of air, naval and military bases for United States occupancy; it appropriated funds for operation of the government for the fiscal year ending June 30, 1946, and for the immediate payment of salaries and allowances of deceased Filipino members of the United States forces, including duly recognized guerrilla organizations. It passed a bill setting up a people's court to try those suspected of collaboration with the Japanese. Several hundred persons so accused, who had been taken into custody by United States army authorities, were turned over to the Philippine government. The first important collaboration trial was held in July. Legislation included authority for the establishment of an office of foreign relations.

Several bills were introduced during the 79th session of the United States congress to assist the Filipinos to get on their feet. One bill would make available to the treasury of the Philippine Islands, Philippine funds accumulated in the United States treasury from the processing tax on Philippine imports; one would permit 50,000 members of the Philippine Scouts to be taken into the regular army for occupation tasks in the Pacific; another was designed to make the Foreign Claims act applicable to the Philippines. Congress gave active consideration to the adjustment of the two most pressing problems confronting the Philippines. Those problems were the question of the payment of damages as a result of the war and the question of the post-independence trade relations with the United States. Legislation was introduced which, if enacted, was expected to go far toward bringing about a restoration of normal economic conditions.

The president of the United States took account of the heroic and loyal conduct of the Filipinos during the war and showed his sympathetic interest by outlining a program of assistance. He sent directives to the heads of various federal government departments and agencies to continue their assistance to the commonwealth government and to submit recommendations as to necessary steps which should be taken to improve conditions.

Pres. Truman clarified the question of the date upon which Philippine independence might be expected, by stating that he did not intend to consider advancing the proclamation of Philippine independence to a date earlier than July 4, 1946, until the necessary program for rehabilitation had been worked out and there had been a determination of the fundamental problems involved in mutual relationship with the U.S. after independence. (See also JAPAN; WORLD WAR II.) (R. R. E.)

RECONSTRUCTION of Manila, once modern capital of the Philippines, was under way in 1945 with the help of U.S. army engineers. Below, a bridge was being constructed to replace the destroyed Santa Cruz bridge over the Pasig river



**Philosophy.** The end of the six years of World War II did not bring serenity. To western thinking and philosophy it brought, instead, the beginning of a great fear, fear for civilization, fear for existence itself. What the moral consequences of the atomic bomb eventually might be few were prepared to say; for the present, however, a kind of fear, unknown among western peoples since the doomsday forecasts of the first millennium, captured the minds of most persons. Into periodicals and sermons—books come later—crowded the terrors, hopes, schemings, accusations and the philosophic and ethical questionings of a culture that had revealed dramatically in a few explosive hours what seemed to be the instrument of its own destruction. Implicit in most of these outpourings was the deep distrust of men as agents fit to create a world suited to human living. This unformulated questioning, doubt and fear was the main philosophical tendency of 1945. Needless to say there was much evidence besides the atomic bomb to sup-

<sup>1</sup> All acts affecting the currency are subject to approval by the president of the United States.

port it.

Some books, religiously more sensitive to the deep forces of destruction developing in men and their society, predicted this mood of fear before it came. Renewed concern with Sören Aaby Kierkegaard, Danish mystic of the 19th century, a forgotten voice now needed as the emotional climate changed, or the anthology of world mysticism, *The Perennial Philosophy*, prepared with a running commentary by Aldous Huxley, fit this pattern. Others struggled, with more common sense and skill perhaps, but with no more success, to bend the types of thinking by which these destructive instruments had been produced to a more humane conclusion. *Naturalism and the Human Spirit*, edited by Yervant H. Krikorian, is a series of important essays defining the philosophy of naturalism, and discriminating between the different methods and applications of scientific thought. The natural, says this book, is whatever man encounters in whatever way. Naturalism is continuity of analysis, i.e., the application of scientific methods to analysis in every field. Thus truth is found. *The Moral Theory of Evolutionary Naturalism*, by William F. Quillian, Jr., is also relevant here. Other books less interested in the human consequences of the new science than in understanding its logic and method are *Philosophic Foundations of Quantum Mechanics*, by Hans Reichenbach, a defense of a causality in science, and *O sentido da nova lógica (The Meaning of the New Logic)*, by Willard Van Orman Quine.

Some philosophers turned their attention to the social and cultural complex in which these disturbing events occurred. Thus Ralph Barton Perry in *Puritanism and Democracy* presents what is called a personal and national confession of faith. It is a faith in moral liberalism and in the individualism that is basic in both democracy and puritanism. Neither institutional nor corporate beings but only human beings live, and in them must lie our values. *Are Men Equal?* by Henry Alonzo Myers, presents a systematic, historical analysis of the idea of equality in American thought. Equality in the Declaration of Independence, Emerson, Hawthorne, Melville, Whitman, equality in the slave controversy of the Civil War, equality from 1865 to 1941 under Darwinian evolution, industrial capitalism, socialism is discussed. In the individual's sense of his own intrinsic value is the source of the idea of equality. From this it is extended by association and sympathy to others. *The Authoritarian Attempt to Capture Education*, papers by John Dewey, Sidney Hook, A. E. Murphy and others from the second conference on scientific spirit and the democratic faith, goes more directly to the problem. A more important book, *Foundations of the Social Sciences*, by Otto Neurath, is the first contribution to the second volume of the *International Encyclopaedia of Unified Science*.

Other philosophers turned their attention to the nature of man himself and his culture. *An Essay on Man*, by Ernst Cassirer, is a rewriting in English of his *Philosophy of Symbolic Forms*. It is shorter than its German antecedent but is clearer and stronger. It makes a closer linkage of the different concepts of symbolic form. For Cassirer philosophy is identical with the theory of culture. There are many modes and structures of order, of which the method of science is only one. Language, myth, religion, art—all are cultural creations of man. In these different manifestations of his creativity man's self is absorbed. Thus the post-Kantian philosopher, for whom the thing in itself becomes the infinite project, replies to the naturalist's exclusive emphasis on scientific method. He admits, however, that the modes and manifestations of man's creative culture do not have a common denominator or the continuity of method required by the naturalists.

*Ethics and Language*, by Charles L. Stevenson, is a study of

descriptive meaning and emotive meaning in ethical methodology. *Mission of the University*, by José Ortega y Gasset, demands a student-centred university and a philosophy-centred university as the only way to recover our academic culture from the current professionalism of approach. *The Appeal to Immediate Experience*, by Robert D. Mack, is an analysis of sense data, as discussed by Francis Herbert Bradley, Alfred North Whitehead and John Dewey, leading to a functionalist concept of sense data as contrasted to the spectator theory. *The Philosophy of Bertrand Russell*, edited by Paul A. Schilpp, mentioned briefly among books of the year 1944, deserves this second notice because of its current importance in summarizing and interpreting this great man's work. Russell's long awaited *History of Western Philosophy* became available in the autumn of 1945. Its emphasis on the connection of philosophy with the political and social circumstances of the western world might help to give the teaching of philosophy a new and much needed reorientation. It is written with Russell's usual charm, unpretentiousness and common sense. Above all it puts philosophy once more back into human life. (B. B.)

**Phoenix Islands:** see PACIFIC ISLANDS, BRITISH.

**Phosphates.** Mine production of phosphate rock in the United States declined from 6,014,363 short tons in 1943 to 5,824,002 tons in 1944, but sales increased from 5,741,379 tons to 6,021,840 tons. The excess of sales over production cut stocks from 1,962,000 tons to 1,374,000 tons. Offsetting the decreased tonnage in 1944, the grade was better, and the phosphoric acid content increased from 1,804,561 tons to 1,874,723 tons. In the first half of 1945 production increased to 3,106,761 tons, with sales of 2,945,229 tons, containing 945,096 tons of phosphoric acid. Exports increased from 400,971 tons in 1943 to 490,709 tons in 1944, as compared with a peak of 1,354,025 tons in 1936. With the reopening of foreign markets after World War II, exports were expected to increase materially, but at the same time domestic consumption might decrease somewhat from the war level, which was above normal.

No 1944 data was received from important producing countries outside of the United States, but 1943 output was reported as follows, in short tons, with the 1939 outputs given in parentheses for comparison: Algeria 84,655 (496,000); Tunisia 368,919 (1,794,466); French Morocco 899,374 (1,877,207); Egypt 347,852 (603,557). (G. A. Ro.)

**Photography.** During the last few months of World War II the military production of photographs ran into the millions each month. The United States army air forces alone were producing more than 20,000,000 photographs a month in their reconnaissance missions. Even the repairing of damaged warships was speeded up by more than 25% in repair time by the use of microfilms of original blueprints, speeded by air to the repair centres.

Photographic engineering promised to be a new industry accelerated by war demands. This field included the use of high-speed cameras for recording muscular reactions, ballistics experiments, strain tests to determine the weak points in new machinery and in the field of new industrial designs. From 2,000 to 8,000 photographs per second could be recorded with these high-speed cameras. Then by projecting at normal speed, time itself was slowed down so that engineers could analyze and investigate actions which moved too rapidly for the human eye to register. By the use of black-and-white, colour and X-ray films opportunities were opened to practically every industrial, engineering and medical field. This meant new job opportunities for photographers and technicians trained for this type of photo-





PHOTOGRAPH of two ladies entering the Metropolitan opera house, by Arthur Fellig, N.Y. news photographer known by the pseudonym of Weegee. It is included in his *Naked City*, comprising scenes of Manhattan, which was published in 1945

graphic work.

Special mention should be given to the 30,000 or 40,000 photographers of all the Allied Powers who covered the greatest photographic assignment in history. These photographers included some of the most experienced workers from the U.S., England, U.S.S.R., France, Canada, China, Australia and many other Allied countries. The whole progress of the war was faithfully recorded for strategic use on the battle fronts or for release through thousands of newspapers all over the world.

In the field of photographic-lens manufacturing, notable advances were made in England and the U.S. Formerly these countries were dependent upon Germany for some of the finest optical products. However, the lens manufacturers were able to produce products which not only matched some of the best continental lenses but in many cases showed superior qualities, especially with the use of the new rare-element glass. A 48-in., f/6.3, monster lens for aerial photography was announced in May 1945 by the U.S. air forces and the Eastman Kodak company. This lens had a thermostatically controlled electrical warming device in the mount for use in the cold upper regions. Without the use of this heating device the lens would shrink enough at low temperatures to throw it out of focus. The sharp

definition of this lens, together with accompanying filters to eliminate atmospheric haze, could clearly reveal objects five miles below.

One of the most effective military and commercial instruments was expected to be a special camera of advanced design for use in photographing radar images, developed by the Fairchild Camera and Instrument corporation in New York city. Radar images permitted military planes to travel over enemy territory at night or through heavy clouds and find their mark without ever seeing the ground with the naked eye. This product was known as the Fairchild automatic radar recording camera, and consisted of five units: camera, magazine, beamsplitter, adapter casting and control box. The complete camera installation was tied in with the radar circuit, and the camera itself mounted on top of the radar's oscilloscope. The unit was so arranged that the operator could observe the luminous picture of the terrain on the radar scope, while simultaneously the camera photographed it for continuous, permanent record.

While the original purpose of the radar camera was largely military in intent, it was far from limited to that field. Radar-record photography could

be applied to give radar maps of world-wide air line routes and as an aid in determining safe navigable paths. It could be a supplement to the training of radar operators. The camera could also be used for various specialized adaptations for installation in a plane to photograph a group of instruments during a performance flight. It could be used on board ships or in industrial plants to provide an irrefutable record of the performance of some object or instrument.

The U.S. public health service (navy department) was conducting the biggest offensive yet undertaken against tuberculosis. Authorities said there were at least 1,500,000 tubercular cases in the U.S. alone. During 1945 a new automatic 70-mm. fluororecord camera was introduced by the Fairchild Camera and Instrument corporation for installation in Roentgen ray devices. This camera was built for mass photography of the public, to catch incipient cases of tuberculosis which could be cured without drugs, and at the same time round up the many persons who were in the advanced stages of the disease.

The Canadian National Research council together with the Fairchild Camera and Instrument corporation developed a high-speed ophthalmic camera for the royal Canadian air force to photograph pilots' eyes to determine vitamin deficiencies. The resulting photographs show the conjunctival blood vessels of the eye in sharp detail. The photographing light mounted on the camera flashed at a speed of 1/15,000 sec. and did not produce



any afterimage in the eye as when ordinary flashbulbs were used. At the time of exposure the lens was automatically stopped down to  $f/80$  or even  $f/120$ , thus creating a greater depth of field and ensuring all-over sharpness in the final  $2\frac{1}{4} \times 2\frac{1}{4}$  in. negative.

A new type motion picture film known as Colorpak was announced at the end of 1945 by Ansco. This colour film was produced to provide a special taking medium from which duplicate colour prints could be made in quantity. Maximum quality was more essential in the duplicate print than in the original. Therefore Colorpak had considerably softer gradation than was normal for a reversible colour film. It was also balanced so that pictures made on it had a bluish cast which was found to yield better quality in the duplicates. Fundamentally, Ansco Colorpak is quite similar to the regular Ansco colour film and the layer arrangement is the same.

In the field of aerial photography the Folmer Graflex corporation improved the design and performance of important between-the-lens shutters used with 6-in. wide angle objectives to cover  $9 \times 9$ -in. negatives. The total open time of the shutters was reduced to 2.5 milliseconds and the shutter life extended to more than 10,000 cycles without appreciable change in its performance. The rate at which pictures could be taken was speeded up from the former rate of more than 3 sec. down to  $1\frac{1}{4}$  sec. per cycle. Radio interference previously radiated by these assemblies was effectively eliminated. These advances contributed materially to the successful military use of these cameras.

In general the camera design trends were definitely aimed at longer life, extended temperature range of satisfactory operation, greater precision in shutter and lens performance and lighter weight without sacrificing serviceability. The ravages of tropical exposure were met with new fungus resistant materials and finishes as well as special methods of packaging photographic equipment and supplies intended for shipment, storage and use in such areas.

New Graflex grid shutters for the army air forces permitted the taking of instantaneous night photographs at altitudes up to 30,000 ft. This was accomplished in synchronism with the illumination from an improved flash bomb, the shutter being fully opened 10 milliseconds after the beginning of the flash. The associated electrical circuits were synchronized with the bomb illumination so that the camera and shutter were only caused to operate by the photocell reception of light from the flash bomb. This effectively minimized the chances of false exposures being triggered off by flying over flak, fires or searchlights.

Built-in mechanical flash synchronization for between-the-lens shutters, pioneered by the Ilex Optical company, was further developed by the Wollensak Optical company introducing their high-speed Rapax shutters and the Folmer Graflex corporation, announcing the Graphex-synchronized shutter. These synchronized shutters can be used with all popular flashbulbs including the high-speed devices flashing up to  $1/30,000$  sec.

During 1945 the Eastman Kodak company placed on the market a number of new chemical products for photography such as: Kodak Dektol, a long-life paper or film developer; Kodak Microdol, a new improved fine-grain developer; Kodak Versatol, a new liquid all-round developer for films, plates and papers; Kodak Selectol, a clear working developer for professional papers; Kodak Antical, a sequestering agent for prevention of scum and sludge formation in photographic developers; Kodak Rapid Liquid Fixer (with hardener) and Kodak Universal MQ Developer; also Kodak Anti-foam, a clear, colourless liquid for prevention of foaming of photographic solutions.

To gain knowledge about the behaviour of rockets during the

early part of their flight some form of high-speed camera was essential. To meet this need the Bell Telephone laboratories and Dr. C. N. Hickman, at the request of the National Defense Research committee, perfected the Ribbon-Frame camera. The camera uses a standard No. 122 film, which is  $3\frac{1}{4}$  in. wide and 35 in. long. The film is carried past a .15-in. slit, and each frame is thus .15 in. high and  $3\frac{1}{4}$  in. wide. More than 200 frames may be taken on a single film. The exposure time is adjustable from .0001 to .0006 sec. A dial on the outside of the camera indicates the amount of unused film, and where the number of frames taken per set is small, several sets may be taken on the same film. As the rocket or shell is fired the clutch button is pressed, thus connecting the film roll to the drive and a set of exposures are made in rapid sequence.

**Microphotography.**—For the greater part of 1945 microphotography was employed at an accelerated rate in the prosecution of the war. Blueprint specifications were reproduced in quantity in order to have complete sets of plans available for the use of repair crews at advance bases. Records and communications, intelligence and other uses, continued. The termination of the war in Europe and later in the east brought an abrupt shift of emphasis. Many wartime projects were curtailed or eliminated. The equipment, however, was diverted to new projects designed to solve some of the problems created by the coming of peace. Vast quantities of field records were microfilmed for preservation and for transfer to the U.S. Similarly, captured documents were reproduced in order to provide copies for the Allied Powers and to permit detailed surveys of enemy technical progress to be made.

In the U.S. cancellation and termination of war contracts motivated the establishment of the Office of Contract Settlement. Microphotography was recognized as an important medium for the preservation of contractual records of all types, and the office issued on Jan. 24, 1945, detailed specifications for the reproduction of contractors records on microfilm.

One of the most spectacular wartime applications of microphotography was the use of V-mail and its corollary, the official mail service. The basic technical processes were 16- and 35-mm. microfilm and paper prints, all made on automatic machines, either in full or reduced size. There were two essentially interdependent services, the army service and that of the navy and marine corps.

Academic applications and uses of microphotography received less emphasis during 1945 by reason of a shortage of equipment, supplies and trained personnel. Limited service continued and several large projects of reproducing newspapers, archival documents and material in foreign countries registered considerable progress. The most interesting academic development during the year was the emergence of the microcard theory as applied to scholarly, scientific and academic microphotography. The Microcard envisages the reproduction of from 100 to 500 pages of text, comprising all or a substantial portion of a complete book, on the back of a conventional library card. The microcard would be filed in a library catalogue and an enquirer would remove the card and consult it on special reading equipment as though it were the original text. The theory was still being debated, and some experimental work was being undertaken. Coupled with the microcard came an equal interest in reduced facsimile, which was not microphotography but rather a type of miniature photocopying or even offset printing for edition publication.

One of the interesting and perhaps most significant bypaths in microphotography during 1945 was the formation of Projected Books, Inc. This nonprofit organization had for its objective the development and application of a new method whereby patients in hospitals might read. A special power-driven microfilm projector was developed that projected a greatly enlarged image of a printed page on the ceiling of a hospital ward or on a special screen. The machine is noiseless in operation and the controls are arranged so that pressure by a finger, a toe or even an elbow will advance and retract a page on the reading screen. Several magazine and book publishers permitted the reproduction of their publications for this purpose. Tests clearly demonstrated the beneficial effects of this method of therapy for wounded soldiers, who might read educational or recreational material at will. The organization planned to place a number of these readers and quantities of material on microfilm in all of the large military and civilian hospitals.

**Motion Picture Project and Film Storage.**—The Library of Congress set up a motion picture project early in the year as a pilot project to plan the library's future motion picture activities. Among the areas of interest that were to be explored were: the preservation of films, the problem of selection, the problem of arrangement and the problem of service. Plans were under way for the construction of a film servicing building and vaults to accommodate the film collections of the Library of Congress, the national archives and other government agencies. The collections which the library hoped to obtain would be world-wide in scope and would include training film and other factual expository productions, purely factual film such as the newsreel and photoplays. John G. Bradley, Director Motion Picture Project, stated that the Library of Congress proposed to give a service on motion picture film in general paralleling that rendered on books and manuscripts. It was to organize reference material for consultation, to provide screening facilities for searchers, make film available on an interlibrary loan basis and furnish footage for new productions from film not protected by copyright or otherwise restricted.

**Pictorial Photography.**—During 1945 the war left its imprint on pictorial photography. Sensitized paper and film were extremely scarce and in some localities practically unobtainable by the amateur until the fourth quarter, yet camera clubs and salons continued to function and to flourish.

Groups in various countries held their salons for the first time after the start of World War II. Approximately 62 international as well as

hundreds of local salons were opened to the public. The largest number of photographic entries were received by such well established exhibitions as those of Los Angeles, Baltimore, Rochester, Philadelphia, Chicago, Pittsburgh, St. Louis, Boston, Toledo, San Francisco, Detroit, the Photographic Society of America and Royal (London). Approximately 750 pictorialists had prints accepted in two or more salons as compared with 2,276 in 1938-39. An average of 235 prints were hung in each salon, a figure which had remained fairly constant from 1935.

One of the largest photographic exhibitions ever held in the U.S. was displayed at the Rochester (N.Y.) Museum of Arts and Science in November by the Photographic Society of America with entries in pictorial, colour, nature, technical, camera club, press and historical sections. At the society's annual meeting, Charles B. Phelps, Jr., was installed as president and honorary fellowships, the highest U.S. honour a photographer can receive, were bestowed on Frank Roy Fraprie of Boston and Captain Edward J. Steichen, U.S.N.R. (retired), of Washington, D.C.

Leading pictorialists during the season, according to the *American Annual*, were John R. Hogan of Philadelphia, Pa. with 173 prints in 49 salons, Frank R. Fraprie of Boston, Mass. with 137 acceptances in 51 salons and Kenneth Cook of Elkhart, Ind., with 135 prints on exhibition in 44 shows.

A trend toward glossy, realistic and straight prints was noted with large prints, 14×17 in. and 16×20 in., dominating the salons. Two-thirds of the prints submitted to the Rochester salon in March and 235 of the 245 accepted were 14×17 or larger. Few new or original subjects were displayed; snow scenes and cats continued in popularity.

The Photographic Society of America inaugurated postal portfolios of pictorial photographs in 1945, a feature long prominent in British pictorialism. It was thought probable that these would have a marked influence on pictorial photography in later years.

The outstanding development during 1945 was the tremendous increase in interest in colour slides of the 2×2-in. size. Many new camera clubs were organized with programs devoted exclusively to this interest. There were 12 exhibitions held, the majority for the first time. The number of entries far exceeded those of a pictorial nature. The Chicago International Color Slide Salon, for example, received 3,800 slides from 665 contributors.

The principal exhibition of the year at the Museum of Modern Art in New York was, "Paul Strand: Photographs 1915-1945." This exhibition was accompanied by a monograph reproducing 27 of the photographs and with a critical biographical essay by Nancy Newhall. The exhibition inaugurated a series of exhibitions presenting the chief 20th-century photographers. Other exhibitions were: "Manzanar: Photographs and Text by Ansel Adams of Loyal Japanese-American Relocation Center"; "French Photographs: Daguerre to Atget" assembled from private and public collections in the U.S. and in France; and several small exhibitions selected from the museum collection. Several loan exhibitions were prepared to meet special demands from schools, colleges and various photographic societies.

Announcement was made in October of the Museum of Modern Art Photographic fellowship to be awarded in 1946. This was to consist of \$1,000 for the realization of a project in creative photography or research in allied fields. (See also MOTION PICTURES; NEWSPAPERS AND MAGAZINES; X-RAY.) (W. D. MN.)

**Three-Dimensional Photography.**—Three-dimensional or stereoscopic pictures differ from conventional two-dimensional pictures in that they convey directly the perception of depth in addition to the height and width of two-dimensional photographs in the scenes which they present. The art of three-dimensional photography involves two general operations. Two pictures, usually photographs, are first made of the scene from two different viewpoints corresponding to the positions of the human eyes' normal vision. These two pictures, called stereographs, are presented in such a way that the left-hand stereograph is shown to the observer's left eye and the right-hand to his right. As in everyday vision, the brain fuses the slightly different flat views into a convincing impression of three-dimensional space.

**Military Uses.**—Three-dimensional pictures taken from the air were in wide use in all armies in World War II. The stereographs were usually obtained by successive exposures in a standard camera, the travel of the aircraft providing the necessary distance between viewpoints. This displacement, for aerial stereographs, is frequently as great as 2 mi., as contrasted with the normal two and three-quarter in. of the human interocular distance; it produces striking relief even in bushes and other low-lying objects which appear perfectly flat when viewed by an observer in the air. This accentuation of depth proved of great value for the penetration of camouflage and the detection and identification of minute ground detail.

Three-dimensional aerial photographs were of special importance to the Allies in the later stages of the air war in the detection of "buzz-bomb" and V-2 rocket launching sites, in the precise determination of bomb damage and in the identification of factories, bridges, radar installations and other bombing targets. Stereoscopes of the Wheatstone type, fitted with magnifying attachments, were used for viewing these reconnaissance stereographs.

Three-dimensional aerial views made by the vectograph process (see below) had been in wide use for planning ground force operations and for instructing troops before combat. Easier to view than any previous types, these vectographs appeared as photographically precise replicas of the ground to be attacked, with every cliff and valley in full relief and with the smallest ditches and vegetation, enemy works and other essential detail appearing as they would in perfect miniature models. During 1945, it was disclosed that large numbers of vectographs were used in preparing the assault on the Normandy beaches and in later operations in Europe and in the Pacific. After World War II, investigation revealed that there had been no developments similar to vectography either in Germany or in Japan, but that the German army had set up elaborate facilities for the construction of miniature models to be used for the same purposes.

In a number of war-training devices, three-dimensional pictures were used to present quickly and realistically such complex subjects as celestial

navigation, aircraft manoeuvres and the construction of weapons.

**Peacetime Developments.**—Two new 35-mm. stereoscopic twin-lens cameras, designed for popular use, were announced late in 1945, the Stereo-Realist and the Haneel Tri-Vision. Manufacturers also offered several new viewing devices, compact modern versions of the lens-type stereoscope in which the two pictures are viewed through simple lenses which allow the eyes to look straight ahead at the magnified stereographs.

In the press, there appeared further reports from Moscow of a new system, credited to S. P. Ivanov, for presenting three-dimensional motion pictures without requiring the audience to wear spectacles. Film, with a double row of images, side by side, was projected on a screen of 2,000 finely cut and matched pieces of mirror-glass.

Great technical and popular interest centred on the three-dimensional vectograph and the new medium, freed from wartime restrictions and priorities, was already in limited use for teaching and commercial purposes. Vectographs, the invention of E. H. Land and J. Mahler, are somewhat similar in general appearance to ordinary photographs. Each print, however, actually consists of two superimposed light-polarizing pictures. The viewing device is a simple polarizing spectacle. Slides may be projected in standard, single-lens projectors. By the end of 1945 two processing plants were in operation, the optical profession was using special vectographs for correcting faulty seeing habits, manufacturers were using the medium for presenting their products, scientists for recording three-dimensional views of microscope specimens and the first civilian textbook to carry a vectograph illustration, *Descriptive Geometry* by E. S. Watts and J. R. Rule, was announced for publication in early 1946.

**BIBLIOGRAPHY.**—J. M. Dalzell, *Practical Stereoscopic Photography* (1936); A. W. Judge, *Stereoscopic Photography* (1935); R. T. Kriebel, "Stereoscopic Photography," *The Complete Photographer* (Issue 51, Vol. 9); J. T. Rule and V. Bush, *Handbook of Photography* (1939); E. H. Land, "Vectographs: Images in Terms of Vectorial Inequality and Their Application to Three-Dimensional Representation," *Journal Optical Society of America*, Vol. 30, p. 230-38 (Sept. 1940); R. T. Kriebel, "Vectograph Process," *The Complete Photographer* (Issue 53, Vol. 9); H. E. Ives, "Pan-Stereoscopic Photography and Kinematography," *The Photographic Journal* (Dec. 1933); J. T. Rule, "Stereoscopic Drawings," *Journal Optical Society of America* (Aug. 1938); J. P. Foley, D. F. Winnek and W. J. Tirrell, "Composite Stereography," *Journal of Experimental Psychology* (Sept. 1941). (R. T. K.)

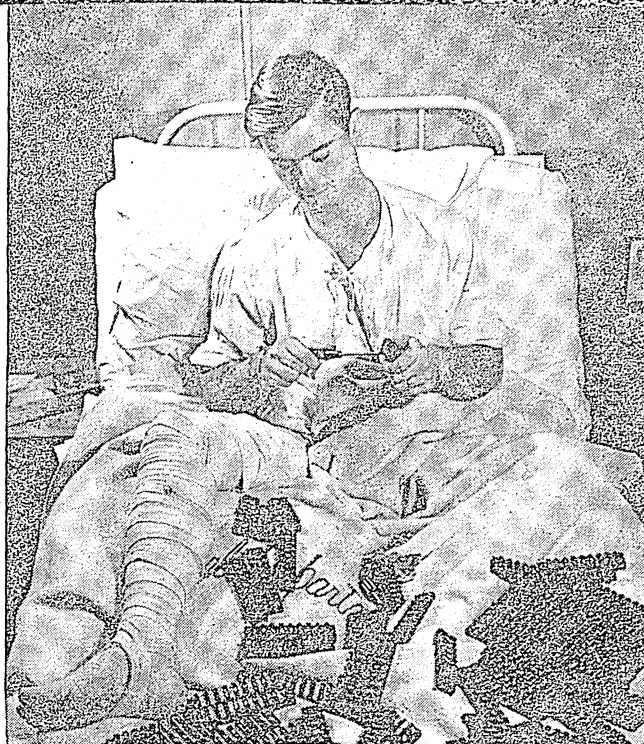
## Physical Medicine and Occupational Therapy for the Wounded.

The year 1945 showed continued progress in the development of physical medicine. World War II, with its thousands of physical and mental casualties, gave great impetus to the development of physical and occupational therapy. Formerly the objective of physical medicine was limited to the restoration of function of injured parts. The experience of the war showed that usually the whole man is affected adversely when one part of his body is disabled for more than a brief period. This adverse effect often is mental as well as physical. Consequently, the field of physical medicine was expanded into rehabilitation. H. E. Griffiths stated that, "Rehabilitation is treatment, but it is not the treatment of a disease or injury, but the treatment of the individual suffering from the disease or injury."

Perhaps the most spectacular results were obtained in the rehabilitation of paraplegics. Formerly these unfortunates were doomed to lives of total invalidism, often a very short life. They are now walking, with the help of braces to be sure, free from distressing trophic sores and undergoing vocational rehabilitation to make them self-supporting to a greater or lesser degree. Among no other class of physical injuries is the necessity for mental, as well as physical, rehabilitation so clear. Almost invariably these patients have surrendered to despair before they reach the hospitals in which their rehabilitation can be begun. The most difficult step in their treatment is the initial step of arousing a will to improve.

The war stimulated interest in the surgery and rehabilitation of hands. Too often chiefs of service relegated the care of injuries of the hand to junior assistants with little experience. Now the obvious fact having been recognized that, next to the brain, the hand is the most important part of the body in earning a livelihood for the majority of people, experienced surgeons have devoted much attention to injuries of this part. Since the degree of restoration of function depends in part upon the early application of physical and occupational therapy, an exception was made, in cases of injury of the hand, to the general rule in the European theatre of operations of the United



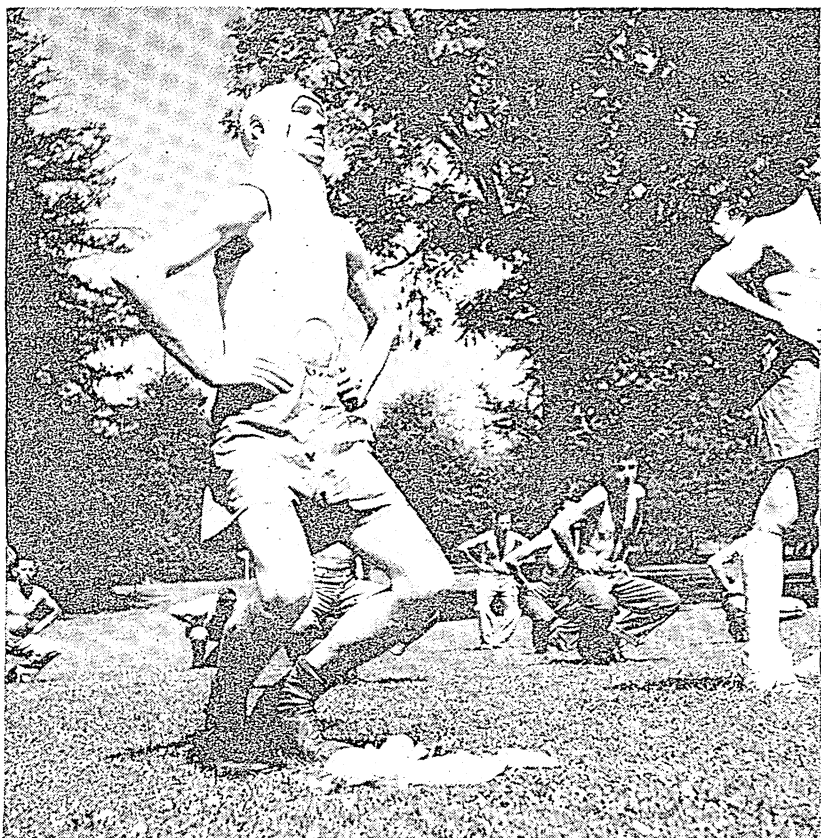


Above: A NAVY VETERAN earning money with his hands. The U.S. navy contracted with a number of industrial firms to train and employ hospitalized men in soldering, assembling, cutting, turning, peening, etc. Work in 1945 was done in the hospital occupational therapy shops or at the bedside



Upper right: CONTESTANTS in a one-armed golf tournament played by convalescents of the Deshon General Hospital at Butler, Pa., during 1945

Right: EXERCISE, sun and air were considered the best therapy for veterans recovering from plastic surgery, burns and other injuries at the hospital where these men were convalescing



Below: GOOD DANCE MUSIC found an active response among veterans of Lawson General Hospital during a Red Cross party in Atlanta, Ga., in 1945. The soldier on the left lost a leg in France

Lower right: LEGLESS convalescents at Veterans Hospital, Forest Glen, Md., were relearning to drive with specially equipped cars in 1945





States army that no primary closures of battle wounds would be done. Whenever possible, in this theatre, wounds of the hand were closed at once to hasten healing so that physical and occupational therapy could be started at the earliest possible moment. The plentiful blood supply of the hand, and the liberal use of penicillin, minimized the danger of infection.

In this connection, there was an increasing trend toward the substitution of productive work for the more or less diversional occupations in the field of occupational therapy. Tools normally used by men were being substituted for looms and other appliances of fancy work. Opportunity was being taken to increase the patient's proficiency in his own vocation, or of teaching him another useful vocation. During World War II, when the patient was to be returned for further military duty, military skills were stressed in his rehabilitation. Instead of weaving rugs or making bead bags, the injured soldier disassembled and re-assembled aeroplane motors, machine guns or radio equipment. Special exercises often were given in the gun turrets of aeroplanes or with rifles and bayonets. The objective was to return the patient not only physically fit but also a more competent soldier.

With the return of peace, the same principle must govern the rehabilitation of the disabled veteran. Here, however, is injected an additional problem, that of the rehabilitation of the permanently disabled, because the permanently disabled are not retained indefinitely in the military services. These cases fall into two classes—those less disabled who can be rehabilitated to the point of living and earning in a normal environment; and those severely disabled who, while able to earn, will always require a special environment in which to live.

An example of the first class of such cases is the healed or arrested case of tuberculosis whose previous occupation is incompatible with his future health. A most important part of his treatment is learning a new and a healthier occupation. This is distinctly a medical responsibility—a part of treatment. For what does it profit to cure a disease without, insofar as possible, preventing its recurrence?

In the second class fall many of the paraplegics, the hemiplegics and even of the chronic psychotics. It is indefensible that such cases, even though requiring institutional care, should be denied the opportunity of doing productive work. For those who cannot go out to work, work must be brought. In several hospitals, patients were paid for work done as a part of their rehabilitation. Arrangements were made with neighbouring industry to furnish the work. This was a hopeful experiment and promised to assist in the solution of the problem of the permanently disabled who would require some degree of hospital care throughout their life.

Progress was made in the training of amputees in the use of artificial limbs. While the general standard of prosthetic devices was not yet satisfactory, some of the difficulties of the users were obviated by better training in the use of their aids.

Physical medicine received great assistance during 1945 from the Baruch Committee on Physical Medicine. This committee established and endowed fellowships and made numerous grants for teaching and research in physical medicine.

The medical service of the Veterans' administration organized a division of reconditioning which was to co-ordinate physical medicine, occupational therapy and general physical and vocational rehabilitation. (See also PSYCHIATRY.)

**BIBLIOGRAPHY.**—H. E. Griffiths, "Rehabilitation," *J. Roy. Inst. Pub. Health & Hyg.*, 7:225-235 (Sept. 1944); H. A. Rusk, "Symposium on Rehabilitation: Introduction," *M. Clin. North America*, 29:714 (May 1945); *idem*, "Convalescent Care and Rehabilitation in Army Air Forces," *ibid.*, 29:715-728 (May 1945); F. H. Krusen, "American Health Resorts: Place of Health Resorts in Rehabilitation Following Injuries," *J.A.M.A.*, 125:905-911 (July 29, 1944); C. H. McCloy, "Physical Reconditioning in Army Service Forces," *J. Health & Phys. Educ.*, 15:365 (Sept. 1944).

**Physics.** **General.**—Most people realize that the atomic bomb (*q.v.*) changed the pattern of warfare; some regard it as a potent agent for peace; a few boldly proclaim that a new age has been born. Wherever the truth lies, the use of the bomb in Japan focused popular interest on science, and especially upon physics, as never before. It is therefore important to point out that the bomb was not a discovery resulting from desperate work during the years 1940-45, but rather a natural and rapid development of earlier scientific discoveries. From 1890 on, important discoveries in atomic physics were made every decade, each one a triumph of the human intellect; but they were not understood, and therefore not appreciated, by the layman. During the closing months of 1945, it is to be regretted that the destructive aspects of atomic energy were overemphasized in public statements and that its great possibilities for peaceful commercial purposes were kept in the background.

The rapid pace at which former scientific discoveries were developed into new weapons in the years 1939-45 had two unfortunate results. First, the amount of pure scientific research accomplished in the world after the start of hostilities in 1939 had been very small, so that development was in danger of outrunning discovery, and sooner or later technical progress had to await further research in pure science upon which it might build. Second, the gigantic organizations built up for the purpose of fostering rapid technological development could not be disbanded immediately. Consequently large numbers of scientists, taken from their academic researches to tackle problems of immediate practical value would not return very soon to their former situations. Some would never return, for the financial rewards of pure science are seldom as alluring as those of its industrial application. It seemed likely, indeed, that there would be a shortage, in institutions of learning, of men and women competent to train the increasing numbers of scientists-to-be and to carry on fundamental research. Thus the critical, wartime dearth of physicists was expected to continue for nearly a decade.

Some measures were taken to combat these trends. Various agencies were offering grants in aids of research in pure science to encourage the return to academic life of men who left their posts for urgent war assignments. Others instituted scholarships and fellowships to open the way for the further education and training of young scientists whose studies were interrupted by the war. Legislation was before congress in the form of the Kilgore and Magnuson bills, to give federal aid to science. The relative merits of these two bills were being much discussed among professional physicists.

**The Nucleus.**—In 1925, at the time of Lord Rutherford's early experiments on atomic disintegration, the only known elementary particles were the electron and the proton. A catalogue of the elementary particles in 1945 demonstrated what progress was made in the intervening years. The neutron, discovered in 1932, and the proton are regarded as the fundamental particles, of which all nuclei are composed. Because they can be created from radiation, positive and negative electrons share a less permanent position. Mesotrons, about 180 times as massive as electrons, occur in cosmic rays, but have only a transient existence. Uncharged particles, the neutretto and the neutrino, have been useful in some theoretical nuclear calculations, though without adequate support on the experimental side. The experimental evidence for the neutrino is, however, much better than for the neutretto. There must now be added to this list the low-mass mesotron, about 20 times as heavy as the electron. M. Schein, at the University of Chicago, found these particles, charged, in cosmic rays, while Gerhart Groetzinger, P. Gerald Kruger and Lloyd Smith detected a neutral radiation more

penetrating than neutrons in water or gamma rays in lead. This neutral radiation, produced from the Illinois cyclotron by a beam of deuterons hitting the target, was detected by Geiger-Müller counters 4 metres away. The counters were blanketed by thick layers of various materials which are known to absorb neutrons and gamma rays. Yet a residual ionization was definitely present. The simplest explanation of the observations was that the radiation consisted of uncharged low-mass mesotrons.

The creation of material from radiation, a process whose counterpart is so brilliantly illustrated by the atomic bomb, received added confirmation in the experiments of W. E. Ogle and P. G. Kruger. During a study of the gamma rays emitted in the decay of radioactive sodium to magnesium they found two very satisfactory examples of pair production in the field of an electron. Pair production can occur only in the field of a third particle which must be present to balance the momenta of the reacting entities. Pair production has been found frequently associated with a heavy nuclear particle, but has been poorly supported by experiment in association with an electron. According to F. Perrin, the minimum energy of a gamma ray which can create an electron-positron pair in the field of an electron is 2,040,000 electron volts. Since radioactive sodium gives off a gamma ray of energy 2,600,000 electron volts, there is enough for the production of a pair, with some left over to give well defined tracks. Since the electron in whose field the pair production occurs has to carry away momentum, three tracks should appear in the cloud chamber photographs. Two superb examples of such triplets were found by Ogle and Kruger, whose measurements of the tracks confirmed Perrin's prediction of the threshold value, 2,040,000 electron volts, within a few per cent.

After a wartime period of intentional suppression, a few articles were being published giving new information on the subject of fission. From Niels Bohr's laboratory in Copenhagen, N. O. Lassen sent a report to the *Physical Review* concerning the state of ionization of the fragments of the uranium atom as they fly apart. He made measurements of their charges by bending them in the magnetic field of the cyclotron which itself produced the neutrons necessary to accomplish the disintegration. It might be guessed that the violence of the nuclear explosion would leave the fragments in a very high state of excitation. Lassen found that, if krypton were taken as representative of the lighter fragments, then the krypton atom was stripped of 20 of its normal complement of 36 electrons; and that barium, frequently taken as typical of the heavier fragments, lacked 22 of its normal complement of 56. Such high states of ionization are not found in any other laboratory experiments, but correspond to temperatures such as are found in the interior of stars. Furthermore, the numbers 20 and 22 just quoted must be taken as approximate only, for undoubtedly the flying fragments gain and lose electrons along their paths. In support of this statement, it will be recalled that P. Kapitza showed, as long ago as 1925, that even alpha particles exhibit the same behaviour.

Although uranium and plutonium were the only elements from which nuclear energy could in 1945 be released in large amounts, it was to be expected that other more common elements would be similarly useful when more is known about their nuclei. Edwin M. McMillan's proposed synchrotron might possibly open the way toward the new knowledge. The synchrotron, still in the designing-room stage, is a combination of E. O. Lawrence's cyclotron and Donald W. Kerst's betatron. With it, McMillan believed that accelerated heavy particles in the 1,000,000,000-volt range may be produced. The laboratory limit in 1945 was less than 100,000,000 volts.

With the story of the atomic bomb in mind, and the large

scale production of the new elements neptunium (93) and plutonium (94), scientists were scarcely surprised to hear that two more transuranic elements, numbered 95 and 96, had been manufactured on a laboratory scale by G. T. Seaborg. Though the quantities produced were minute, enough was learned of their properties to prove that traces of them exist in naturally-occurring radioactive ores.

**Cosmic Rays.**—As the emphasis in this review indicates, the focus of scientific attention in 1945 was in nuclear problems. An indirect attack can be made from the study of cosmic rays which include particles (uncontrolled, to be sure) with energies of thousands of millions of electron volts. The origin of the rays was still a matter of debate. R. A. Millikan, H. V. Neher and W. H. Pickering found time to analyze the records of ionization obtained in 1940 by high free-balloon flights at various places in the U.S. and Canada. The results, they believed, supported the theory, advanced by them in 1942, that cosmic rays arise in interstellar space from the annihilation of atoms of helium, carbon, oxygen, nitrogen and silicon sparsely distributed there. Such an origin must produce primary rays with a discontinuous energy spectrum, whose existence is borne out by the rapid increase in cosmic ray intensity which occurs at certain definite geomagnetic latitudes. The magnetic field of the earth acts as a gigantic analyzer of the rays.

This point of view should not be taken as the only explanation of the observed effects. For example, S. Kusaka calculated the intensity of cosmic radiation to be expected at various latitudes on the assumption of a special, but reasonable, continuous energy spectrum of the primary rays. His calculations showed that the expected intensity of the rays would everywhere agree with the intensity actually observed by Millikan, Neher and Pickering. Apparently the methods of measurement in 1945 were scarcely selective enough to distinguish between the two theories.

In any one locality, the intensity of cosmic rays is very irregular, from instant to instant. This variation is due partly to the occurrence of showers of particles, which step up the local ionization manifold. The simultaneity of the shower particles is so marked that there is no doubt that all the particles are triggered off by one master act, which, in view of the large energy involved, must be nuclear. Lloyd G. Lewis measured these bursts of ionization simultaneously in two large chambers separated by a metre or more, at various altitudes, with a view to finding out if the showers were narrow bundles of particles, or widely spreading cones. His measurements showed that the high density region of a shower was usually of comparatively small extent. From such observations it must be concluded either that the showers do not travel very far, or that their component particles travel in almost parallel lines. The former alternative seemed the more reasonable, and it was thus established that these showers must "originate far below the top of the atmosphere, which means that they must be started by high energy electrons or photons of secondary origin. A possible process which could produce electrons at great depths below the top of the atmosphere is the disintegration of a mesotron of very short mean life." The existence of such mesotrons was proposed in Christian Moller and L. Rosenfeld's theory of nuclear forces. Here the emphasis is on the secondary nature of showers. Primary cosmic rays coming from outer space are not directly responsible for them.

**Miscellaneous Topics.**—Other subjects which may interest the reader with a liking for experimental work are Kathleen Lonsdale's work on the perfection of crystals, G. A. Bowden's on the mechanism of lubrication, C. F. Kettering and J. Scott's on the  $e/m$  ratio of the carriers of electricity in metals and M. L. Pool's on the use of the Cauchois spectrograph in experi-

ments on artificial radioactivity. On the theoretical side notable contributions to physics are E. A. Milne's developments of his kinematical theory of relativity, Paul Kirkpatrick and Lucile Wiedmann's contributions to the theory of production of X-rays, and various papers on nuclear theory.

**BIBLIOGRAPHY.**—The indexes of *Nature*, vols. 155 and 156, and of *The Physical Review*, vols. 67 and 68 form reliable starting points for further reading.

**FILMS.**—*Electrodynamics; Electrons; Electrostatics* (Encyclopædia Britannica Films Inc.). (T. H. O.)

**Physiology.** **Negative Pressures from Ciliary Action.**—A. C. Hilding demonstrated that ciliary action in the respiratory tract is able to move mucus plugs in such a manner that the plugs act as a piston. Negative pressures as high as 60 mm. of H<sub>2</sub>O behind the mucus plug could be produced in the sinuses of the dog by this mechanism. Formerly it had been taught that the negative pressure developing behind an obstruction in a bronchus or bronchiole, causing collapse of a portion of the lung, was due entirely to the absorption of the trapped gases.

**Cardiac Output in Man.**—Opportunity for accurate calculation of cardiac output in man arose from the technique of obtaining mixed venous blood by threading a catheter through an arm vein into the right ventricle of the heart. By comparing the oxygen content of arterial blood, obtained by arterial puncture, with that of the mixed venous blood, the arteriovenous oxygen difference may be calculated directly instead of by the conventional method which derives this value by calculation from the rate of absorption of a gas such as acetylene. By this new method average values of the order of 3.2 litres per square metre per minute were obtained, this being about 1 litre per minute greater than the values obtained by the gas absorption method.

**Dental Caries.**—The saliva of persons without dental caries was shown to contain enzymes which deaminate amino acids. This enzyme was deficient in the saliva from the mouths of persons with caries. It had been shown that the ammonia formed by this process is capable, even in dilute solution, of inhibiting the growth of *Lactobacillus acidophilus* and also of preventing fermentation of glucose by saliva. *Lactobacillus acidophilus* was shown to be notably absent from the mouths of patients who had no active caries.

**Emotions and Body Temperature.**—N. Kleitman performed extensive studies of body temperature on two young ladies who attended motion picture shows frequently. A very significant increase in the mean body temperature occurred during attendance at the "movies" in both cases.

**Human Vision.**—Careful studies by G. Wald revealed that persons in whom the lens has been removed from the eye were able to see objects clearly in ultraviolet light to which the person with intact ocular lenses was almost completely insensitive. In the normal individual the lens absorbs almost all of the light in the ultra-violet portion of the spectrum so that very little of it reaches the retina.

**Colour Vision.**—The older theories of colour vision were entirely revised through electrophysiological studies of the action potentials of optic nerve fibres. It was shown that the retina contains "dominators" responsible for the white sensation and at least six or seven "modulators" which are responsible for colour sensations.

**Central Nervous System.**—It was known that the bulbar portion of the brain stem has an excitatory influence on motor activity. It was shown that this part of the brain can also produce a very pronounced general inhibitory effect.

**Acidification of Urine.**—The kidney is capable of excreting large quantities of acid; however, the mechanism whereby this

is accomplished was obscure until recently (1945). The research of R. F. Pitts revealed that the acidification of urine does not depend upon reabsorption of phosphate or upon filtration of carbonic acid as was previously suggested. The acidification of the urine takes place in the distal portion of the renal tubule and is now believed to be effected by the intracellular formation of hydrogen ions from carbonic acid formed by the carbonic anhydrase known to be present in these cells. The hydrogen ions are exchanged for sodium ions of the glomerular filtrate across the cell membrane.

**Revival of Organisms.**—V. Negovsky and his coworkers revived dogs after a state of clinical death (cessation of respiration and cardiac arrest) had been present as long as eight minutes. Some of these animals died soon after revival, others survived indefinitely. Revival was accomplished by the use of a perfusion pump to replace the action of the heart, artificial respiration and stimulant drugs.

**Recovery from Malnutrition.**—Controlled studies of prisoners of war from German prison camps showed that in cases of uncomplicated malnutrition recovery was rapid and complete when the subjects were placed upon a liberal, complete diet. The more severe cases which were unable to tolerate sufficient food orally to allow recovery were greatly aided by the use of intravenous solutions including blood plasma and whole blood.

**Placental Transmission of Phosphate.**—By the use of radioactively "tagged" phosphorus molecules G. Hevesy was able to trace the persistence of these original phosphorus atoms through three generations of mice. The concentration of radioactive phosphate in the granddaughter mice was found to be six-tenths of 1% of what it had been in their mothers. Of the radioactive phosphorus present at birth, 40% was still present at the age of three months.

**Muscle Physiology.**—A previously unknown protein from muscle, called "actin," was described by A. de Szent-Gyorgyi and H. Staub. This substance manifests contraction when placed in an extract of muscle tissue. Myosin, the previously described muscle protein, is dispersed in particles which are attached to the actin filaments in a spiral pattern which much resembles a winding staircase, the actin particles forming its axis and the myosin particles its steps. When the muscle contracts the complete system assumes the shape of a corkscrew. Muscular contraction is believed to be due to combination of actin with myosin and conversely relaxation is accounted for by dissociation of these two proteins. These processes are normally controlled by the concentration of potassium and of adenosintriphosphate in the muscle.

**Physiologic Effects of Radar.**—The ultra-high-frequency radio waves used in radar transmission were alleged to be able to produce mild headache in humans exposed to them. Furthermore, it was suggested that they also interfere with the ability of homing pigeons to find their way home.

**BIBLIOGRAPHY.**—A. C. Hilding, "Production of Negative Pressure in Respiratory Tract by Ciliary Action and Its Relation to Postoperative Atelectasis," *Anesthesiology* 5:225-236 (May 1944); A. Courmand, R. L. Riley, E. S. Breed, E. DeF. Baldwin and D. W. Richards, Jr., "Measurement of Cardiac Output in Man Using Technique of Catheterization of Right Auricle or Ventricle," *J. Clin. Investigation*, 24:106-116 (Jan. 1945); R. G. Kesel, J. F. O'Donnell and E. R. Kirch, "Deamination of Amino Acids by the Human Oral Flora; Its Role in Dental Caries Immunity," *Science*, 101:230-231 (March 2, 1945); N. Kleitman, "The Effect of Motion Pictures on Body Temperature," *ibid.* 101:507-508 (May 18, 1945); G. Wald, "Human Vision and the Spectrum," *ibid.* 101:653-658 (June 29, 1945); R. Granit, "The Colour Receptors of the Mammalian Retina," *J. Neurophysiol.*, 8:195-210 (May 1945); H. W. Magoun, "Bulbar Inhibition and Facilitation of Motor Activity," *Science*, 100:549-550 (Dec. 15, 1944); R. F. Pitts and R. S. Alexander, "The Nature of the Renal Tubular Mechanism for Acidifying Urine," *Am. J. Physiol.*, 144:239-254 (July 1945); V. Negovsky, "Agonal States and Clinical Death: Problems in Revival of Organisms," *Am. Rev. Soviet Med.*, 2:408-448 (June 1945); "POWs Recover Quickly," *Science News Letter*, 48:39 (July 21, 1945); "Inheriting Atoms," *ibid.*, 47:167 (March 17, 1945); M. Bing, "Answer to Muscle Riddle," *ibid.*, 48:19 (July 14, 1945); "Effect of Radar's Waves Studied by Army and Navy," *ibid.*, 47:296 (May 12, 1945). (A. C. I.)



**Pig Iron:** see IRON AND STEEL.

**Pigs:** see HOGS; LIVESTOCK.

**Pineapples:** see FRUIT.

**Pittsburgh.** The end of World War II in 1945 brought relatively minor problems of reconversion to Pittsburgh. Production in the previous year reached an all-time peak, but the bulk came from plants readily adaptable to peacetime activity.

During the war population increased little above 671,659, as enumerated in 1940. This was slightly less than one-half the population of Allegheny county. City area was approximately 54.3 sq.mi., and county area 747 sq.mi.

The monthly production index of the Bureau of Business Research of the University of Pittsburgh averaged 170% of the 1935-39 average or 11% below 1944. In the first 11 months steel operations were 81% of capacity as compared with 92% in the preceding corresponding period. Production of bituminous coal, historically important in the region, was estimated to be 11% below that of 1944. Approximately one-fourth of the national bituminous coal output comes from Pennsylvania, chiefly from southwestern Pennsylvania.

Employed persons in the 11-county Pittsburgh district, as reported by the *Pittsburgh Business Review* for 11 months, numbered 118% of the 1939 average, 9% less than in 1944. The review estimated 515,000 employed persons in Allegheny county, about 55% of the district total. Pay rolls for 11 months averaged 198% of 1939, a decline of 11% in the year.

Retail trade in Allegheny county was 5% above 1944, and department store sales increased 12%. Dollar volume was 60% higher than for 1939, or approximately \$835,000,000.

Late in the year Pittsburgh and Allegheny county turned to development programs long in preparation. The governor of Pennsylvania announced readiness of the commonwealth to finance, with federal aid, the major share of a \$57,000,000 program of public works in the district. Included were a parkway extension of highway routes 22 and 30 into and through the city from east to west at a cost of \$23,000,000, and a memorial park commemorating Fort Duquesne and Fort Pitt at the confluence of the Allegheny and Monongahela rivers. The Allegheny Conference on Community Development carried on an extensive program of community studies. Encouraging progress was made in attacks on long-time problems of smoke control and stream pollution. A community trust, named the Pittsburgh foundation, was established.

David L. Lawrence was elected 47th mayor, the fourth Democrat to hold that office, succeeding Cornelius D. Scully.

(C. F. Ls.)

**Pius XII** (1876- ), the 262nd successor of St. Peter in the see of Rome, was elected by the cardinals in conclave on his 63rd birthday, March 2, 1939, and was crowned as pope on March 12. (For details of his early life, see *Encyclopaedia Britannica*.)

Relief of war victims continued to be a matter of grave concern to the pope during 1945. From his relief fund he contributed 5,000,000 lire for the people of Sicily and 200,000 francs for Lithuanian refugees. The pope praised the work of the United Nations Relief and Rehabilitation administration, and on July 10 received in audience Herbert Lehman and other officials of U.N.R.R.A. In November he expressed appreciation of the charity of Catholics in the United States in aiding war-torn nations.

On Dec. 1, receiving a group of Jewish refugees from German concentration camps, the pope stressed the fact that the Vatican must stand aloof from disputes about territory but re-

mains steadfastly opposed to persecution. The Jews of Italy again thanked the pope for the self-sacrificing aid given during the war. When received in private audience on Nov. 26, Prof. Eugene Zolli, former Grand Rabbi of Rome and in 1945 of the staff of Rome university, presented the pope with a copy of his book on anti-Semitism. Several months earlier the pope had vigorously condemned the idolatry of absolute nationalism and racism. Writing to the hierarchy of Czechoslovakia he advised the people to shun hate and to exercise their newly regained freedom in a spirit of love.

In May the pope appealed for universal prayer that the war might quickly end. Previously he had urged peace without oppression and justice for the small and medium nations. After the German surrender the pope publicly thanked God for the war's end and took the occasion to plead for a better world and to ask all people to dedicate themselves ardently to the work of reconstruction. In June it was revealed that the pope had defied Mussolini to jail him for repeated peace pleas.

During 1945 the pope granted an extraordinary number of public and private audiences. On March 31, thousands of troops were received in a general audience commemorating the first Easter celebration after the liberation of Rome. To visiting Allied physicians the pope spoke of the duties of their high mission, and to athletes he pointed out the opportunities for character formation in athletics rightly used. Several committees of U.S. congressmen and senators visiting Europe were received in audience. Addressing the congressional committee on postwar economics on Sept. 28, the pope declared it was encouraging that statesmen and heads of labour were coming to realize more and more clearly that these problems could not adequately be solved without enlisting the help of religion. Conferring with U.S. film executives in July, the pope outlined the moral duties of movie producers.

In September, of visiting radio executives he asked that they curb the abuses of the radio. On Sept. 13 the pope conferred in private audience with Gen. Dwight D. Eisenhower on European conditions.

On the occasion of President Roosevelt's death the pope expressed his sorrow, paying a tribute to the statesmanship of the president.

A number of papal statements in 1945 touched on moral aspects of reconstruction. Addressing a delegation from the Catholic Workers association on March 11, the pope promised labour his support. Indicating that new forms of socialization might be expected, he warned that difficulties of labour and management must be solved in the general interest of the community. In a message to the National Catholic Action congress in Rome on April 28 the pope forbade endorsement of social theories or systems prohibited by the church. At the opening of the Sacred Roman Rota on Oct. 2 he explained the differences between the judicial powers of the church and those of civil government and rejected authoritarian and totalitarian concepts of the state. On Oct. 21 the pope spoke of the social and political duties of women and impressed on them the obligation of taking active part in public affairs, especially by intelligent use of the ballot. On Dec. 13, the fourth centenary of the Council of Trent, he recalled that the church has a source of unity which resists all attacks upon it.

In his Christmas message, the pope spoke of the supernatural quality of the church which was his justification for appointing cardinals from every continent and from many nations. The conditions of a true and lasting peace he declared to be collaboration and good will among all; elimination of artificial censorship, of prejudice and one-sided opinions, and destruction of the totalitarian state. (See also ROMAN CATHOLIC CHURCH; VATICAN CITY STATE.)

(J. LAF.)

**Plague, Bubonic and Pneumonic.** Small outbreaks of plague, single cases or a number, appearing from time to time throughout the year 1945 were reported from 30 countries or states of Africa, Asia, Asia Minor, North and South America, Europe and Oceania.

At Dakar, French West Africa, the U.S. military authorities resorted to spraying and dusting dwellings and public buildings with DDT (dichloro-diphenyl-trichloroethane) for the suppression of fleas in the control of an epidemic in which there were 567 cases with 91% mortality. However, the application of the compound was made during the decline of the epidemic, and though the number of fleas was reduced, its value as a control measure was undetermined.

During an outbreak at Tengchung, Yunnan, China, 102 cases with 23 deaths occurred between Oct. 1944 and Jan. 1945. The highest incidence was among children and young adults, but the highest case mortality rate (50%) occurred among those more than 40 years of age. Sixty-nine of the patients had had one to four prophylactic inoculations. Ten of these died, while among 29 uninoculated there were 12 deaths.

Studies were made in the laboratory to evaluate the relative importance of four different species of fleas in the transmission of plague. The measure of vector efficiency was taken to be a numerical value representing the average number of transmissions effected by an individual flea of any species. This numerical value was the product of three "potentials": infection potential, vector potential and transmission potential; or, the percentage which became infected, subsequently infectious and the frequency with which they transmitted the infection. Trials of individual fleas were made of *Ctenocephalis felis*, *Hoplopsyllus anomalus*, *Xenopsylla cheopis* (Indian rat flea) and *Dipentulus montanus* whose hosts are ground squirrels of the genus *Citellus*. It was concluded that the efficiency of *D. montanus* was about twice that of *X. cheopis* (0.84 to 0.43) which was accepted as the most efficient vector.

Penicillin was tested for its therapeutic value in plague in guinea pigs, and found not effective under the conditions of the experiments. The animals were inoculated by either of three routes, subcutaneously, intramuscularly or intraperitoneally, and the drug was administered by either of the latter two. Divided doses of 1,000 or more units were repeated during the period of treatment which was initiated either before, simultaneously or after inoculation in different groups. The respective number of units given the three groups were 1,000 to 3,000; 4,000 to 18,400; and 1,000 to 300,000.

Field trials of sulfadiazine and sulfathiazole in the treatment of cases suggest that sulfadiazine is the drug of choice, and a schedule of treatment seemed to be in process of adoption. An initial dose of 4.0 gm. is followed by doses of 1.5 gm. to 2.0 gm. every four hours until the fever subsides. The maintenance of a blood level of 10 to 20 mgm. per 100 cc. of blood is used as a guide to dosage. When the fever has returned to a normal level 0.5 gm. are given every four hours for 10 to 15 days. The results of a test in which each drug was administered to one half of 180 patients, with strict alternation as they were admitted, were 78% survivals under sulfadiazine and 66% under sulfathiazole. If those who were moribund upon admission were excluded the rates of survival were 88% and 79%. Among 169 patients previously admitted and treated with iodine preparations there were 47% who survived. Other trials on fewer patients and without such systematic control also indicated that this drug is of greater value than those previously used.

**BIBLIOGRAPHY.**—"World Distribution of Cholera, Plague, Smallpox, Typhus Fever and Yellow Fever," *Pub. Health Rep.*, vol. 60 (1945); "Current Reports on the Prevalence of Certain Diseases: Data on Plague, Cholera, Yellow Fever, Smallpox and Typhus," *Epidemiol. Inform. Bull.*

1:112-123 (Feb. 15, 1945); 171-177 (Feb. 28, 1945); 228-240 (March 15, 1945); 311-326 (April 30, 1945); Paul M. Lewis, Milton H. Buchler and T. Roy Young Jr., "Plague in Dakar," *Bull. U. S. Army Med. Dept.*, 87:13-16 (April 1945); "Plague Outbreak in Western Yunnan, China," *Epidemiol. Inform. Bull.*, 1:169-170 (Feb. 28, 1945); C. M. Wheeler and J. R. Douglas, "Sylvatic Plague Studies," *J. Infect. Dis.*, 77:1-12 (July-Aug. 1945); B. Witlin and C. L. Wilbar, "Effect of Penicillin on Experimentally Produced Plague in Guinea Pigs," *J. Lab. & Clin. Med.*, 30:237-243 (March 1945); "Plague," *Bull. U. S. Army Med. Dept.*, 4:287-289 (Sept. 1945); P. M. Wagle, "Sulfadiazine in the Treatment of Bubonic Plague," *Indian Med. Gaz.*, 79:585-589 (Dec. 1944); J. Mackay-Dick, "A Brief Report on Twenty-Six Cases of Bubonic Plague with the Results of Treatment," *J. Roy. Army Med. Corps.*, 85:105-108 (Sept. 1945). (N. E. W.)

**Plant Industry, Soils and Agricultural Engineering, Bureau of:** see AGRICULTURAL RESEARCH ADMINISTRATION.  
**Plasma, Blood:** see MEDICINE; PHYSIOLOGY; SURGERY.

**Plastics Industry.** The end of 1945 found the plastics industry in the U.S. vastly extended in productive facilities, manufacturing capacities and similarly advanced in engineering techniques and technical achievements.

Some indication of its remarkable growth during World War II is the War Production board report made in the fall of 1945, which showed a 325% increase in the 1944 dollar volume of plastics and synthetic resins over 1939. Compared with the \$71,900,000 evaluation for 1939, the 1944 estimate was \$332,000,000. The total production for 1944 amounted to 784,137,000 lb. or 20% more than in 1943. Of this figure, 404,105,000 lb. were of the so-called coal-tar derivation, while 380,032,000 lb. were of the noncoal tar (noncyclic origin). In addition, more than 80,000,000 lb. of cellulose base plastics were used.

In 1944, protective coatings led all other uses of synthetic resins, production of this use amounting to 293,000,000 lb. The second largest individual use of resins in 1944 was for moulding and casting which consumed about 120,000,000 lb.

No exact statistics were available for 1945 but the rate of production of all forms of plastics at the end of World War II was said to be approximately 900,000,000 lb. per year, with an increase of 300,000,000 lb. anticipated for 1946.

In addition to its physical growth, the plastics industry was enlarging its range of utility, particularly improving the engineering and construction qualities of its materials in 1945.

**Materials.**—Because of wartime restrictions on new plant facilities and preoccupation of engineering staffs with capacity production of established products through V-J day, and in the immediate reconversion period thereafter, there was only one strictly newcomer in the plastics family during 1945. The commercial production of cellulose propionate (Forticel) was announced late in the year. This plastic became available at a competitive price as a result of the development of a new process for making propionic acid from cheap hydrocarbons obtained from natural gases and petroleum. Its uses in the form of moulded products, sheets and films were expected to parallel those of other cellulosic plastics. Lower moisture sensitivity and a greater inherent plasticity endow this material with better dimensional stability than cellulose acetate plastic.

Developments in other cellulosic plastics included a flame-resistant composition, thermoplastic laminates and carboxymethyl cellulose.

The outstanding qualities of polyethylene as a high-frequency dielectric as well as its physical and chemical properties kept this material in the limelight. A new development was the production of polyethylene film for packaging the antimalarial mepacrine. Its water and fungal resistance, flexibility over a wide-temperature range and heat-sealability are important attributes for this job.

Of special significance was the release from its wartime secret status of information regarding improved transparent plastics for optical purposes. A plastic lens, made from polystyrene

and cyclohexyl methacrylate, was manufactured for use in military cameras and sighting equipment. A new allyl ester resin (Kriston) was introduced which provides a thermosetting plastic of excellent clarity and a refractive index of 1.5483 at 28°C., which is higher than that of most optical glass. Shrinkage on polymerization is very low for this material, ranging from 3.25 to 4%. Other factors to wider usefulness for transparents were improvements for moulding transparent methacrylate parts and the development of two protective coatings for clear methacrylate windshield sheet stock.

The silicone polymers continued to grow and silicone rubber gaskets were used on searchlights and on the turbo-superchargers in B-29 bombers. The heat-resistance of the material was emphasized in the proposed application of enamels made from silicone resins for baked coatings on ranges, radiators, heat exhaust pipes and stacks. Treatment of textiles, mirrors, windshields, wallpaper, etc., with organosilicon compounds rendered their surfaces water-repellent.

Melamine resins were used in a number of new and interesting applications. Decorative sheets which could be applied to laminates at pressures as low as 250 lb. per square inch were manufactured. Panel boards prepared by bonding glass fabric with melamine resin were developed to provide navy ships with a fire- and arc-resistant laminate of high impact strength.

Naturally occurring phenolic compounds present in lignites received consideration as a source of insulating materials. Another source of complex phenolic products from natural material was lignin which was investigated very extensively as a raw material for the manufacture of plastics. Lignocelluloses occurring in agricultural wastes were also used in the preparation of moulding compounds.

Other natural resins and plastics studied during 1945 included cashew nutshell liquid, sugar and sugar by-products and rosin esters. Keratin was used as a modifier for phenolic plastics.

Wood pulp as a reinforcing filler in the formation of tough plastics received considerable attention. Wood itself, with its cellular structure relatively undisturbed, became an important addition to the reinforcing elements used in the plastics field. In the impregnation and moulding of solid wood to final form for use as brush backs, knife handles, knobs, etc., the inherent natural beauty of the wood is retained and resistance to water, acids, alkalis and heat is imparted. The laminated type of moulded wood was widely employed for fan blades, aeroplane propellers and the like. The status of wood as a construction material for aircraft was also of interest to the plastics industry because of the predominant role of synthetic resins as bonding and coating agents.

Other types of reinforcing materials such as paper, cotton and glass fabrics continued to improve but there was marked activity in the development of synthetic core materials (foamed plastic) for sandwich type structures. Interest in this field was stimulated by the army air force tests of a sandwich fuselage structure which proved to be 50% stronger than the standard metal section. In addition to aircraft parts these plastic foams and sandwich materials had possible outlets in lightweight furniture, refrigerators, stoves and household insulation.

Important industrial developments in German plastics during World War II were disclosed to U.S. industry as a result of investigations by government-sponsored technical teams. Several new types of plastic which were not manufactured in the U.S. were revealed, namely, polyurethanes, polyvinyl ethers and polyethyleneimine, as well as many different types of copolymers of vinyl chloride, styrene and acrylic esters.

**Cellophane.**—During World War II cellophane was required to assume an important role in fulfilling the requirements of a functional protective wrap for critical material in war plants

and battle areas and was used as an electrical insulating and identification material, in addition to its normal function of protecting essential civilian foodstuffs, tobacco and drugs.

Essentially regenerated cellulose in sheet form, combined with a carefully regulated proportion of softening or plasticizing agent, cellophane can be made moistureproof and even flameproof. Cellophane is transparent, colourless, slow-burning and hygroscopic, or water-wettable. The latter factor makes it possible to use the film for products having high fat content but it also results in a film that will not resist moisture unless coated to impart that property. The moistureproof film was most widely used and, by varying the lacquer coating, it was possible to produce film having high or low moistureproofness and with or without heat-sealing properties.

While cellophane was the most widely used of the transparent films, new plastic films like polyethylene and polyvinyl alcohol were gaining in importance in 1945 and additional uses were also being developed for cellulosic and vinyl films each of which had special properties that made it suitable for specific requirements.

**Processing and Machinery.**—Strict wartime controls up to V-E day limited the postwar research and developmental efforts of the processing and equipment manufacturing branches of the plastics industry, but in spite of such handicaps engineering and technological progress was steady.

Startling results were obtained by "hy-speed" plunger moulding which offers a mechanism to injection mould, successfully thermosetting materials at a very fast rate of speed and with the use of high-frequency preheating, a pressure type transfer mould and a hydraulic press with an auxiliary downward acting plunger.

Low pressure and contact pressure moulding and laminating continued to predominate in the plastics picture as research and engineering brought out improved resins, developed better reinforcements and more efficient techniques.

Improvements in equipment and methods were seen also in the conventional moulding fields. A plastic moulding machine which combines two types of moulding in one frame, was introduced. It makes possible the application of a combination of injection and compression moulding techniques to thermoplastic moulding, and retains all of the advantages of injection moulding without losing the high pressure on the material that is characteristic of compression.

The moulding of hollow articles by blowing a plastic material into the desired shape (blow moulding) underwent radical changes and opened many possible markets for plastics in the container and ornament trades.

Electronic preheating continued to gain in importance as an adjunct to compression moulding, being used to process approximately 40% of phenolic moulding compounds. Efforts were made to adapt radio-frequency heating to injection moulding machine heaters and a special electrically heated steam generator to service individual compression presses was introduced.

An innovation was frictional welding of thermoplastics. This method heats thermoplastics for welding parts together by rubbing the two pieces together at high surface speeds and quickly applying a pressure of about 300 lb. per square inch for a few seconds.

**Heat Sealing.**—There was considerable experimentation with the heat sealing of plastic films and plastic-coated materials in the fabrication of raincoats, umbrellas, waterproof covers, shower curtains, etc. This method of sealing was well established in the packaging field and was used to weld thermoplastic films which melt or become sticky at temperatures ranging from about 150°–300° F.

The two common types of heat-sealing material were the



lacquer type and the hot-melt type; the former being employed as a heat-sealing agent coated in minute quantities on a film which was not in itself heat-sealable, while the latter were highly oriented films which were joined together under heat and pressure into a watertight, wrinkleproof seal.

The simplest type of heat-sealing machine was the reciprocating or jaw type which in essence comprises two heated metal plates which clamp together. Then, there were rotary sealers which utilized heated rollers through which the material passes on thin endless steel belts which convey the film through heating and cooling zones under pressure. A new rotary type was developed for heat-sealing highly oriented thermoplastic films which have a high softening point.

Other methods of applying heat to certain sealable films made use of high-frequency generators. Generation of heat the electronic way made possible uniform heating throughout the mass of material—ideal for heat-sealing.

**Applications.**—The last year of World War II and the subsequent lifting of censorship rulings turned the spotlight on numerous plastic parts hitherto kept secret by the armed forces. Notable among these were the proximity fuse, rockets, M-74 incendiary bombs, plastic armour for vests and curtains to provide protection against flak, the T-44 frangible bullet and the No. 77 smoke grenade.

There were no disclosures regarding plastic parts used in the construction of the atomic bomb. A comprehensive account was given of the important function of low-pressure moulded plastic radomes in radar, one of the many uses for plastics in radar.

Plastics were also used for insulation on radio equipment, ogives for navy projectiles, impregnation of map paper to produce high-wet-strength paper, desalter bags, melamine trays and tableware.

Another sidelight of the war was the increasing use of plastics by the medical profession for instruments, surgical dressings and prosthetic devices. It was suggested that the technique used for contact moulding resin-impregnated glass fibre ducts for the B-29 might well be applied to produce artificial limbs.

The reconversion to civilian applications was not expected to be too difficult for plastics and its impact was already evident in almost every industry. Many revolutionary changes in textiles were resulting from the use of plastics for synthetic fibres, impregnation and surface treatments of fibres and film coatings on fabrics. The shoe industry was taking millions of pairs of plastic soles annually.

The automotive, boat and building industry were all expected to use large quantities of plastics.

**Industry Projects.**—Of special interest to the plastics industry and its customers was the classification of moulding materials published by the Society of the Plastics Industry. Contributing to the adoption of simple terminology and of recognized standards for plastics, this tabulation presented in chart form, information regarding the principal properties of standard moulding compounds.

Another volume with a similar purpose was the revised comprehensive volume of technical data on plastics published by the Plastics Materials Manufacturers' association which gives an authoritative listing of the properties of all commercial plastics for moulding, laminating, calendaring and extrusion.

(See also CHEMISTRY; ELECTRICAL INDUSTRIES; MACHINERY AND MACHINE TOOLS; MUNITIONS OF WAR; PAINTS AND VARNISHES; RAYON AND OTHER SYNTHETIC FIBRES; RUBBER.)

**BIBLIOGRAPHY.**—*Modern Plastics Magazine*, 23:134 ff. (Dec. 1945); *ibid.*, 23:125 ff., 161 ff. (Jan. 1946); *Modern Plastics Encyclopedia*, p. 966 (Jan. 1946); *Plastics Catalog*, p. 155 (1945); *Packaging Catalog*, p. 412 (1945); *Plastics News Bulletin*, 95 (Nov. 5, 1945); "Preliminary Report of the U.S. Tariff Commission" *Domestic Commerce*, 33:29 (Nov. 1945).

(C. A. Bn.)

**Platinum Group Metals.** Palladium, iridium, osmium, rhodium and ruthenium are so closely associated with platinum that world production must be reported as a group.

Table I.—World Production of Platinum Group Metals  
(Thousands of fine ounces)

	1940	1941	1942	1943	1944
Canada, total . . . . .	200.0	221.7	507.8	345.7	200.8
Platinum* . . . . .	108.5	124.3	285.2	219.7	155.7
O. P. M.† . . . . .	91.5	97.4	222.6	126.0	42.2
Colombia‡ . . . . .	35.9	37.3	49.2	40.0	36.1
So. Africa§ . . . . .	72.0	85.7	73.3	58.9	37.8
United States   . . . . .	41.6	32.7	33.0	37.6	40.5
World Total (est.) . . . .	465	483	773	619	?

\*Platinum content of nickel refinery residues. †Other platinum metals, mostly palladium. ‡Crude platinum. §Crude content of ores and concentrates; ordinarily these figures are increased by about 10% by recoveries of osmiridium in gold mining. ||Total crude and refined.

Table I includes all of the leading producers except soviet Russia, which has an unreported output that has been variously estimated at 100,000 to 150,000 oz. annually.

**United States.**—Progress in the production of platinum during the war years in the U.S. was officially reported, and may be summarized as shown in Table II.

Nonessential uses of platinum group metals, particularly in jewellery, were prohibited during the war, as supplies were short. The shortage was not critical in 1944, but nonessential uses

Table II.—U.S. Production of Platinum, 1940-44  
(Fine ounces)

	1940	1941	1942	1943	1944
Production, total . . . . .	41,574	32,730	33,044	37,552	40,549
Crude . . . . .	33,800	26,236	23,239	27,162	33,625
Refined . . . . .	4,470	1,805	4,333	5,205	3,286
O. P. M.* . . . . .	3,304	4,689	5,472	5,185	3,638
Imports, total . . . . .	195,645	309,995	315,002	362,251	356,212
Crude . . . . .	91,034	244,849	263,376	263,893	137,157
Refined . . . . .	35,642	9,865	32,254	41,272	70,150
O. P. M. . . . .	68,919	55,281	19,372	57,086	148,905
Supply, platinum only					
Refinery output . . . . .	38,951	98,376	244,226	234,320	132,452
Secondary . . . . .	47,657	37,522	56,150	68,613	94,764
Imports, refined . . . . .	35,642	9,865	32,254	41,272	70,150
Total . . . . .	122,250	145,763	332,630	344,205	297,366
Sales . . . . .	122,978	190,075	269,176	344,719	275,648
Stocks . . . . .	144,302	150,887	160,724	176,560	159,173

\*Other platinum metals.

were restricted except for ruthenium and palladium. All restrictions were removed in Aug. 1945. (G. A. Ro.)

**Pla y Deniel, Enrico** (1876– ), cardinal archbishop of Toledo and primate of Spain, was born at Barcelona, Spain, on Dec. 17. Ordained at Rome in 1900, he was professor in the seminary of Barcelona until consecrated bishop of Avila in 1918. He was transferred to the diocese of Salamanca in 1935, and elevated to the primate see of Toledo in 1941.

Archbishop Pla y Deniel had been active in the field of social welfare and betterment of the working classes. Under the republic he was subjected to adverse demonstrations, but on the other hand the president, a socialist, publicly declared his admiration for the then bishop of Avila. He is the author of numerous pastorals which, coming from the ordinary of the primate see, attracted considerable attention outside Spain. This is particularly true of his "Thanksgiving" pastoral on the end of World War II, issued in May 1945.

He was named to the College of Cardinals in an announcement of Dec. 23, 1945, and was created and proclaimed cardinal at consistory on Feb. 18, 1946.

**Plums:** see FRUIT.

**Plutonium:** see ATOMIC BOMB; CHEMISTRY; METALLURGY.

**Pneumonia.** During 1945, the incidence and mortality from pneumonia continued its general downward trend. As the year closed, however, there was evidence of the

occurrence of outbreaks of influenza in various parts of the United States and in Europe. This may be reflected in an upward trend in the pneumonia rates for the latter part of 1945 since such a rise usually accompanies outbreaks of influenza. In most areas where the influenza was studied, it proved to be due to the influenza B virus.

In therapy, penicillin occupied the prominent role with regard to the management of cases of pneumonia due to bacteria which are susceptible to that agent, namely pneumococcus, streptococcus and staphylococcus. The influenza bacillus and Friedländer's bacillus which are responsible for a small number of cases are not affected by penicillin so that they still require intensive treatment with the sulfonamide drugs. The latter have also been used frequently in conjunction with penicillin in the treatment of the coccal infections. During 1945 penicillin was still given almost entirely by injection, although evidence was accumulating that cases of pneumococcal pneumonia may respond favourably to treatment with large doses given by mouth under special conditions. Infections with organisms like the staphylococcus which are less susceptible to penicillin require doses that are too large to be effective when given orally, at least with the preparations that became available during 1945.

Evidence has also accumulated which suggests that pneumonia due to penicillin-susceptible bacteria and other lung infections of a more subacute or chronic type may respond favourably to treatment with penicillin given by inhalation. This involves inhalation of a vapour produced by the passage of a stream of oxygen through a concentrated solution of penicillin. Appreciable amounts of penicillin were found to be absorbed from the lung when it was given in this manner. In addition, it was shown by many workers that a large percentage of cases of empyema, one of the most frequent complications of bacterial pneumonia, can be cured by local and systemic treatment with penicillin. Operative procedures which usually entailed the resection of a rib for open drainage and were formerly required to cure these cases may thus be avoided in the majority of patients.

The search continued for the causative agent of the vast number of cases which have gone under the designation "primary atypical pneumonia, aetiology unknown," or commonly called "virus pneumonia." In a review of the status of this subject at the end of 1944, Major John H. Dingle, director of the commission on acute respiratory diseases of the United States army, stated that "no work has yet been reported, and confirmed by other investigators in the field, which describes the isolation in animals of an agent clearly related immunologically to the human disease." Two significant contributions to this subject, however, were published during 1945.

One of them was by members of the commission on acute respiratory diseases. Using untreated and filtered sputums or throat washings, these workers induced illnesses of varying severity in human volunteers that were in every way similar to the cases of atypical pneumonia which had been encountered in the army. The inoculated material was obtained from cases which had been produced in a previous similar experiment. The materials for the latter had been obtained directly from patients in army hospitals.

The second series of studies was reported by workers in California. They transmitted a filtrable virus from certain cases of primary atypical pneumonia to developing chick embryos by amniotic inoculation of bacteriologically sterile lung tissue or filtered sputum. The infected chick embryo tissue produced pulmonary lesions in cotton rats and hamsters similar to those which were produced in these animals by inoculation of infected human materials. The chick material was specifically neutralized by convalescent sera from patients, but not by their acute-phase sera. Passages in cotton rats and hamsters were complicated by infections with spontaneous viruses originating in the animals. In two-thirds of the patients with a diagnosis of primary atypical pneumonia, they succeeded in demonstrating a significant rise in neutralizing antibodies for this virus. One-half of the cases showing such a rise also developed cold agglutinins and agglutinins for indifferent streptococci such as had previously been described in similar cases. Pneumonia caused by pneumococci or by the viruses of influenza or psittacosis did not develop antibodies for the new virus.

Viruses similar to psittacosis and occurring in birds, especially pigeons, also continued to arouse interest. An outbreak of ornithosis similar to that which was described in New York city in 1943 was also studied in a pigeon platoon in the U.S. army. A virus was isolated from the tissues and from visceral lesions of infected birds. This virus produced intranuclear inclusions of the herpetic type and secondary inflammatory reactions. The virus was pathogenic for pigeons and embryonated hens' eggs, but was avirulent for rabbits, guinea pigs and mice. It was smaller and

immunologically different than the psittacosis virus. Both this virus and the psittacosis virus were found to be aetiologically significant in the epizootic, either the one, the other or both being found in different birds.

A small number of cases of human disease presumed to be cases of ornithosis were described in Philadelphia, Pa., late in 1944. They occurred mostly among pigeon breeders or persons who had more than ordinary exposure to such birds. Although viruses were not isolated from any of these cases, considerable sentiment was aroused among the local population in favour of destroying the stray pigeons in that city and in some other cities. There seemed to be no justification, however, for such a move. Proved cases of human disease transmitted from street pigeons are extremely rare, in contrast to the large numbers of cases of virus pneumonia which have been studied and found not to be caused by the pigeon virus. Furthermore, most of the proved cases of ornithosis have had a history of definite exposure to pigeons, usually occupational in character. The killing of stray pigeons would not eliminate the disease from the pigeon lofts of private breeders and it is the latter which have constituted the largest source of the proved cases that have been reported up to the end of 1945.

**BIBLIOGRAPHY.**—W. S. Tillett, J. E. McCormack and M. J. Cambier, "The Treatment of Lobar Pneumonia with Penicillin," *J. Clin. Investigation*, 24:589-594 (July 1945); M. Finland, M. Meads and E. M. Ory, "Oral Penicillin," *J.A.M.A.*, 129:315-320 (Sept. 29, 1945); P. A. Bunn, W. McDermott, S. J. Hadley and A. C. Carter, "The Treatment of Pneumococcal Pneumonia with Orally Administered Penicillin," *J.A.M.A.*, 129:320-327 (Sept. 29, 1945); A. L. Barach, F. H. Silberstein, E. T. Oppenheimer, T. H. Hunter and M. Soroka, "Inhalation of Penicillin Aerosol in Patients with Bronchial Asthma, Chronic Bronchitis, Bronchiectasis and Lung Abscess: Preliminary Report," *Ann. Int. Med.*, 22:485-509 (April 1945); J. E. Smadel, E. B. Jackson and J. W. Harman, "A New Virus Disease of Pigeons: I. Recovery of the Virus," *J. Exper. Med.*, 81:385-398 (April 1945); D. C. Levinson, J. Gibbs and J. T. Beardwood Jr., "Ornithosis as a Cause of Sporadic Atypical Pneumonia," *J.A.M.A.*, 126:1079-1084 (Dec. 23, 1944); editorial, "Do Pigeons Spread Virus Pneumonia?" *J.A.M.A.*, 129:805 (Nov. 17, 1945).

**FILMS.**—*Pneumonia* (Encyclopædia Britannica Films Inc.). (M. Fd.)

**Poetry:** see AMERICAN LITERATURE; BOOK PUBLISHING; CANADIAN LITERATURE; ENGLISH LITERATURE; FRENCH LITERATURE; PRIZES OF 1945; RUSSIAN LITERATURE; SPANISH-AMERICAN LITERATURE; SPANISH LITERATURE.

**Poland.** A republic in northeastern Europe, invaded by the Germans and partitioned by Germany and the U.S.S.R. in 1939; the whole of Poland was conquered by Germany in 1941 after the outbreak of the German-Russian War. The country was finally liberated in January 1945. Area (Sept. 1, 1939) c. 150,820 sq.mi.; pop. (official est. Jan. 1, 1939, including Teschen) 35,100,000. Capital: Warsaw (1,289,000). Other chief cities: Lodz (672,000); Lwow (Lemberg) (318,000); Poznan (Posen) (272,000); Cracow (259,000); Wilno (Vilnius) (209,000). Acting president (1945): Boleslaw Bierut, chairman of national home council (provisional parliament); prime minister: Edward Osobka-Morawski.

**History.**—From Dec. 31, 1944, Poland had two governments—one in Lublin, sponsored by the U.S.S.R. and dominated by the Communist party, and another in London, recognized by the United States and Great Britain. To find a way out of this deadlock Prime Minister Churchill, President Roosevelt and Marshal Stalin decided at the Crimea conference (Feb. 11, 1945) that there should be created a "Polish provisional government of national unity" and the Lublin administration (later transferred to Warsaw) should be reorganized to include "other Polish democratic leaders from within Poland and from abroad." The three powers jointly engaged that "free and unfettered elections on the basis of universal suffrage and secret ballot" should be held as soon as possible. After four months of diplomatic discussion between Moscow, London and Washington about the exact interpretation of the Crimea decision, a Polish round table conference met in Moscow on June 17 to discuss the formation of a new Polish government. Among the leaders from within Poland and from abroad attending the conference were Stanislaw Mikolajczyk, former prime minister of the Polish government in London, and Wladyslaw Kiernik (sent to Moscow by the aged Peasant leader Wincenty Witos), representing the Polish Peasant party, which after Nov. 29, 1944, remained outside the Polish government in London. On June 28 the composition of the gov-

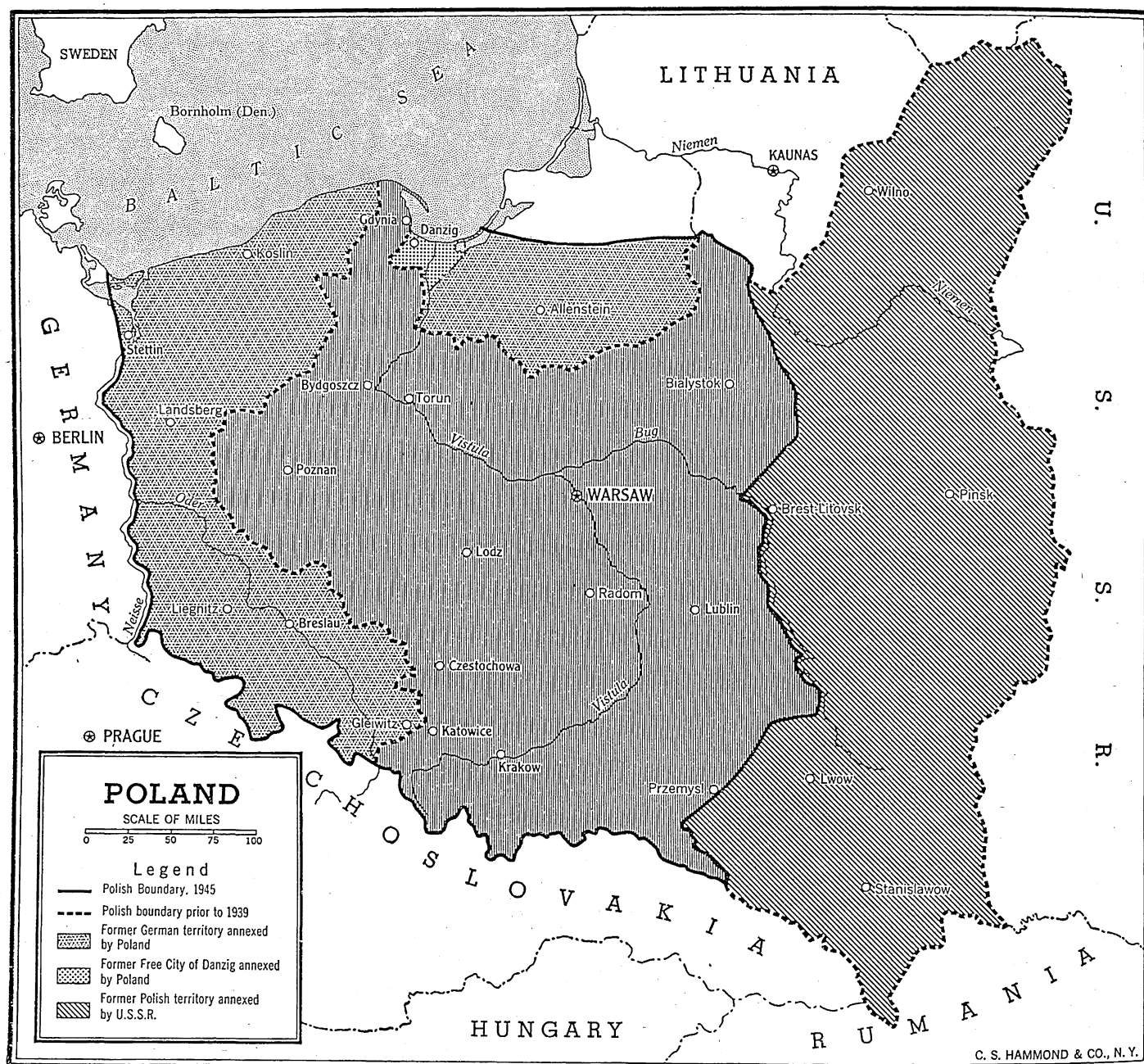
ernment was announced in Warsaw. It showed that the soviet interpretation of the Crimea declaration prevailed. The U.S.S.R. had always maintained that the "Polish government of national unity" should not be an entirely new one, including representatives of existing Polish parties and representative national Polish figures, but that the existing Warsaw administration should be enlarged. Of the 21 members of the cabinet, only five were newcomers, the most important being M. Mikolajczyk, who became second deputy premier and minister of agriculture. Edward Osobka-Morawski, leader of a split Socialist group, remained prime minister.

On June 26, 1945, the Polish government in London, with Tomasz Arciszewski as prime minister, handed to all the governments of the United Nations, except the U.S.S.R., a note protesting against the new government as "illegal," declaring that they would hand over authority solely to a government formed on free Polish soil and which reflected the will of the people, as expressed in free elections. On June 29 Wladyslaw Raczewicz, president of the Polish republic, in a message to the Polish people said that he remained at his post but was ready to hand over office to a successor, "chosen by the nation in democratic elec-

tions, free from violence and threats of any kind."

On July 5 the British and the U.S. governments recognized the Polish provisional government of national unity and withdrew recognition from the government in London. An interim treasury committee was appointed to liquidate the affairs of the London Polish government. Great Britain sent Victor Frederick William Cavendish Bentinck as ambassador to Warsaw and the United States appointed Arthur Bliss Lane as its ambassador. On Oct. 17 Henryk Strasburger presented his letters of credence as new Polish ambassador in Great Britain. In November Oskar Lange, professor at the University of Chicago, who had renounced his U.S. citizenship and resumed his Polish nationality, was appointed Polish ambassador to the U.S.

While the Moscow round table conference was meeting, 16 leaders of the Polish underground were tried before a soviet court on a charge of "organizing terrorist and sabotage acts and of maintaining clandestine wireless stations in the rear of the Red army." Major General Leopold Okulicki, last commander in chief of the Polish home army, was on June 21 sentenced to ten years' imprisonment; Jan Stanislaw Jankowski, deputy prime minister of the Polish government in London and its delegate-







BLOWN-UP PHOTOGRAPH of a wall drawing by a Polish patriot. The photograph was taken during the German occupation of Warsaw and obtained from a member of the underground movement in 1945

general in Poland, to eight years' imprisonment; other leaders received terms of imprisonment varying from four months to five years. Three of the accused were acquitted. In November three of the defendants in the Moscow trial were freed by the Russians and returned to Poland. They were Kazimierz Puzak, of the Socialist party, condemned to 18 months' imprisonment; Kazimierz Baginski, of the Peasant party, condemned to 12 months, and Aleksander Zwierzynski, of the National party, condemned to 8 months.

On Nov. 3 the praesidium of the national council of the homeland (provisional parliament) decided that the following six political parties should be allowed in Poland: the Polish Workers' (Communist) party led by Boleslaw Bierut and Wladyslaw Gomolka; the Polish Socialist party led by Edward Osobka-Morawski and Jozef Cyrankiewicz; the Peasant party led by Wladyslaw Kowalski, the Polish Peasant party led by Stanislaw Mikolajczyk (elected as chairman in place of Wincenty Witos who died in Cracow on Oct. 31 at the age of 71); the Democratic party led by Wincenty Rzymowski and Leon Chajn, and the Labour (Christian-Democrat) party led by Karol Popiel and Zygmunt Felczak. The above decision meant also the stopping of the legalization of the National party led by Aleksander Zwierzynski and Stanislaw Jasiukowicz (sentenced to five years' imprisonment at the Moscow trial) and of the Polish Social-Democratic party led by Zygmunt Zulawski and claiming to represent the real Socialist movement.

Prior to the formation of the Polish provisional government of national unity, Marshal Joseph Stalin, chairman of the council of people's commissars of the U.S.S.R., and M. Osobka-

Morawski, chairman of the council of ministers and minister for foreign affairs of the Polish republic, signed in Moscow, on April 21, a treaty of friendship, mutual assistance and postwar collaboration.

On Aug. 2, 1945, in Berlin, Prime Minister Clement Attlee, President Truman and Generalissimo Stalin published a statement establishing a new *de facto* western frontier of Poland along the rivers Oder and Lausitzer Neisse. On Aug. 16 Vyacheslav Molotov, soviet foreign commissar, and M. Osobka-Morawski signed in Moscow a treaty on the delimitation of the soviet-Polish frontier under which the U.S.S.R. ceded to Poland two small areas east of the so-called Curzon line, one about 50 mi. northeast of Lwow and one in the Bialowieza forest. Under these agreements Poland was shifted westward. In the east it lost 69,860 sq.mi. with 10,772,000 inhabitants, including approximately 3,900,000 Poles; in the west (if the new frontier were recognized by the peace conference) it stood to gain 38,986 sq.mi., which before the war had a population of 8,621,000, including 1,000,000 Poles.

*Repatriation of the Poles.*—There were 989,545 civilian displaced persons and some 150,000 former prisoners of war in western Europe on Oct. 1, 1945. The repatriation of the Poles began only on Oct. 15 on rather a small scale of 3,000 daily. No compulsion was used and up to the end of October about 60% of the displaced persons had expressed their readiness to return.

As to the Polish armed forces, at the instance and with the co-operation of the British authorities, a referendum was held among them to ascertain the number of those wishing to return to Poland immediately. Out of a total of more than 215,000 persons, 37,250 (17.3%) from all areas and units declared themselves ready to return at once.

*Poland's Part in Victory.*—The Polish armies in the west and east played an active part in the operations which resulted in victory in Europe. In the west the 1st Polish armoured division commanded by General Stanislaw Maczek, operating with the Canadian 1st army, reached Wilhelmshaven, Germany, on May 6, 1945, after a brilliant campaign, which started at Falaise, France, on Aug. 15, 1944, and during which the division took more than 13,000 prisoners. In Italy the 2nd Polish

army corps commanded by General Wladyslaw Anders, fighting with the British 8th army, participated in the taking of Bologna on April 21 following a 12-day battle in which the Poles lost 2,000 in killed alone. On the eastern front ten Polish divisions grouped in two Polish armies fought in the army groups of Marshals Georgi K. Zhukov and Ivan S. Konev.

Ten Polish air force fighter squadrons, operating from Great Britain from Aug. 1940 until May 8, 1945, shot down a total of 754<sup>3</sup>/<sub>4</sub> enemy aircraft. Top-scorer of the Polish fighter pilots was Major Stanislaw Skalski, with 19<sup>3</sup>/<sub>4</sub> victories to his credit. Four bomber squadrons took part in 1,468 operations, making a total of 11,681 sorties. They dropped more than 32,000,000 lb. of bombs and mines. During this period, the Polish air force operating from Great Britain lost 1,968 officers, noncommissioned officers and men. The Polish navy lost during the war 1 cruiser, 4 destroyers, 1 mine layer, 2 submarines and 15 smaller craft; a total of 23 ships with an aggregate tonnage of more than 30,000 tons.

A comprehensive analysis of military and civilian casualties suffered by Poland from the outbreak of World War II compiled by the Polish military headquarters in London showed that roughly 10,000,000 people, or more than 28% of the country's prewar population, had been killed, wounded, taken prisoner, deported or sent to concentration camps. Army, navy and air force casualties were estimated at 1,045,000, including 218,400 killed.

**Banking and Finance.**—(In thousands of \$): Revenue (est. 1939-40) 455,400; expenditure (est. 1939-40) 466,219; public debt (March 31, 1939) 995,689; gold reserve (Aug. 31, 1939) 83,062. Bank notes in circulation (Aug. 31, 1939) 361,820. Exchange rate (Aug. 1939) 1 zloty = 18.75 U.S. cents.

**Trade and Communication.**—Foreign trade (in thousands of \$): imports, merchandise (1938) 243,675; exports, merchandise (1938) 222,075. Communications: roads (1937) 36,689 mi.; railways, main lines (1937) 11,223 mi.; shipping (July 1, 1939) 63 vessels, totalling 121,630 tons gross.

**Agriculture, Mineral Production, Manufacturing.**—(In short tons) (1939): wheat 2,502,200; barley 1,631,400; rye 8,411,000; oats 3,174,600; (1938) maize 139,100; potatoes 38,093,500; beet sugar 426,600; coal 42,002,000; petroleum 558,900; pig iron and ferroalloys 1,067,000; steel 1,720,400.

**Pole Vaulting:** see TRACK AND FIELD SPORTS.

**Police.** The sixth and final year of World War II intensified the blackout on police operations. In part this was due to the military occupation of axis countries and their satellites, and in part to an understandable decline in police reports from the powers which still exercised control over their civil police establishments.

Police in countries in or near the theatres of war continued to serve virtually as military aides on the home front. For example, the metropolitan police of London reported 640 air raid alerts during 1944, and increasing police activity with the introduction of the V-1 and V-2 flying bombs.

The close of the war brought few immediate changes in police problems or in police dispositions to meet them, although the quick termination of gasoline rationing in the United States brought response in terms of traffic congestion and highway accidents. In all countries the most pressing questions clustered around basic problems of police manpower, and the ways and means for returning it to peacetime duties. Auxiliary police organizations, set up in many parts of the world to cope with actual or anticipated attack from the air, dwindled away and some were disbanded. This necessary redeployment of civil aides found many police forces ill-prepared to take over impending postwar activities. There was consequent widespread agitation for increases in numerical strength, but little evidence of increased precautions to assure an improved quality of police recruiting.

On April 30, 1945, municipal police forces in the U.S. showed a further decline in numerical strength. The comparisons appearing in Table I serve, however, to emphasize the minor degree of average decline.

Table I.—Numerical Strength of U.S. Municipal Police Forces, 1941-45

(Number per 1,000 inhabitants)					
Population groups of cities					
	1941	1942	1943	1944	1945
Group I—Over 250,000 . . . . .	2.12	2.13	2.07	2.02	1.94
Group II—100,000 to 250,000 . . . . .	1.45	1.50	1.47	1.45	1.42
Group III—50,000 to 100,000 . . . . .	1.37	1.46	1.40	1.36	1.35
Group IV—25,000 to 50,000 . . . . .	1.23	1.29	1.24	1.21	1.22

Special interest attaches to the geographic distribution of police, as arranged by population groups of cities in Table II. It

is there apparent that not only geographic location but size of city may have some influence on the numerical strength of a local police establishment. In general the largest quotas of police were found in the northeastern sector of the U.S., while the decline in police ratios in step with declining size also was too striking to be missed.

Table II.—Geographic Distribution of the Numerical Strength of U.S. Municipal Police Forces, Arranged by Population Groups, 1945

Geographic divisions	(Number per 1,000 inhabitants)				General Ratio
	Group I over 250,000	Group II 100,000 to 250,000	Group III 50,000 to 100,000	Group IV 25,000 to 50,000	
New England . . . . .	2.58	1.87	1.61	1.45	1.85
Middle Atlantic . . . . .	2.15	1.56	1.51	1.33	1.96
East North Central . . . . .	1.84	1.11	1.27	1.03	1.55
West North Central . . . . .	1.68	1.07	0.95	0.91	1.37
South Atlantic . . . . .	2.14	1.42	1.31	1.37	1.67
East South Central . . . . .	1.09	1.21	1.32	1.26	1.18
West South Central . . . . .	1.31	1.28	1.19	1.11	1.25
Mountain . . . . .	1.34	1.16	1.28	1.03	1.21
Pacific . . . . .	1.80	1.59	1.36	1.34	1.68
Average . . . . .	1.94	1.42	1.35	1.22	1.68

Such averages illuminate the general situation, but do not of course reflect the condition in any given community, and there were many of these, both large and small, where the manpower loss was quite substantial. This was particularly true of U.S. state police organizations, which continued to operate at manpower levels that were far below the prewar average. Early return of police in the military services represents the most obvious and the soundest approach to a restoration of numerical strength, but as the year 1945 ended it seemed unlikely that the efforts of police administrators to secure preferential treatment in the military discharge of police officers would succeed.

With police equipment everywhere heavily deteriorated due to deferred maintenance and replacement, police systems throughout the world were busily engaged in appraising the prospects for securing surplus but serviceable military equipment that might prove adaptable to police requirements. Various types of motor equipment and of firearms were particularly in demand, while the possible future use of the so-called "walkie-talkie" radio sets inspired wide but inconclusive speculation in police circles.

Police effectiveness as measured by the percentage of reported crimes that are cleared by arrest showed no marked changes from prior levels. Table III presents the situation in U.S. cities.

Table III.—Per Cent of Crimes Cleared by Arrest in United States Cities 1941-44

Offenses	1941	1942	1943	1944
Murder and non-negligent manslaughter . . . . .	88.1	90.6	90.5	90.8
Negligent manslaughter . . . . .	86.6	86.1	84.0	81.5
Rape . . . . .	76.2	81.2	74.0	74.8
Robbery . . . . .	40.4	43.3	38.1	38.7
Aggravated assault . . . . .	75.0	80.5	73.7	75.7
Burglary; breaking or entering . . . . .	32.0	31.5	30.7	31.6
Larceny (except auto theft) . . . . .	22.7	25.0	24.1	23.6
Auto theft . . . . .	24.4	24.6	26.5	24.4

Notable, as always, was the small proportion of clearances of crimes against property. Since these, taken together, represent about 95% of all reportable offenses, the continuing failure to solve a larger proportion might well be a factor contributing to the high crime rates which prevailed in the U.S.

The first postwar congress of the International Association of Chiefs of Police was held at Miami Beach, Fla., during Dec. 1945. Brigadier D. C. Draper of Toronto, Canada, presided. Greatest single concern of the membership, as reflected in the papers read and discussed, was the extent and character of the traffic problem beginning to emerge. In general the sessions served to emphasize the increasing awareness of police administrators of the existence of many problems that are common to them all. The state and provincial section of the association continued to display special acuteness in this regard, and carried

on its own program of discussions which were supplementary to those of the general association. The next congress of the association was scheduled to be held in Mexico City in 1946. (See also CRIME; FEDERAL BUREAU OF INVESTIGATION; KIDNAPPING; SECRET SERVICE, U.S.)

**BIBLIOGRAPHY.**—*Uniform Crime Reports* (quarterly) for 1941, and (semiannually) for 1942, 1943, 1944 and the first half of 1945 (Federal Bureau of Investigation, Washington, D.C.); *Municipal Year Book, 1945* (International City Managers' Association, Chicago); *Report of the Commissioner of Police of the Metropolis for the Year 1944* (London, 1945); *The Police Yearbook, 1944* (International Association of Chiefs of Police, Washington, 1945). (Br. S.)

**Poliomyelitis:** see INFANTILE PARALYSIS.

**Political Parties, Great Britain:** see COMMUNISM; CONSERVATIVE PARTY; LABOUR PARTY; LIBERAL PARTY.

**Political Parties, U.S.:** see COMMUNISM; DEMOCRATIC PARTY; ELECTIONS; REPUBLICAN PARTY; SOCIALISM.

**Polo.** After the end of World War II, the United States Polo association made plans for the revival of the sport. These plans included the resumption of large-scale polo, with special emphasis on low goal polo events in 1946 to encourage and develop younger players, who had not taken up the sport because of the game's virtual standstill through the war years.

There was also the possibility of visits by Mexican and Argentine teams to stimulate interest in the game and provide new ponies to the badly depleted U.S. supply. A good start had been made in 1945 toward returning polo to its prewar popularity, and the officers of the governing body of the sport felt that the game would thrive and grow in the years ahead. Florida and California staged their first formal polo in four years at the end of 1945. (R. F. K.)

**Popular Music:** see MUSIC.

**Population, Movements of:** see REFUGEES.

**Populations of the Countries of the World:** see AREAS AND POPULATIONS OF THE COUNTRIES OF THE WORLD.

**Porto Rico:** see PUERTO RICO.

**Portugal.** A republic of western Europe, forming part of the Iberian peninsula and bounded on the N. and E. by Spain and on the S. and W. by the Atlantic ocean. Area (including Azores and Madeira), 35,424 sq.mi.; pop. (census Dec. 12, 1940), 7,722,152. Chief towns: Lisbon (cap. 709,179);

Oporto (262,309). President: Gen. Antonio Oscar de Fragoço Carmona; premier in 1945: Dr. Antonio de Oliveira Salazar; language: Portuguese; religion: Christian (mainly Roman Catholic).

**History.**—The last months of World War II in Europe witnessed some striking contrasts in Portugal. In Jan. 1945 the Luft-Hansa was accelerating its services between Germany and the peninsula. Soon afterward, Germans were reported to be busily transferring their money into tangible assets. But, immediately after V-E day, the Portuguese government closed the German legation and consulates and sequestered all German property, whether or not owned by the reich, claiming to be the first neutral government to have seized German private property.

The budget for the year 1945 showed a surplus of £1,250,000, which compared with an estimated surplus of only £9,000. After the defeat of Germany, textile mills received numerous orders from the United States for the liberated countries and from France for North Africa. In other respects, too, trade improved. But the cost of living remained very high; many kinds of food were unobtainable; and the influx of workers into the large towns had caused a serious housing shortage and stimulated the construction of housing estates which was progressing rapidly.

At the end of September it was announced that the national assembly was to be dissolved and general elections held on Nov. 18. The press censorship was relaxed and new political parties were to be allowed so long as their programs came within the framework of the existing regime, but a widespread opposition desire for the postponement of the elections by six months and the reopening of the electoral register was disregarded. During October opposition to Dr. Salazar developed considerably and numerous meetings were prohibited by the government.

Opposition to Dr. Salazar therefore took the form of a boycott of the elections, and the only candidates presented were from the government's party, União Nacional. The result was therefore a foregone conclusion. The government subsequently claimed to have had the support of two-thirds of the electorate but at the beginning of Dec. 1945 no exact figures had been given. (E. A. P.)

**Education.**—Elementary (1942-43) schools 7,714, scholars 542,925; secondary schools 42, scholars 15,346; universities 3, students 9,927.

**Banking and Finance.**—Revenue, ordinary (est. 1945) \$109,445,000; expenditure, ordinary (est. 1945) \$109,326,000; public debt (Dec. 31, 1944) \$404,820,000; notes in circulation (May 30, 1945) \$304,971,300; gold reserve (May 30, 1945) \$56,699,800; exchange rate (average 1945) 1 escudo=4.002 cents U.S.

**Trade and Communication.**—External trade 1944 (merchandise): imports \$156,812,000; exports \$126,652,800. Communications and transport (1945): roads, first- and second-class 9,180 mi.; railways, open to traffic, 2,191 mi.; motor vehicles licensed (1944): cars 47,469; motor-cycles 4,604; cycles 141,872; shipping (Jan. 1, 1943): 315,534 gross tons.

**Agriculture and Other Production.**—Production 1943 (in short tons): wheat 324,747; maize 370,635; wine 370,000,000 gal.; coal 578,900; rye 108,880; oats 77,227; rice (1939) 81,440; barley 52,710; potatoes 980,512; olive oil 96,791; sea fisheries (excluding cod fishing) 270,525. (See also PORTUGUESE COLONIAL EMPIRE.)

**Portuguese Colonial Empire.** Total area (approx.) 803,833 sq.mi.; total population (census, 1940) 10,879,415 excluding Portugal, the Azores and Madeira. Certain essential statistics of the colonial possessions of Portugal are given in the accompanying table.

**History.**—The minister for the colonies, Dr. Marcelo Cae-

Portuguese Colonial Empire

Country and Area (in sq. miles)	Popula- tion, Census, 1940 (000's omitted)	Capital, Status, Governor	Principal Products Exports—1943 (in short tons)	Imports and Exports—1943 (in \$'000)	Road, Rail and Shipping 1943	Revenue and Expenditure est. 1943 (in \$'000)
AFRICA						
Angola (Portuguese West Africa) 481,351	3,738	Luanda, colony, governor-gen- eral: Commander Vasco Lopes Alves	maize 88,738 cane sugar 45,904	imp. 14,203 exp. 23,735	rds. 21,949 mi. rly. 1,477 mi. shpg. (entered) 2,147,315 tons	rev. and exp. 12,547
Cape Verde Is. 1,557	181	Praia, colony, governor: Com- mander João de Figueiredo	salt 13,164 preserved fish 164 coffee 11	imp. 2,329 exp. 1,153	rds. 326 mi. shpg. (entered) 736,657 tons	rev. and exp. 798
Portuguese Guinea 13,948	351	Bolama, colony, governor: Com- mander Manuel Maria Sar- mento Rodrigues	groundnuts 38,828 palm kernel oil 513	imp. 3,871 exp. 3,899	rds. 1,649 mi. shpg. (entered) 131,917 tons	rev. and exp. 1,529
São Tomé and Príncipe Is. 372	60	São Tomé, colony, governor: Capt. Carlos de Sousa Gor- gulho	cacao 5,510 coffee 323	imp. 925 exp. 1,761	rds. 199 mi.	rev. and exp. 463
Mozambique (Portuguese East Africa) 297,731	5,086	Lourenço - Marques, colony, governor-general: General João Tristão de Bettencourt	cane sugar 59,553 groundnuts 8,774	imp. 22,356 exp. 14,568	rds. 16,667 mi. rly. 1,349 mi. shpg. (entered) 4,521,425 tons	rev. and exp. 23,099
ASIA						
Portuguese India 1,537	624	Nova Gôa, colony, governor- general: Colonel José Ricardo Pereira Cabral	fish, spices, coconuts and copra	(1940) imp. 4,081 exp. 796	rds. 411 mi. rly. 50 mi. shpg. (entered) 698,414 tons	rev. and exp. 2,300
Macao 6.2	375	Macao, colony, governor: Com- mander Gabriel Maurício Teixeira	fish, cement, preserves	—	(1940) rds. 12 mi.	rev. and exp. 1,651
Timor 7,332	est. 1936 464	Dilly, colony, governor: Capt. Manuel de Abreu Ferreira de Curvalho	coffee, sandal- wood, wax, copra	(1940) imp. 145 exp. 166	(1939) rds. 1,039 shpg. (entered) 91,215 tons	rev. and exp. 377



tano, paid a visit to Africa in the summer of 1945. Mails and other communications between Portugal and its colonies were being improved and Mozambique was to have a complete system of radio communication, the contract for which was being placed with a British firm. An exhibition of colonial construction publicized the notable work being done throughout the empire in the building of roads, bridges, harbours, schools, churches and hospitals. Ten decrees made important changes in the colonial health services and created a department of colonial organization.

(E. A. P.)

**Portuguese East Africa:** *see* PORTUGUESE COLONIAL EMPIRE.

**Portuguese Guinea:** *see* PORTUGUESE COLONIAL EMPIRE.

**Portuguese West Africa:** *see* PORTUGUESE COLONIAL EMPIRE.

**Post Office.** The audited revenues of the post office department for the fiscal year 1945, as stated in the records of the comptroller general of the United States, amounted to \$1,314,240,132.07. This was the highest in postal history and \$201,362,957.75 higher than in 1944, which was the next highest.

There was also reported to the treasury department the items stated in the act of June 9, 1930, indicating the estimated postage that would have been collected if the services had been on a regular pay basis, in the case of penalty and franked mail, free-in-county mail, differentials in second-class mail matter and free matter for the blind. These amounted to \$116,198,782.00.

The expenses of the department for the fiscal year as audited amounted to \$1,145,101,184.42, of which amount \$33,851,525.19 was on account of prior years. There was \$40,348,383.77 unpaid on account of the 1945 fiscal year. This left a total expense for the fiscal year 1945 of \$1,151,598,043.00 resulting in a gross operating surplus on an accrual basis of \$162,642,089.07.

Effective March 27, 1942, free mail privileges were granted to members of the armed forces. It was estimated that 1,100,000,000 pieces of first-class mail were mailed during the fiscal

year 1945 by U.S. soldiers and sailors. The revenue which would have been derived from this mail at the rate of 3 cents apiece would have amounted to \$33,000,000.

The tremendous increase in the volume of mail handled by the post office department for other branches of the government had been a matter of concern to congress and the department for a number of years. Thousands of tons of forms, pamphlets, circulars and supplies were being sent by government departments and establishments free of postage under the "penalty privilege." In order to control and limit the use of the penalty mail privilege, congress passed the "penalty mail law," effective July 1, 1944, which provided that departments and agencies (except the war, navy and post office departments) account for all matter bearing the penalty indicia and pay into the treasury as miscellaneous receipts, and not as postal revenue, the cost of handling such matter. The records disclosed that during the fiscal year ended June 30, 1945, there were mailed free 1,908,629,519 pieces, weighing 310,152,295 lb., a decrease of 286,956,796 pieces and an increase of 5,745,875 lb. from the fiscal year 1944.

The intensive bond and stamp sales program, inaugurated May 1, 1941, in co-operation with the treasury department, was greatly expanded after U.S. entry into the war. On June 30, 1945, war savings stamps were on sale at 41,792 post offices. Sales from July 1, 1944, to June 30, 1945, amounted to \$275,531,131.10.

From March 1, 1935, when the U.S. savings bonds were placed on sale at post offices to June 30, 1944, there were sold through the postal service 116,152,021 bonds, having a sale value of \$7,363,975,950. During the fiscal year ended June 30, 1945, 28,719,147 bonds, having a sale value of \$1,180,198,331.25 were sold. At the close of 1945 bonds were on sale at 25,380 post offices, including 1,342 branches and stations, a net increase of 1,086 over the preceding year.

Through the 41,792 post offices and 3,402 stations being conducted under contract agreement, as well as 1,946 classified stations and branches, there were received, transported and delivered 37,900,000,000 pieces of mail matter during the fiscal year, having a weight of 3,700,000 tons, representing an increase over the previous fiscal year of 3,900,000,000 pieces of mail and 200,000 tons.

On June 30, 1945, there were 3,402 stations being conducted under contract agreement. The average cost per contract unit was \$697, and the total cost of operation during the fiscal year amounted to \$2,372,265, whereas the receipts from the sale of stamps at these contract stations amounted to \$49,469,136 during the calendar year 1944.

During the fiscal year, city delivery service was established in 152 additional cities, thereby increasing to 3,884 the number of cities in which this service was in operation. Of this number, 119 were changed from village delivery to city delivery service. Village delivery was in operation at 240 post offices.

**Postmasters.**—During the fiscal year there were made 2,572 presidential appointments of postmasters at offices with salaries of \$1,100 to \$12,000. Fourth-class postmasters were commissioned to 1,878 offices during the year as vacancies occurred through various causes.

**Dead Letters.**—During 1945, 14,144,856 letters were impossible of delivery, a decrease of more than 8.56% from the previous year. This number was due mainly to the large number of incorrectly addressed letters for the military and naval forces and for civilians who moved incident to changes in location due to war work. A total of 2,655,919 letters were returned to the senders, of which 368,854 were found to contain valuable enclosures; 78,143 of them contained money, amounting to \$193,974. There were also 633,947 unclaimed parcels

MAILMEN on the jungle trails of Luzon made deliveries to the U.S. armed forces early in 1945, accompanied by armed guards and Filipino guerrillas





U.S. ARMY POSTAL unit, composed of Negro WAC officers and Negro enlisted women, arriving for overseas duty in England during Feb. 1945. The unit was to handle the army postal directory service for the entire European theatre

and articles found loose in the mails. These parcels were sold at public auction and \$180,413 realized.

*Air Mail.*—On June 30, 1945, there were 56,849 mi. of domestic air mail routes, an increase of 7,367 mi. over June 30, 1944. During 1945 four new domestic air mail routes were established.

The air mail service, established as one of the most vital postal services, owing to the need it filled in connection with the wartime demand for speed, handled a volume of mail approximating a 46% increase in pound-miles over 1944.

*Rural Delivery.*—The rural delivery routes in operation on June 30, 1945, required a total daily travel of 1,435,059 mi. by rural carriers in providing service to approximately 29,508,497 patrons. The policy of consolidation of rural routes to absorb vacancies was continued. Operation of the rural delivery service resulted in an expenditure of \$107,046,080 for the fiscal year as compared with \$104,676,676 for the previous year, an increase of \$2,369,404 over 1944. The amounts saved through consolidation of routes were utilized to establish new routes and provide extension of existing routes. Thereby 6,584 more miles were covered by rural carriers at the close of the fiscal year 1945 than in 1944. Rural delivery service was transferred from the jurisdiction of the second assistant postmaster general to the first assistant postmaster general on July 1, 1942, to co-ordinate it better with other delivery services.

*Postal Savings.*—The postal savings system continued to merit a widespread public demand for its services; the depositors numbered 3,921,937 for 1945, an increase of 12% from the preceding year. The balance due depositors represented by outstanding certificates of deposit was \$2,659,444,420, an increase of \$625,431,442 or about 30.7%. In addition, there was held in trust for depositors accrued interest of \$72,363,396, and unclaimed deposits of \$130,541, making a total of \$2,731,938,357.

At the end of the year, postal savings certificates were on sale at 7,162 depositories, including 888 branches and stations, but savings stamps were on sale at all post offices and practically all branches and stations.

*Buildings.*—During the fiscal year ended June 30, 1945, the post office department operated 3,261 government-owned buildings. Owing to the war and the cessation of the public building

program, no new buildings were completed during the fiscal year. Through reassignments of space within these buildings, agencies of the government which were occupying or had intended to occupy commercial quarters were accommodated, with a saving of \$55,037.14.

Expiring leases numbering 897 were renewed in the year 1945. Where necessary to meet increased service needs, larger quarters and superior facilities were obtained, and in other cases necessary improvements were secured in the occupied quarters. The square foot cost of renewing leases was increased from 70 cents in 1944 to 88.7 cents in 1945. One hundred and forty-six new leases were made, including 95 for offices previously occupying space on a monthly rental basis, the new contracts providing improved quarters and in many instances complete new equipment. (I. Gg.)

*Great Britain.*—The 1945-46 budget estimate of expenditure—\$500,146,500—was \$3,582,200 above the 1944-45 figure, additional war expenditure for both years being met from votes of credit. The revenue estimate—\$459,252,500—was \$6,963,200 above the 1944-45 figure. For both years the revenue estimates included war surcharges on tariffs but excluded the value of services for government departments, and also wireless licence revenue, which was accounted for separately. Commercial accounts remained suspended to save work. Savings had continued to increase during the year 1944, although the general rate of increase slackened. On Dec. 31, 1944, the balances held by depositors in the post office savings bank amounted to \$6,013,003,800, the number of depositors' accounts having risen to more than 19,000,000. Holdings of government stock on the post office register numbered 3,400,000, totalling \$361,231,700. These figures included 2,400,000 holdings of 3% defense bonds totalling \$2,883,067,200. The number of investors in National Savings certificates rose to 18,500,000 with a total holding of \$5,904,340,900 (excluding interest).

The war resulted in a large increase in the number of persons entitled to receive pensions and services allowances through the post office. About 12,000,000 separate payments were made in this connection at local post offices each week, and the total of the sums paid during the year was more than \$2,334,500,000. There were also about 200,000 payments weekly in respect to billetees.

Some slight curtailment of delivery and collection services was necessary in the London area; otherwise the restricted wartime postal services were maintained throughout the year; but from Oct. 1, 1945, a beginning was made to restore prewar facilities. In consequence of the successful warfare against enemy submarines the number of losses of surface mails at sea was reduced.

Postal facilities for communicating with forces and merchant navy personnel overseas were considerably developed. By the middle of the year all letters up to 1 oz. in weight, prepaid 1½d. in the outward direction and free of postage in the homeward direction, were being conveyed by air between the United Kingdom and forces in almost all areas. Reduced air mail rates for letters exceeding 1 oz. in weight were introduced concurrently. These arrangements resulted in a great decrease in the number of letters sent by the airgraph service, and the service was ended on July 31. Following the close of hostilities the air mail service was restored to many of the liberated countries. The 6d. air letter service remained available for civilian addresses in British empire countries and certain foreign countries in Africa and Asia.

Telephone and telegraph services were carried on in the face of increasing difficulties, chiefly arising from continued growth in the volume of traffic, and many European telegraph services which had been suspended during the war were reopened. The



handling of increasing traffic with limited staff and plant inevitably affected the quality of the service given to the public but there was no breakdown at any time. The requirements of the fighting and defensive services necessarily had a prior claim and invariably were fully and promptly met.

The volume of postal traffic in general remained below the prewar level, mainly by the reduction in circular advertising, but wartime work at public counters combined with pressure in the telegraph and telephone services required additional staff, and the total staff employed on July 1 exceeded 303,000, including more than 143,000 women. Of the members of the prewar staff 73,000 (including about 2,800 women) were serving with the forces and nearly 4,000 were on loan to other departments. (See also PHILATELY; PHOTOGRAPHY.) (S. R. C.)

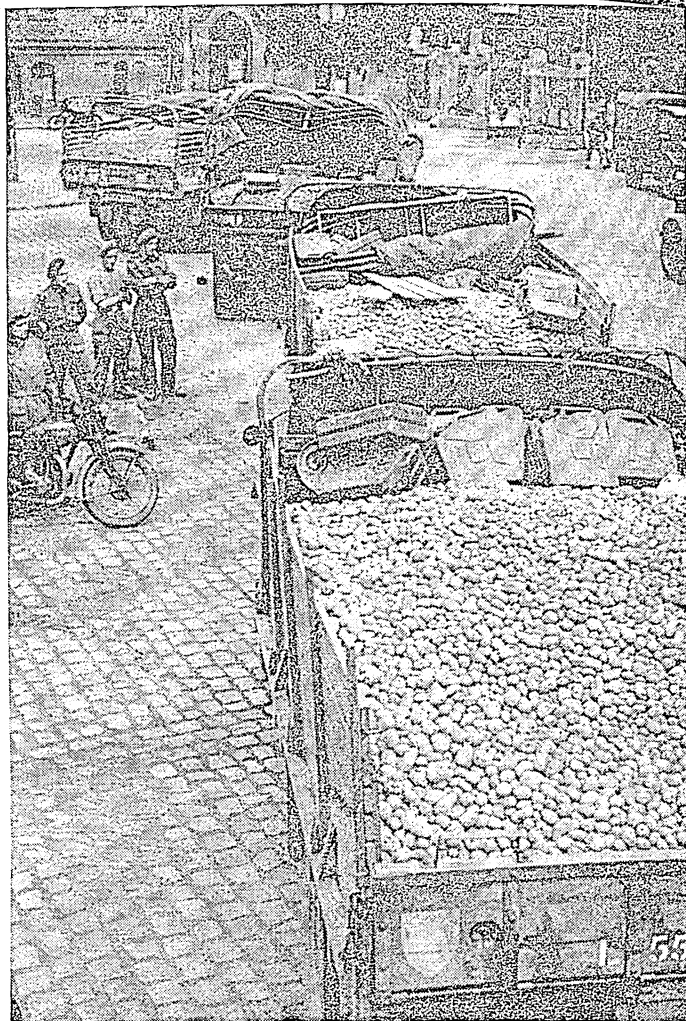
**Postwar Planning:** see RECONSTRUCTION PLANNING.

**Potash.** The potash industry of the United States made a new record high in 1944, for the 11th successive year. Output increased from 739,141 short tons of contained  $K_2O$  in 1943 to 834,568 tons in 1944, while the corresponding sales rose from 732,151 tons to 817,892 tons. During 1939-42 inclusive sales were in excess of production, and stocks declined almost to the vanishing point, but were improved slightly in 1943 and 1944.

The only European producer from which late data was received was Spain, where the gross output increased from 484,639 short tons in 1943 to 753,452 tons in 1944, with  $K_2O$  contents of 78,264 tons and 141,100 tons respectively. French plants were expected to resume operation as soon as fuel, power and transportation were available. Working of the German mines was hampered by the same difficulties. Polish mines were reported to have been flooded, and would be out of commission indefinitely. (See also FERTILIZERS.) (G. A. Ro.)

**Potatoes.** The 1945 potato crop in the United States was estimated by the U.S. department of agriculture at 430,773,000 bu. compared with 379,436,000 bu. produced in 1944 and the previous record crop of 464,900,000 bu. in 1943 and a ten-year average of 375,091,000 bu. 1934-43. The total potato acreage was 2,846,000 compared with 2,910,000 in 1944 and a prewar average of 3,036,000 1934-43. The yield of 150.6 bu. per ac. was a new high compared with the previous record of 139.6 bu. in 1943 and 130.4 bu. in 1944. The ten-year average 1934-43 was 124 bu. per ac. Yields were particularly high in the 18 surplus late potato states, 167.2 bu. per ac. compared with the previous record of 161.1 bu. per ac. in 1943. These 18 states produced almost 300,000,000 bu. of the total crop. Maine production was about 52,785,000 bu. or about 500,000 bu. more than in 1944 but below the record of 73,000,000 bu. in 1943. Idaho was second with 44,220,000 bu. compared with 39,100,000 bu. in 1944. The large late crop and the reduction in military requirements made large supplies available to civilians. Consumption was considerably above the 126 lb. per capita of 1944. Ceiling prices were suspended in September and the price support program was increased. Loans on stored potatoes and government purchases were both used; during August alone the government purchased almost 2,000,000 bu. to be used in school lunches, canning and starchmaking, storage and livestock feeding. Few potatoes were imported from Canada compared with the 9,000,000 bu. imported in 1944 because of the abundant U.S. supplies. Larger quantities of dehydrated potatoes were used for relief purposes in Europe.

**Sweet Potatoes.**—A crop of 67,275,000 bu. of sweet potatoes was harvested in 1945 compared with 71,651,000 bu. in 1944 and an average of 67,039,000 bu. 1934-43. The acreage was about 7% below 1944 at 712,000 but above the average of



BRITISH ARMY TRUCKS carrying potatoes to the hungry population of Berlin in 1945. Each of these trucks brought 8 tons of the German-grown potatoes from Brunswick

797,000 of 1934-43. The reduced acreage was offset by higher yields in 1945 which averaged 94.5 bu. compared with 92.9 bu. in 1944 and an average of 84.2 bu. 1934-43. Prices for sweet potatoes were relatively high through 1945 as for the two preceding crops. The per capita civilian supply was about 21 lb. in 1944 and 1945 compared with 23.3 lb. prewar consumption. Prices were supported and remained at near ceiling levels until late in 1945. These supporting measures were expected to continue through 1946 at 90% of parity which in the fall of 1945 represented about \$2.20 per bu. to producers. Heavy shipments after harvest resulted in lower prices. The government made large purchases of the Virginia crop for relief purposes. After November, loans on cured potatoes was the principal means of

Table I.—U.S. Production of Potatoes by States, 1945 and 1944

State	1945 bu.	1944 bu.	State	1945 bu.	1944 bu.
<b>Late potato states</b>			Rhode Island . .	1,296,000	1,235,000
Maine . . . .	52,785,000	52,260,000	New Hampshire .	986,000	1,064,000
Idaho . . . .	44,220,000	39,100,000	Nevada . . . .	780,000	578,000
New York . . .	28,970,000	26,445,000	New Mexico . .	450,000	425,000
North Dakota .	23,660,000	20,875,000	<b>Intermediate potato states</b>		
Minnesota . .	19,360,000	15,334,000	New Jersey . .	12,567,000	8,804,000
Colorado . . .	19,110,000	20,025,000	Virginia . . . .	8,568,000	5,976,000
Michigan . . .	18,700,000	19,548,000	Kentucky . . . .	3,999,000	2,494,000
Pennsylvania .	16,724,000	19,140,000	Missouri . . . .	2,992,000	2,232,000
California . .	13,920,000	11,310,000	Maryland . . . .	2,108,000	1,824,000
Wisconsin . . .	12,160,000	11,844,000	Kansas . . . .	1,476,000	1,092,000
Nebraska . . .	12,075,000	8,400,000	Delaware . . . .	333,000	273,000
Washington . .	11,880,000	9,870,000	<b>Early potato states</b>		
Oregon . . . .	11,340,000	10,340,000	California . . .	23,360,000	22,720,000
Ohio . . . . .	7,130,000	5,810,000	North Carolina .	9,240,000	6,970,000
Iowa . . . . .	3,960,000	2,470,000	Florida . . . .	5,285,000	3,445,000
Indiana . . . .	3,915,000	3,115,000	Alabama . . . .	5,200,000	3,364,000
Utah . . . . .	3,366,000	2,765,000	Texas . . . . .	4,648,000	5,016,000
Connecticut . .	3,344,000	3,408,000	Tennessee . . .	3,440,000	2,464,000
South Dakota .	2,912,000	2,550,000	Arkansas . . . .	2,730,000	3,196,000
West Virginia .	2,880,000	2,040,000	South Carolina .	2,480,000	1,464,000
Massachusetts .	2,788,000	3,120,000	Georgia . . . .	2,002,000	1,363,000
Wyoming . . . .	2,625,000	2,325,000	Mississippi . . .	1,904,000	2,210,000
Illinois . . . .	2,604,000	1,800,000	Oklahoma . . . .	1,155,000	2,015,000
Montana . . . .	2,016,000	2,520,000			
Arizona . . . .	1,658,000	1,342,000			
Vermont . . . .	1,375,000	1,656,000			



Table II.—U.S. Sweet Potato Production by Leading States, 1945 and 1944

State	1945 bu.	1944 bu.	State	1945 bu.	1944 bu.
Louisiana . . .	10,824,000	8,100,000	Tennessee . . .	2,850,000	4,128,000
Georgia . . .	8,010,000	8,272,000	Arkansas . . .	1,900,000	1,955,000
North Carolina . . .	7,260,000	8,625,000	New Jersey . . .	1,725,000	2,400,000
Mississippi . . .	6,936,000	6,248,000	Kentucky . . .	1,218,000	1,440,000
Alabama . . .	6,375,000	6,699,000	Florida . . .	1,152,000	1,400,000
South Carolina . . .	5,890,000	7,056,000	California . . .	1,080,000	1,200,000
Texas . . .	4,524,000	5,025,000	Maryland . . .	980,000	1,280,000
Virginia . . .	3,441,000	3,960,000	Oklahoma . . .	750,000	1,040,000

price support. For U.S. No. 1 grade the loan rate for November to January was \$1.50 per bu. These loans bore 3% interest and were payable not later than April 15, 1946, or by delivery of the sweet potatoes. (See also VEGETABLES.) (J. C. Ms.)

**Potsdam Conference:** see BERLIN CONFERENCE.

**Poultry.** The number of poultry on United States farms passed the high peak in 1944 and declined sharply. On Jan. 1, 1945, the U.S. department of agriculture estimated that there were 511,130,000 head on farms compared with 576,440,000 head a year earlier, a drop of 11%, though still 18% above the ten-year, 1934-43, average of 433,638,000 head. During 1945 the numbers began to increase and numbers of chickens raised regained a large part of the losses of the year before bringing the total poultry meat output up nearly to requirements. The number of breeding stock left on farms at the beginning of 1945 was estimated to be near to the number of a year earlier.

The total production of poultry meat reached a high total of about 3,575,000,000 lb. in 1945, which was only exceeded in 1943 when 3,800,000,000 lb. were produced. While hatching of chicks began late in 1945, the demand was so active that by July there were 11% more young chicks on farms than a year earlier. Late hatchings reached new high levels. During the first eight months of 1945 hatchings were 23% above 1944. The production of commercial broilers accounted for a larger part of the total chicken meat than in former years—23% in 1945 compared with about 17% during the previous four years and 10% or less before World War II. This broiler production was not included in the "farm production" estimates and was a new commercial development of the previous ten years.

Egg production in 1945 was estimated by the U.S. department of agriculture at 5,050,000,000 doz. compared with 5,305,000,000 doz. in 1944 and an average of 3,335,000,000 doz. 1935-39. The number of laying hens increased during 1945 by about 10% which indicated larger egg production in 1946 unless prices should decline sharply. Late in 1945 the need for eggs for export began to decline and the military requirements also fell off with a consequent sharp decline in egg prices. The storage of eggs was below normal, however, during the spring period of heavy production and stocks on Oct. 1, 1945, were the lowest in three decades amounting to only 2,000,000 cases of which about 1,000,000 cases were government stocks.

Prices of eggs ranged higher during 1945 than a year earlier, until late in the year when the war demand dropped off. The price was expected to be supported at not less than 90% of parity for two years after the official end of the war emergency. Civilian consumption of eggs was higher in 1945—about 390 eggs per capita—than in any previous year.

Changes in the handling of poultry products began to exert an important influence on the industry. The increased consumption of broilers in frozen form, encouraged by the widespread use of freezing cabinets and the popularity of canned boned chicken, were important factors. The amount of chicken meat inspected for canning increased from 94,700,000 lb. in 1944 to 163,000,000 lb. in 1945. On the other hand the civilian use of dried eggs was not favourable and this industry began to decline late in 1945. Lower grades of eggs were used chiefly

for drying. The scientific advances in the raising of poultry advanced markedly during World War II with better disease control and feeding. Both farm flocks and small home flocks gave better results.

The popularity of turkey meat led to a rapid and continued increase in turkey production. While the number on farms on Jan. 1, 1945, showed a slight decline from 1944, the number of breeder hens was larger which resulted in an increase of about 20% in the turkey output of 1945 over 1944 and 85% more than in the prewar period. In 1945 a total of 44,200,000 turkeys was raised compared with 20,800,000 in 1935 and 17,400,000 in 1930. They returned about 10% of the total receipts from the sale of poultry products. Other fowl, ducks, geese, etc., showed little change and did not amount to an important part of the total poultry production. (See also EGGS.)

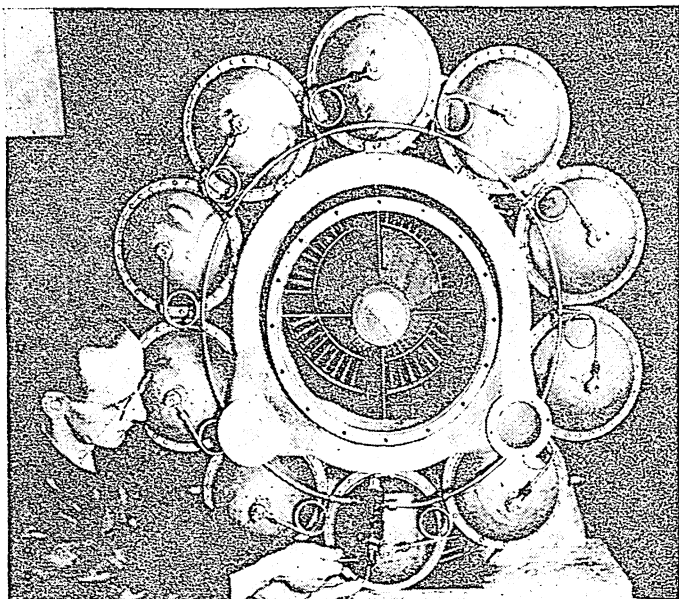
FILMS.—*Poultry on the Farm* (Encyclopædia Britannica Films Inc.). (J. C. Ms.)

**Power Engineering.** Diesel Engines.—Although the Diesel engine was invented during the latter part of the 19th century, and has long been one of the most efficient of all thermal prime movers, it has only recently begun to experience a tremendous increase in popularity. Proof of the sudden upsurge in popularity of the Diesel engine may be drawn from a statement made by a well qualified navy spokesman. He said that while at the end of World War I only 150,000 h.p. of Diesel engines were in use by the navy, by 1944 this figure had grown to more than 12,000,000 h.p. an increase of 8,000%.

During World War II, Diesel engines were used to power many of the smaller surface craft, as well as submarines. Landing barges, transports and various small attack vessels, as well as larger escort vessels employed in convoy work used Diesels. The submarine has always been a prime application; here the necessity for a self-contained prime mover having small space requirements and high efficiency has been admirably met by the Diesel engine.

One of the most noticeable trends in the Diesel field has been the intense activity on the part of all manufacturers in the direction of supercharging the engine. Supercharging consists of supplying air to the engine at a pressure higher than atmospheric. Since the power developed is dependent to a large extent on the "breathing capacity" of the engine, the use of higher pressure air permits the output of the engine to be increased. The Büchi system of supercharging the four-stroke cycle engine has become popular; so popular, in fact, that it was used on almost all large four-cycle engines in 1945. The Büchi supercharger which is, in reality, a centrifugal blower driven by an exhaust gas turbine was being manufactured in the U.S. under licence from Dr. Alfred J. Büchi, the inventor. The usual Büchi supercharged Diesel operates with inlet air at a pressure of from 5 lb. to 7 lb. per sq.in. higher than atmospheric. This increase in air pressure normally results in about 40% increase in the power output of a given size of engine.

One prominent European manufacturer of Diesel engines has been exploiting what is known as "high supercharging." In reality, high supercharging is an intermediate step between the Büchi system and the "power gas" process. The latter arrangement uses a supercharger, or compressor, which requires all of the engine's power to drive it. Thus there is no net power output from the engine and supercharger; the engine exhaust, however, is at several atmospheres pressure and high temperature. The exhaust of the engine is then used to drive an independent gas turbine, which produces all of the net output. Although in 1945 no Diesel engine with either high supercharge or operating on the power gas cycle was on the market, there



ENGINE for jet-propelled planes, details of which were released in 1945 by the U.S.A.A.F. This is a rear view, with the exhaust assembly removed to show the turbine, the one moving part. Air is compressed, forced into the combustion chambers which ring the engine, mixed with kerosene, and burned at more than 1,500° F. The hot gases pass through the turbine wheel, thus driving the compressor, and out through the jet exhaust.

was unquestionably considerable activity in the United States pointed toward the development of such machines.

The Diesel has reigned supreme in the locomotive field for some time. This is due primarily to its eminent suitability as a switching locomotive. In 1938, about four times as many Diesel locomotives as steam locomotives were purchased in the United States. From that year on, more Diesels than steam locomotives were purchased in each succeeding year.

While the use of the Diesel engine in aviation appeared to be more desirable than in previous years, it had not in 1945 achieved widespread usage. Aircraft engines operating on the Diesel cycle have been in use from the late '20s, when one of the earliest radial engines was built. By far the greater proportion of modern aircraft were powered by gasoline engines.

Another development which strictly ought not to be classified under Diesel engines became more active in the field of reciprocating internal combustion engines. While engineers have long known about the Pescara free-piston engine, little attention has been given to it. R. de Pescara originally invented and developed his free-piston device as an air compressor, in which opposed pistons, equipped with larger compressor pistons at their outboard ends, oscillate in a closed cylinder. The oscillations occur at the natural frequency of the elastic system comprising the piston and the elastic fluid (air or gases) in the cylinder. No crankshaft is required for this type of machine, which is one of its chief advantages. Since no crankshaft is used, there can be no net power output by the machine, the output being hot compressed combustion gases. With the sudden revival of interest in the gas turbine, the free-piston compressor has gained a new lease on life. The compressed air produced by the compressor may be used to supercharge the Diesel cylinder, and the exhaust from the combustion space used to drive a gas turbine. There was considerable activity in Great Britain in this direction, and it was understood that engines had actually been built. It was known that Germany conducted experimentation with this type of prime mover, and it was highly probable that experimentation had taken place in the United States. The chief virtue of such a prime mover is the high thermal efficiencies which have been predicted for it, in many cases well over 40%, which exceeds the normal 30% to 35% characteristic of the Diesel engine.

**Gas Turbines.**—The imminence of successful commercial gas turbines prompted all manufacturers to conduct extensive experimentation directed toward the development of such a unit. These activities, during wartime, were sponsored in many cases by government agencies with a view by these agencies to the obtaining of a new power plant useful in war activity. It is well known, for example, that the jet propulsion so commonly discussed in the daily press is, in essence, a gas turbine plant. Gas turbines may also be applied to the driving of ships, locomotives, tanks, etc. They may be used for the production of electrical energy in central stations, and for the production of both process heat and power in industrial plants.

All of the larger manufacturers of steam turbines have become interested in the gas turbine problem. At least two of these manufacturers have been interested primarily in the production of gas turbine units for aircraft propulsion. Two and probably more manufacturers have produced power plants suitable for the production of electrical energy.

Other manufacturers announced their intention of constructing a locomotive powered with a gas turbine power plant. It was anticipated that these locomotives would be rated at approximately 5,000 h.p.

One European manufacturer operated successfully a 4,000 kw. plant, and another a 2,000 kw. plant. The 2,000 kw. plant is of considerable interest, because it is not built in accordance with the usual precepts of gas turbine practice. Actually, it should not be called a gas turbine at all, a more proper nomenclature being "aerodynamic" turbine, since the working fluid is pure air. This plant, which was operated at a public demonstration for the first time during the year 1945, employs compressors of the axial flow type to feed compressed air at 330 lb. per square inch pressure through a regenerative heater heated by the exhaust air from the turbine. The compressed air leaving the regenerator is taken to a separate tubular oil-fired heater, in which it is heated to a temperature between 1,200° and 1,300° F. This air, after producing power in a high and low pressure turbine for driving the compressors and a generator respectively, is taken to the heat recovery device (regenerator) and then to a precooler. The precooler cools the air to approximately atmospheric temperature before it is returned to the suction side of the compressors for recycling in the process. The thermal efficiency of this plant is more than 30%, based on the lower heating value of the fuel. Its outstanding features are its stated ability to burn coal (because of the indirect transfer of heat to the working fluid), its unique governing system in which the load is controlled by control of the quantity and pressure of air in the system, and its excellent efficiency at partial load.

The burning of coal in a gas turbine power plant is one of the great ambitions of all builders of gas turbines.

**Steam Turbines.**—One trend noticeable in the steam turbine field has been the trend toward the purchase of 3,600 r.p.m. steam turbines rather than the 1,800 r.p.m. type which was earlier a favourite. Use of the higher speed machines makes for lighter foundations and simpler installations, and for a given rating yields a higher efficiency. Turbines of 3,600 r.p.m. have been built in capacities as high as 100,000 kw., and several units of this rating were in successful operation in 1945. For capacities larger than this, it is still necessary that units be built to operate at 1,800 r.p.m. Use of the higher speed permits turbines to be designed with smaller casing diameters, thus enabling the designer to use higher pressures and temperatures than in the older and larger types. This fact alone is sufficient incentive for the use of the higher speed.

Examination of the steam conditions for which steam turbines had been purchased throughout the previous 25 years indicated a consistent trend in the direction of both higher pressures and higher temperatures. In 1945 a 76,500 kw. turbine was in operation in the United States at 2,300 lb. pressure designed for an initial temperature of 940° F. with reheat of steam, extracted from the exhaust of the high pressure turbine at about 400 lb., to a temperature of 900° F. This unit achieved a thermal efficiency of about 34% from coal pile to switchboard for a period of six months' operation. Other units were in operation in the neighbourhood of 2,000 lb. per sq.in. pressure, and one unit was put in service which was designed for a temperature of 1,000° F. No commercial steam turbine had been designed in 1945 for a higher temperature.

The American Society of Mechanical Engineers and the American In-

stitute of Electrical Engineers co-operated during 1945 in the specification of so-called "standard" units. These units have nameplate ratings, in megawatts, of 11.5, 15, 20, 30, 40 and 60. Standard initial steam conditions are 600 lb. G-825° F. for units up to and including 15,000 kw. The 20,000 kw. and 30,000 kw. units have standard steam conditions of 850 lb. G-900° F. and the 40,000 and 60,000 kw. units have steam conditions of either 850 lb. G-900° F. or 1,250 lb. G-950° F.

It is significant to note that in the standards tentatively proposed by these societies to the industry, all turbines have hydrogen-cooled generators in ratings of 20,000 kw. and larger, and all machines are 3,600 r.p.m. The hydrogen-cooled generator is of importance to the utility industry, both because of its higher efficiency, and because of its longer life. The higher efficiency results from operation of the generator in a medium of very low density, which reduces the windage losses. The longer life results from the operation of the unit in a reducing atmosphere, preventing oxidation of the insulation and corona difficulties.

The use of the steam turbine in naval vessels is well known. By far the greater proportion of the larger naval vessels during World War II were powered by geared turbines, superior in performance, according to reports, to all of the foreign power units. In many cases, because of the shortage of gear manufacturing facilities, it was necessary to resort to a more expensive, heavier, but somewhat more flexible construction, in which electric drive was used. In this arrangement the turbines drive generators, which supply electric power to propulsion motors that drive the propellers.

**Gasoline Engines.**—Since automobile engines were not manufactured during World War II, the most important developments in the gasoline engine have taken place in aircraft applications. According to one eminent authority, in 1905 the average aircraft engine weighed about 4 lb. per h.p. By the end of the late 1930s the weight of aircraft engines had become relatively well established at about 1.1 lb. per h.p., with approximately 800 h.p. maximum sizes. By the end of the war the 2,000 h.p. engine was an established reality. Intense developmental work was going on in the larger sizes and it is certain that if the war had continued much longer, there would soon have been engines as large as 4,000 h.p. in a single unit. While the twin-row radial-cooled engine has been extremely successful, it is logical to expect that four rows, or even possibly six rows of cylinders may eventually be used. Powers in the neighbourhood of 200 h.p. per cylinder have been common.

At the stage of development in 1945 the liquid-cooled engine seemed to have the edge so far as weight was concerned. Most liquid-cooled engines in the range of 1,500 h.p. and higher weigh about 1.0 lb. per h.p., while the air-cooled engines in the same power range weigh approximately 1.2 lb. per h.p. At the lower powers, which would probably be used in commercial planes for private owners, the air-cooled engine seemed, according to the evidence, to be considerably lighter than the liquid-cooled engine.

An outstanding feature of all aircraft engines used in World War II was the extensive use of supercharging. Fortunately at the time of entrance by the United States into the war, the country was well along the way to universal use of a satisfactory turbosupercharged engine. In this type the supercharger is driven by exhaust gases from the engine. This method of supercharging permits sea level power of the engine to be maintained to at least 30,000 ft. altitude. Even at 40,000 ft. altitude the engine will develop approximately one-half or more of its rated sea level power. All of this is accomplished by compression of the rarefied air to approximately sea level densities, by the supercharger, which increases the "breathing capacity" of the engine.

**Rocket and Jet Propulsion.**—One of the most astounding facts of the war was the emergence of the rocket from the realm of a child's Fourth of July plaything, and of the jet propulsion turbine from the realm of impracticability into a field of great military usefulness. Rockets are distinguished from jet propulsion primarily by the fact that they carry their own oxygen. The fuel consumption is very high. As a result flights in rocket powered planes are of short duration. Rockets have been used, for example, in the German ME-163, designed as an interceptor plane, and having a very short duration of flight. Japanese suicide planes are reputed to have used rockets for a five minute flight after leaving the mother ship. The accomplishments of the United States G.I.'s with the well known "bazooka" are already well recorded in stories of the war. No more effective antitank gun was designed than the rocket-firing bazooka. Rocket-firing aircraft were used which could carry as much devastating power as an entire broadside from a naval cruiser.

Jet propulsion power plants for aeroplanes are especially important because they promise to permit aeroplanes to travel at speeds approaching the velocity of sound. While at such speeds the efficiency of the usual propeller begins to fall off rapidly, the efficiency of the jet in a jet propelled plane is just coming into its own. Furthermore, the higher the speed, the higher is the efficiency of the jet. Thus the final drive efficiency is better, but the power plant itself must also be considered. The actual thermal efficiency is lower than conventional engines, but jet propulsion engines use kerosene, a fuel which is not only much cheaper than high octane gasoline, but also less dangerous to handle. They have the characteristic of thriving on cold air, so that they perform much more efficiently at high altitudes, although there is a considerable decrease in the power output, because of the decreased density. Since the jet propelled plane uses a gas turbine and compressor, both of which are rotating devices, the absence of vibration is almost complete. The engine is particularly suited to the high speed of aircraft, because it can make use of the pressure created by the forward rush of the plane to help compress the air which it breathes and exhausts out the jet to create a propulsive force.

Because the development of jet propulsion remained shrouded in secrecy during wartime, many of the developments which were carried on were not known by the public in 1945. (J. K. Sv.)

**Rockets.**—It was disclosed in 1945 that the first rocket bomb on England fell at Chiswick, London, on the evening of Sept. 8, 1944; the last fell at Orpington, Kent, at 4.54 P.M. on March 27, 1945. Altogether, 1,050 rockets reached Great Britain, the highest monthly figure being 71 in the month of February and the highest daily figure being 17. Total casualties amounted to 2,754 killed and 6,523 seriously injured.

While aircraft interception and precision fire by radar-controlled batteries were effective in the case of the jet-propelled pilotless V-1s only the

final overrunning of the Dutch sites by the Canadian army in March 1945 provided the answer to the V-2s. Many were destroyed in production, in transport and on the sites, by air attack. Many failed to reach Great Britain through technical faults. Target accuracy gave no greater precision than the 2,000 sq.mi. of Greater London.

In launching, the rockets were poised vertically on their fins on a concrete platform. The turbines, driven by superheated steam produced by mixing concentrated hydrogen-peroxide and calcium-permanganate solution, were started up, operating the pumps which drove the liquid oxygen and alcohol into the combustion chamber. By remote control, this explosive mixture was then ignited electrically and the rocket rose vertically.

The mixture continued to burn violently and the products of the combustion, expelled as very hot gases through the jets, created a thrust of about 26 tons. Gyroscopic mechanism tilted the rocket, in its upward rush, through an angle of 45°, one minute after launching. Simultaneously, the fuel supply was cut off either by radio or by automatic control. The rocket was then travelling at 3,000 m.p.h., more than four times faster than the speed of sound. Its range was about 200 mi. and the time between "touch-off" and the explosion, by impact of the war head, was less than 5 minutes. Although, since it was racking ahead of its sound waves, the rocket was inaudible in transit, it was visible as a glowing, meteorlike object, heated to incandescence by the friction of the atmosphere.

When the Allies entered Germany, they found 800 ft. under the Kohnstein mountains, near Nordhausen, a subterranean factory where the Germans were preparing the transatlantic rockets which, they claimed, would have a range of 3,000 mi., and which, within six months, would have been launched against America.

While the Allies used short-range rocket projectiles in sea, land and air battles, they did not employ long-range rocket bombs during the war. Such weapons, however, were in production and exceeded in range, accuracy and destructive power the German V-2s. (P. R. Cr.)

**Precious Stones:** see GEMS AND PRECIOUS STONES.

**Presbyterian Church.** The Reformed Churches holding the Presbyterian system within the United States of America were 12 in number in 1945 and included 18,406 ministers, 18,568 churches and 4,003,769 communicant members. Their adherents numbered approximately 8,000,000. Outside of continental United States they had, in 1942, 2,148 American missionaries, 13,958 national workers and 240,528 communicant members, in 21 countries. At the end of 1945 the process of replacement of missionaries and other war-displaced workers was still in progress.

Preparations for restoration at home and abroad formed the dominant feature of the life of the churches in 1945. Many millions of dollars were being contributed for postwar reconstruction and enlargement of missionary activities in the United States and throughout the world, and for extension of the churches' normal denominational and interdenominational enterprises. The Presbyterian Church in the United States of America took steps for establishing an official national weekly newspaper for circulation among its members. Negotiations for organic union of several of the churches proceeded with increased effectiveness, particularly between the Presbyterian Church in the United States of America and the Presbyterian Church in the United States (Southern).

**Europe.**—During the latter half of 1945 the churches of the continent were facing the numerous problems of reconstruction. Because the churches holding the Presbyterian system were still suffering from shock, by the close of 1945 few definite facts of their progress were available, but it was known that most of them were energetically reassembling their material and spiritual forces.

The Reformed Churches in Holland experienced a marked growth in life and interest during World War II. Some congregations doubled and trebled their attendance. Unity of purpose for postwar years was evidenced by the calling of an interim synod to meet not later than early 1946, to determine a new church order. This gathering when held would be the first genuinely representative synod of the Netherlands Reformed Church after the Synod of Dordrecht met in 1618.

A significant meeting held in Aug. 1945, at Treysa, Germany, approved a provisional new order for the Evangelical Churches of Germany. It unanimously appointed a provisional council of the Evangelical Church in Germany, consisting of



three laymen and nine clergymen. In a vigorous declaration the assemblage announced that the resurrected church had adopted the principle of a freely chosen unity as opposed to state centralization, and it directed the provisional council to proceed at once to unite and set to work the active forces of the church. During World War II the church had gained increased popular prestige by proving itself sturdy enough to carry on its work and maintain its principles in spite of nazi attempts at suppression.

Assembling at Paris in June 1945, the National Synod of the Reformed Church of France addressed a vigorous message to the pastors and members. After condemning "the indifferent standard of social life in France . . . perverted by an immorality which does not even bother to render hypocritical homage to virtue," the message called on all its people to "work and faith," in performance of "heroic and outstanding duties."

Following the expulsion of the German forces, the Waldensian Church in Italy made considerable progress in repairs on church edifices and hospitals, appointment of pastors, and resumption of normal church activities. Throughout the war church life had continued with little interruption.

With most of its buildings damaged by war, the Reformed Church of Hungary, according to its new weekly magazine *Elet es Jövő*, found that its "most important work today is to remove the ruins." The periodical adds: "The World Council of Churches has drawn up a detailed plan for church reconstruction." A similar ecumenical consciousness was prevalent in Czechoslovakia, where the Evangelical Church of Czech Brethren reported that its supreme tragedy in the war was a realization of degradation of ideals and of separation from intercourse with the other churches of Europe.

In Switzerland the churches represented in the Swiss Federation of Churches were taking an active part in the ecumenical reconstruction work in Europe being directed by the Geneva headquarters of the World Council of Churches. Their declared purpose was to join with the Christian forces of the world in a united work in behalf of all churches that had suffered under German aggression. (See also CHURCH MEMBERSHIP.)

(W. B. Pu.)

## Presidents, Sovereigns and Rulers.

The following list includes the names of those holding chief positions in their countries at the beginning of 1946.

Country	Name and Office	Accession
Afghanistan . . .	Mohammad Zaher, Shah . . . . .	1933
Albania . . . .	Enver Hoxha, Prime Minister . . . . .	1944
Arabia, Saudi . .	Abdul Aziz ibn Abdur-Rahman al Faisal Al Saud, King . . . . .	1926
Argentina . . . .	Edelmiro J. Farrell, President . . . . .	1944
Australia . . . .	Duke of Gloucester, Governor General . . . . .	1945
	Joseph B. Chifley, Prime Minister . . . . .	1945
Austria . . . . .	Karl Renner, President . . . . .	1945
	Leopold Figl, Chancellor . . . . .	1945
Belgium . . . . .	Leopold III, King (in exile) . . . . .	1934
	Prince Charles, Regent . . . . .	1944
	Achille van Acker, Premier . . . . .	1945
Bolivia . . . . .	Lieut. Col. Gualberto Villarroel, President . . . . .	1943
Brazil . . . . .	José Linhares, President <sup>1</sup> . . . . .	1945
Bulgaria . . . . .	Simeon II, King (Regency) . . . . .	1943
	Kimon Georgiev, Premier . . . . .	1944
Burma . . . . .	Sir Reginald Hugh Dorman-Smith, Governor . . . . .	1941
Canada . . . . .	Earl of Athlone, Governor General <sup>2</sup> . . . . .	1940
	W. L. Mackenzie King, Prime Minister . . . . .	1935
Ceylon . . . . .	Sir Henry Monck-Mason Moore, Governor . . . . .	1944
Chile . . . . .	Juan Antonio Ríos, President . . . . .	1942
China . . . . .	Gen. Chiang Kai-shek, President of National Gov't . . . . .	1943
	T. V. Soong, President of Executive Yuan . . . . .	1945
Colombia . . . .	Alberto Lleras Camargo, President . . . . .	1945
Costa Rica . . . .	Teodoro Picado Michalski, President . . . . .	1944
Cuba . . . . .	Dr. Ramón Grau San Martín, President . . . . .	1944
Czechoslovakia .	Dr. Eduard Beneš, President . . . . .	1935
	Zdeněk Fierlinger, Prime Minister . . . . .	1945

Country	Name and Office	Accession
Denmark . . . .	Christian X, King . . . . .	1912
	Knud Kristensen, Prime Minister . . . . .	1945
Dominican Rep. .	Gen. Rafael Leónidas Trujillo Molina, President . . . . .	1942
Ecuador . . . .	José María Valesco Ibarra, President . . . . .	1944
Egypt . . . . .	Farouk I, King . . . . .	1936
	Mahmoud Fahmy El-Nokrashy Pasha, Premier . . . . .	1945
Eire . . . . .	Sean T. O'Kelly, President . . . . .	1945
	Eamon de Valera, Premier . . . . .	1932
Ethiopia . . . .	Haile Selassie I, Emperor . . . . .	1930
Finland . . . . .	Field Marshal Baron Carl Gustav von Mannerheim, President . . . . .	1944
	Juho K. Paasikivi, Premier . . . . .	1944
France . . . . .	Gen. Charles de Gaulle, President of the Provisional Government of the French Republic . . . . .	1944
Germany . . . .	Allied Control Council: Field Marshal Sir Bernard L. Montgomery (Gr. Brit.); Lt. Gen. Pierre Koenig (Fr.); Marshal of the Soviet Union Georgi K. Zhukov (U.S.S.R.); Gen. Joseph T. McNarney (U.S.) . . . . .	1945
Great Britain . .	George VI, King . . . . .	1936
	Clement R. Attlee, Prime Minister . . . . .	1945
Greece . . . . .	George VI, King . . . . .	1935
	Archbishop Damaskinos, Regent . . . . .	1944
	Themistocles Sophoulis, Premier . . . . .	1945
Guatemala . . .	Juan José Arévalo . . . . .	1945
Haiti . . . . .	Elie Lescot, President . . . . .	1941
Honduras . . . .	Gen. Tiburcio Carías Andino, President . . . . .	1933
Hungary . . . . .	Zoltan Tildy, Premier . . . . .	1945
Iceland . . . . .	Sveinn Björnsson, President . . . . .	1944
India . . . . .	Viscount Wavell, Viceroy, Governor General . . . . .	1943
	Mohammed Riza Pahlavi, Shahinshah . . . . .	1941
	Ebrahim Hakimi, Premier . . . . .	1945
Iraq . . . . .	Feisal II, King . . . . .	1939
	Emir Abdul Ilah, Prince Regent . . . . .	1941
Italy . . . . .	Humbert, Crown Prince, Lieut. Gen. of the Realm . . . . .	1944
	Alcide de Gasperi, President of the Council of Ministers . . . . .	1945
Japan . . . . .	Hirohito, Emperor . . . . .	1926
	Baron Kijuro Shidehara, Premier . . . . .	1945
	Gen. Douglas MacArthur, Supreme Commander for the Allied Powers . . . . .	1945
Lebanon . . . . .	Sheikh Bishara el Khoury, President . . . . .	1943
	Sami Solh, Premier . . . . .	1945
Liberia . . . . .	W. V. S. Tubman, President . . . . .	1944
Liechtenstein . .	Franz Joseph II, Sovereign Prince . . . . .	1938
	Alexander Frick, Chief of Government . . . . .	1945
Luxembourg . . .	Charlotte, Grand Duchess . . . . .	1919
	Pierre Dupong, Premier . . . . .	1937
Mexico . . . . .	Gen. Manuel Avila Camacho, President . . . . .	1940
Monaco . . . . .	Louis II, Prince . . . . .	1922
Morocco . . . . .	Sidi Mohammed ben Youssef, Sultan . . . . .	1927
	Gabriel Puaux, Resident General . . . . .	1943
Netherlands . . .	Wilhelmina, Queen . . . . .	1898
	Willem Schermerhorn, Premier . . . . .	1945
Newfoundland . .	Vice-Admiral Sir Humphrey T. Walwyn, Governor . . . . .	1936
New Zealand . . .	Sir Cyril Newall, Governor General <sup>3</sup> . . . . .	1941
	Peter Fraser, Prime Minister . . . . .	1940
Nicaragua . . . .	Gen. Anastasio Somoza, President . . . . .	1937
Norway . . . . .	Haakon VII, King . . . . .	1905
	Einar Gerhardsen, Prime Minister . . . . .	1945
Oman . . . . .	Sir Saiyid Said Bin Taimur, Sultan . . . . .	1932
Palestine . . . .	Lieut. Gen. Sir Alan Gordon Cunningham, High Commissioner . . . . .	1945
Panamá . . . . .	Dr. Enrique A. Jiménez, President . . . . .	1945
Paraguay . . . .	Gen. Higinio Morínigo, President . . . . .	1940
Peru . . . . .	José Luis Bustamante y Rivero, President . . . . .	1945
Philippines . . .	Sergio Osmeña, President . . . . .	1944
Poland . . . . .	Boleslaw Bierut, President of the Polish National Council . . . . .	1944
	Edward Boleslaw Osobka-Morawski, Prime Minister of the Polish Provisional Government of National Unity . . . . .	1945
Portugal . . . . .	Gen. António Oscar de Fragoso Carmona, President . . . . .	1928
	Dr. António de Oliveira Salazar, Premier . . . . .	1932
Rumania . . . . .	Michael I, King . . . . .	1940
	Peter Groza, Premier . . . . .	1945
Salvador, El . . .	Gen. Salvador Castañeda Castro, President . . . . .	1945
Siam . . . . .	Ananda Mahidol, King . . . . .	1935
	Seni Promoj, Premier . . . . .	1945
South Africa . . .	Maj. Gideon Brand van Zyl, Governor General . . . . .	1946
	Field Marshal Jan C. Smuts, Prime Minister . . . . .	1939
Spain . . . . .	Gen. Francisco Franco, Chief of State and Generalissimo of the Armies . . . . .	1936
Sudan . . . . .	Lt. Gen. Sir Hubert Huddleston, Governor General . . . . .	1940
Sweden . . . . .	Gustavus V, King . . . . .	1907
	Per Albin Hansson, Prime Minister . . . . .	1936
Switzerland . . .	Karl Kobelt, President . . . . .	1946
Syria . . . . .	Shukri el Quwatli, President . . . . .	1943
	Saadullah Jabry, Premier . . . . .	1945
Trans-Jordan . . .	Lt. Gen. Sir Alan Gordon Cunningham, High Commissioner . . . . .	1945
Tunisia . . . . .	Sidi Lamine Pasha, Bey . . . . .	1943
	Gen. Charles Mast, Resident . . . . .	1943

Country	Name and Office	Accession
Turkey . . . . .	Ismet İnönü, President . . . . .	1938
U.S.S.R. . . . .	Mikhail Ivanovich Kalinin, President of the Praesidium of the Supreme Soviet . . . . .	1936
	Joseph V. Stalin, Chairman of the Council of People's Commissars . . . . .	1941
United States . . . . .	Harry S. Truman, President . . . . .	1945
Uruguay . . . . .	Juan José Amézaga, President . . . . .	1943
Vatican City . . . . .	Pius XII, Pope . . . . .	1939
Venezuela . . . . .	Rómulo Betancourt, Provisional President . . . . .	1945
Yemen . . . . .	The Imam, Yahya bin Muhammed Hamid al-Din, King . . . . .	1904
Yugoslavia . . . . .	Ivan Rybář, President of the Praesidium . . . . .	1945
Zanzibar . . . . .	Seyyid Sir Khalifa bin Harub, Sultan . . . . .	1911
	Maj. E. A. T. Dutton, Acting Resident . . . . .	1945

<sup>1</sup>Gen. Eurico Gaspar Dutra to take office Jan. 31, 1946.

<sup>2</sup>Field Marshal Sir Harold R. L. G. Alexander to take office in the spring of 1946.

<sup>3</sup>Lt. Gen. Sir Bernard Freyberg to take office Feb. 1946.

**Preysing, Conrad von** (1880— ), cardinal archbishop of Berlin, was born at the castle Kronwinkel in the archdiocese of Munich, Germany, on Aug. 30, of royal parentage. He attended Munich and Wuerzburg universities, but abandoned a diplomatic career in 1908 for the priesthood.

He was educated for priesthood by Jesuits at Innsbruck, Austria; was ordained in 1912, elevated to bishopric in 1932 while serving as canon of the cathedral and transferred from the see of Eichstaett to the see of Berlin in 1935.

An outstanding figure during World War II, he consistently and fearlessly condemned naziism's creed and misdeeds. He issued a far-reaching courageous pastoral letter in 1943 denouncing racialism and the totalitarian state. This document won world-wide acclaim. He was named to the Sacred College of Cardinals by Pope Pius XII on Dec. 23, 1945, and was created and proclaimed cardinal on Feb. 18, 1946.

**Price Administration, Office of.** The Office of Price Administration is the U.S. government agency empowered by act of congress in 1942 to stabilize prices of goods and services, as well as residential rentals. Congress gave OPA authority to continue these controls until June 1946 in voting extension of the Price Control and Stabilization acts without fundamental changes. Also empowered by presidential directive to ration essential commodities made scarce by the war, OPA had brought this program to a virtual conclusion as the year ended.

During 1945, OPA prepared to deal with pricing problems that would arise during the immediate postwar period. At the same time the agency continued to improve its existing controls to prevent unnecessary rises in the cost of living. OPA's success in accomplishing the latter task may be judged from the rise during the first 11 months of 1945 of only 1.7% in the U.S. bureau of labour statistics index of consumer prices for moderate income families for large cities. From May 1943, when the effects of President Roosevelt's hold-the-line order were first felt, these prices had risen only 3.3%, and from the outbreak of World War II in 1939, they had risen 31%. These figures were in sharp contrast with increases in the cost of living during World War I, when prices rose 62% from July 1914 to Nov. 1918, and 108% to July 1920, the six-year period corresponding to the duration of World War II.

Two particularly pressing problems confronting OPA during 1945 were the severely depleted supply of meat available for rationing and a scarcity of moderately priced clothing.

Moving to solve the meat problem, OPA, at the direction of the Office of Economic Stabilization (later becoming the Office of Stabilization Administration), placed a system of ceilings on live cattle to meet packer protests that processing margins, despite subsidy payments, were being reduced below cost by rising cattle prices. The OPA also launched a 10-point program to encourage increased feeding of beef cattle; raise margins for meat processors, and improve the distribution of beef and pork.

Clothing prices continued to rise largely because of the dis-

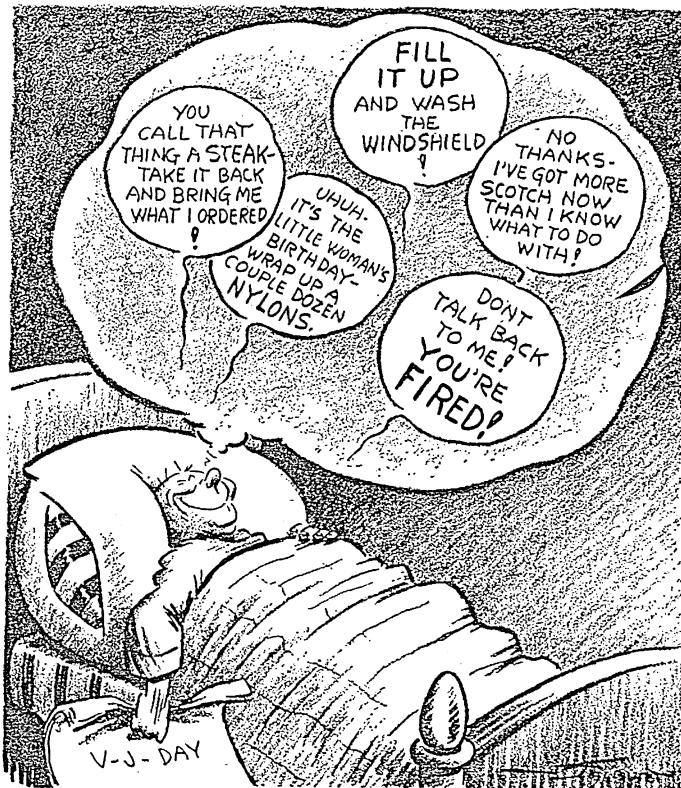
appearance of low-priced goods as manufacturers channelled production into high-priced garments. To combat the situation, OPA issued maximum average price orders covering garment manufacturers and rayon and woollen mills. These orders required each producer by balancing deliveries of higher priced goods with low price lines to maintain an average price for his deliveries during each quarter at or below his average price for the same products in the base period, usually 1943. Adjustments were made from time to time to fit the program to existing fabric supply conditions. A companion program by the Civilian Production administration channelled production of textiles to manufacturers of certain popular priced essential garments. For most low-priced cotton apparel, OPA established dollar-and-cents prices and required manufacturers to affix the retail ceiling price to each garment.

The postwar pricing problems confronting OPA fell into two categories: First, to establish prices for consumer goods which had been entirely or largely off the market because of wartime restrictions; and second, to provide adjustments in ceiling prices for manufacturers of other goods who were finding it difficult to continue production at existing price levels.

The special pricing formula for reconverting industries worked out in the spring of 1945 took into account the legal increases in prices of materials and in basic wage rate schedules of factory employees, occurring after 1941, when many consumer durable goods, like automobiles, washing machines and vacuum cleaners, had begun to disappear from the market. In addition to these cost increases, OPA allowed for the same profit margins before income taxes as during a normal peacetime period, usually 1936-39.

An individual price adjustment program provided virtually automatic pricing for about two-thirds of all reconverting firms. To accelerate action, authority was delegated to OPA field offices to act upon more than 90% of the applications for individual adjustments, and the manufacturer's proposed ceilings were permitted to become effective within 15 days, if no word to the

"MIDSUMMER NIGHT'S DREAM!" Talburt, drawing for the Scripps-Howard Newspaper Alliance, pictured the U.S. citizen anticipating the end of price control, rationing and shortages, after V-J day in 1945



contrary were received from OPA. Individual adjustment provisions for producers whose anticipated gross annual sales were less than \$200,000 were made simpler than for larger manufacturers. Where prospective sales volume was less than \$50,000 annually, the provisions were even more liberal, since these small manufacturers could least afford delays in getting into peacetime production. New producers of consumer durable goods with anticipated annual sales volume up to \$100,000 were also given simple and liberal rules to get starting prices. Individual price adjustments were also provided for manufacturers whose products had remained on the market during all or most of the war period if their over-all operations showed a loss.

To speed transition to a peacetime economy, OPA's policy was to release a commodity from price control as soon as it appeared probable that balanced demand and supply would keep prices from rising. It was also authorized to remove from control commodities which were insignificant in business or living costs. However, the large accumulation of liquid savings, the abnormal volume of currency in circulation, and the magnitude of government spending, together with the huge reservoir of unsatisfied consumer demand, exercised continued inflationary pressure on prices. The OPA was thus compelled to retain firm controls over prices of most foods, clothing, fuels, consumer durable goods and other cost-of-living items, as well as on most industrial raw materials needed in manufacture and construction.

Upward pressures on residential rent ceilings throughout 1945 continued because of an almost nation-wide housing shortage. By the close of the year it had been possible to drop controls in a relatively few areas where war activities, such as military training camps and schools, had ceased. The rent control program held rents virtually stable for several years and kept the total rise from Aug. 1939 to less than 4%.

Reduced military demand, releasing large stores of supplies to the civilian population, made it possible for OPA to end its rationing programs for all but sugar and rubber tires before the close of November. Rationing of processed foods, gasoline, fuel oil and stoves was terminated immediately after the Japanese surrender, and rubber footwear, canned milk and cheese, automobiles, shoes, and meats, fats and oils in the following two months. Rationing of rubber tires was ended at midnight Dec. 31, leaving sugar the sole remaining commodity subject to ration control. (See also CANADA, DOMINION OF; PRICES; WAR PRODUCTION, U.S.) (C. Bs.)

**Prices.** Prices During World Wars I and II.—During the six years from the invasion of Poland to the surrender of Japan, prices in primary markets in the U.S. rose 40.9%, compared with the 103% increase that occurred during World War I. From Sept. 1939 through Aug. 1945, the principal price increases occurred in farm products which rose 108%; foods, 58%; textile products, 47%; building materials, 31.5%; metals and metal products, 12.3%. The index of raw materials, which weighted price movements of farm products heavily, rose 74.9%, while that for semi-manufactured and manufactured products gained 28%. Although textiles rose 158% and chemicals 128% in World War I, these same commodities were held to an increase of 47% and 28% respectively during the six years of World War II. Farm products from July 1914 to Nov. 1918 rose 111%, compared with the 108% from Sept. 1939 to Aug. 1945, but the price increases in other major product groups were appreciably less than during World War I, primarily because of more effective price controls.

Prices of fruits and vegetables, oils and fats, cattle feed and several less important farm products more than doubled during World War II. Increases of 50% to 100% occurred for livestock, poultry, dairy products, other foods, hides and

skins, cotton goods and lumber. Structural steel prices which had remained relatively unchanged from 1939 to 1945 rose 151% during World War I. Agricultural implements, farm machinery, iron and steel and cement prices showed less than a 10% increase during World War II. The postwar inflation of 1920 had relatively few parallels after Aug. 14 except for such items as jewellery, juke boxes, theatre admissions, furs, coconut and citrus fruits.

On May 11, 1945, the price administrator announced the post-war aim of maintaining controls only where necessary to retain prices at their 1942 levels, and that the ceilings of prices would be gradually lifted as the danger of inflation disappeared. The Office of War Mobilization and Reconversion announced on May 8 that the second phase of the war had begun and that since shortages persisted in food, clothing and shelter, and cutbacks in war production threw 1,500,000 workers out of employment, price control, rationing and wage and manpower controls were to be continued until the end of the war. On May 10 the War Production board revoked 73 orders limiting the production of manufactured civilian products and on May 16 the board revoked controls on 1,200 common civilian items, permitting their manufacture but not releasing such materials as iron and steel needed for their processing. No such gradual step-down of war production and relaxation of price controls took place after World War I as was experienced between the end of the war in Europe and the surrender of Japan.

**Prices at the End of World War II.**—At the end of Aug. 1945, the general level of wholesale prices was 40% above the prewar level. Prices received by farmers had reached a new wartime peak after the June and July advances and were about 7% higher than for the summer of 1944, and approximately 125% higher than during the summer of 1939. Wholesale prices of industrial goods had risen after May and by August were somewhat higher than in any other period after the early part of 1943, when price stabilization measures were augmented and made more effective. Ceiling prices for coal, coke, steel, cotton goods, building materials and finished manufactured products (especially clothing and house furnishings) were raised. Many of the products which had experienced the most rapid wartime increases in prices were those in the highly competitive, low-wage industries, where producers had taken advantage of delayed price controls. Postwar prices of services were much higher than before the war, except rents and public utility rates, and such regulated prices as bus fares, electric power, telephone

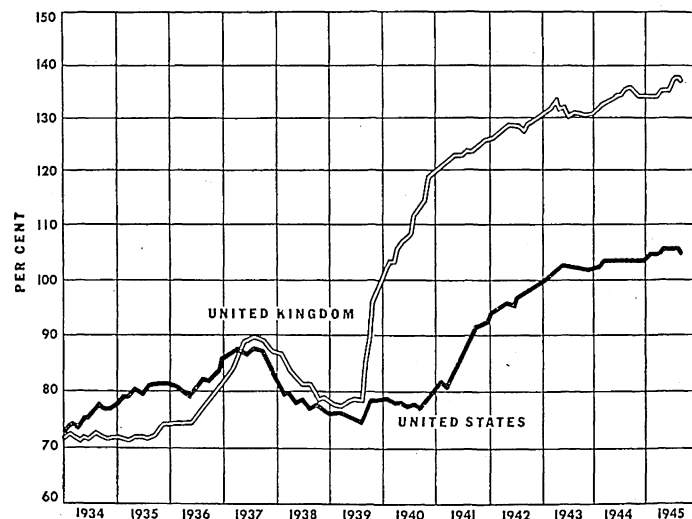


Fig. 1.—WHOLESALE PRICES IN THE UNITED KINGDOM AND THE UNITED STATES, 1934-45. (Sources: United Kingdom—Board of Trade, converted to 1926 base; United States—Bureau of Labor Statistics.) War conditions in the United Kingdom made many price quotations nominal; undoubtedly the index for that country understates the price rise after Aug. 1939



and telegraph rates which had shown relatively little change during the war, except for those increases caused by federal excise taxes.

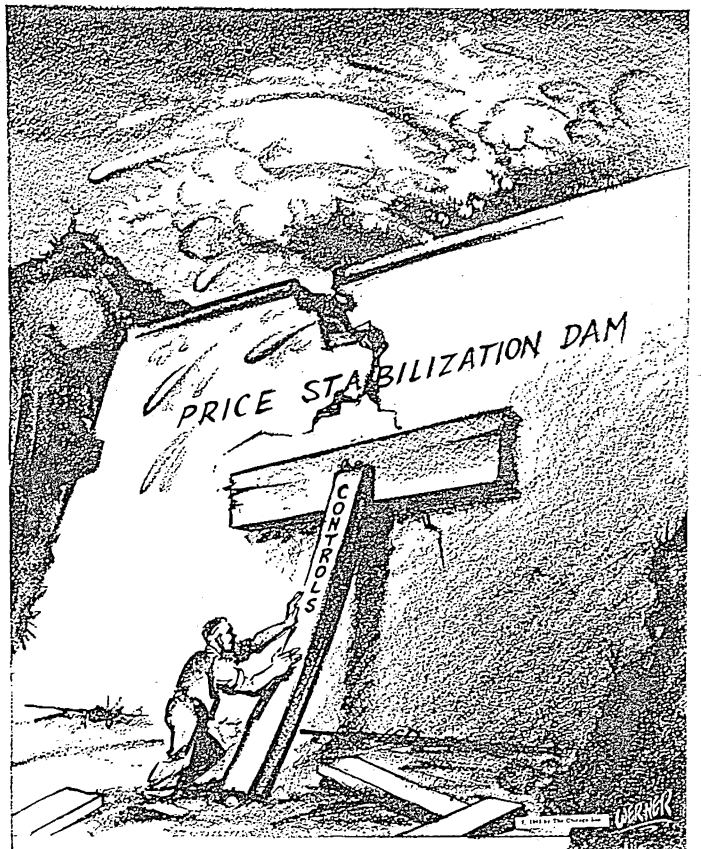
Although urban rents had been rigorously controlled, the prices of housing properties had advanced sharply. Construction of new housing facilities had been expected to take considerable time, costs of building materials and labour had risen about one-third during the war, lumber prices had grown about 70%, while the prices of brick, cement, paints, heating equipment and building supplies had moved upwards despite rigid rent controls. Likewise, food price controls did not prevent advances in the prices of agricultural lands: in July they were reported 57% above the 1935-39 average for the U.S. as a whole, with increases varying from 20% in Massachusetts and 22% in North and South Dakota to 103% in South Carolina and 104% in Kentucky.

**Price Controls.**—During the first quarter of 1945, the Office of Price Administration had developed plans for postwar price controls designed to restore 1942 prices, with certain adjustments permissible under a formula adopted by that office. At the end of the second quarter, price adjustment claims were pending in many industries. The president called for, and congress in June assented to, the continuation of the price control legislation for another year. At the hearings of the house banking and currency committee, farm group opposition developed, especially to price control practices and to the Commodity Credit corporation policies designed to lower farm prices.

Normal forces of supply and demand were out of balance when the war ended in August. The daily retail price index of the 28 basic commodities compiled by the department of labour ascended to the highest point of the entire war period during October, when none of the individual basic prices was below the quotations for the week prior to Aug. 14. Those in charge of price controls feared that extensive relaxation of price ceilings would stimulate speculation and inflation rather than bring forth adequate supplies. The policy was adopted whereby credit expansion necessary to enlarge production was fostered, but the use of credit to further speculative purchases of goods and securities or property, or which would aggravate business and consumer demands for the already short supplies, was checked. Prices of cotton, grains and most farm products increased somewhat from the middle of September to mid-October following the decreases of the preceding six-week period. Prices of most industrial products continued at federal maximum price levels.

Although farm prices continued above parity, the government continued the price support program by purchase and loan guarantees for wheat, cotton, potatoes, peanuts, soybeans and flaxseed, chiefly because earlier legislation had provided for the maintenance of a farm price floor at 90% of parity prices for a greater number of farm products for a two-year period following cessation of hostilities. Moreover, export subsidies had gone into effect in Nov. 1944 for cotton and wheat. Official estimates reported that if farm subsidies had been terminated at the end of the war, the price of milk would have risen by 1.3 cents a quart, bread by 1 cent a loaf, cheese by 4.8 cents per pound, pork by 4.4 cents a pound, prunes by 4.2 cents per pound and 10 lb. of flour would have advanced the consumers' price by 8.8 cents. The subsidy supplement to price controls during the year had placed greater consumer burdens upon taxpayers.

Certain inflationary factors during the year had placed a severe strain on price controls: (1) mounting demands for relaxation of wartime price controls; (2) growing demands for higher wages backed up by strikes that raised costs and reduced supplies; (3) decreasing physical production which index



"THIS WAR IS STILL TO BE WON!" Werner of the *Chicago Sun* emphasized the necessity of maintaining price controls in the U.S. after the close of World War II in 1945

dropped from a February high of 236 to 172 by September; (4) drawing upon wartime savings by consumers that raised retail sales in September 6% higher than August, and about 12% higher in December than in the same month of 1944; (5) lending to foreign countries to enable purchases of already scarce supplies of food, clothing, fuel and strategic metals; (6) reducing reserve requirements against deposits in the federal reserve banks and their note issues from 35% and 40% respectively to 25% in gold certificates; (7) enabling federal reserve banks to hold merely direct obligations of the United States as collateral for note issues; (8) reducing income taxes on individual incomes for 12,000,000 taxpayers; (9) raising income payments to military personnel, increasing dependents' allowance and mustering out payments; (10) growing supplies of money in circulation, and deposits in banks that reflected declines in the purchasing power of the dollar as shown in Table I.

To offset the depressing effects of demobilization unemploy-

Table I.—Composition and Comparative Monthly Trends of Purchasing Power 1945 and 1944

	Money in circulation (in billions)		Deposits and currency outside bank (in billions)		Time deposits (in billions)		Purchasing power of dollar measured in wholesale prices (1935-39 = 100) *	
	1945	1944	1945	1944	1945	1944	1945	1944
Jan. . . . .	\$25.3	\$20.5	\$151.2	\$125.3	\$40.6	\$33.2	76.7	77.9
Feb. . . . .	25.7	20.8	150.8	128.6	41.4	33.7	76.5	77.6
March . . . . .	25.9	21.1	150.6	127.9	42.1	34.1	76.4	77.5
April . . . . .	26.1	21.5	150.9	127.5	43.0	34.6	76.1	77.4
May . . . . .	26.5	22.1	152.6	128.0	43.6	35.3	75.9	77.4
June . . . . .	26.7	22.5	162.7	136.1	44.2	35.7	75.9	77.1
July . . . . .	27.1	22.7	163.5	139.2	45.1	36.3	75.9	77.3
Aug. . . . .	27.6	23.3	163.4	139.0	46.1	37.0	76.1	77.4
Sept. . . . .	27.8	23.8	162.8†	139.1	46.9	37.8	76.5	77.4
Oct. . . . .	27.9	24.4		139.9		38.9		77.3
Nov. . . . .		25.0		143.2		39.2		77.1
Dec. . . . .		25.3		150.9		39.8		76.8

\*U.S. Department of Commerce, Survey of Current Business.

†Estimated. Source: Federal Reserve Bulletin.

ment on prices, on Aug. 18, the president by executive order directed that higher wages be paid and existing prices maintained, and that a labour-management conference be called in November to work out details of the order. A report of the Office of War Mobilization and Reconversion stated that wages might increase on the average 24% without affecting the prices paid by ultimate consumers since business would gain 45% by postwar reduction in overtime pay, 9.5% by elimination of one-half of wartime upgrading and similar wage increases and 10% by repeal of the excess profits tax, so that wage increases would not compel increases in price ceilings. The National Association of Manufacturers replied, calling upon congress to repeal all price controls by Feb. 15, 1946, as a prerequisite to free collective bargaining.

Federal fiscal operations exerted powerful influences upon 1945 price trends. Monthly federal spending had dropped from \$9,640,000,000 in June to \$6,610,000,000 in September. Revenues collected in June had reached \$5,910,000,000 and were held at \$5,190,000,000 in September, thereby reducing the inflationary gap to the lowest quarterly payment level after 1942. The monthly trends in the inflationary effects of federal expenditures and the deflationary effects of taxes for the years 1944 and 1945 are shown in Table II.

Table II.—Comparison of Federal Inflationary Expenditures and Deflationary Taxes (1945 and 1944)

	Expenditures (in billions)		Revenues (in billions)		Gross debt (in billions)	
	1945	1944	1945	1944	1945	1944
Jan. . . . .	\$8.20	\$7.57	\$3.58	\$2.78	\$232	\$165.8
Feb. . . . .	7.46	7.86	3.98	2.75	233	183
March . . . . .	9.43	8.53	6.90	6.58	234	184
April . . . . .	7.96	7.86	2.96	3.12	235	184
May . . . . .	9.27	8.29	3.39	3.26	239	186
June . . . . .	9.64	8.63	5.91	6.25	258	201
July . . . . .	8.55	8.11	2.75	2.21	262	208
Aug. . . . .	7.35	8.12	3.28	2.86	263	209
Sept. . . . .	6.61	7.93	5.19	5.93	262	209
Oct. . . . .		8.02		2.05	261	210
Nov. . . . .		7.82		2.50		215
Dec. . . . .		8.41		5.42		230

U.S. Department of Commerce, Survey of Current Business.

Decreases in federal taxes exerted inflationary pressures on prices. Under the provisions of the Tax Transition act, about 12,000,000 individual income taxpayers were relieved of income tax payments for 1946, by making the surtax exemptions applicable to the normal tax. Moreover, congress had lowered the surtax rate in each bracket 3% so that all individual income taxpayers had gained. With the abolition of the corporate excess profits and the declared value excess profits taxes and the lowering of the combined normal and surtax rates on corporate incomes from 40% to 38%, as well as the provision for the rapid repayment of excess profits tax credits, the tax reduction exerted inflationary pressures on the general level of prices. The federal deficit for 1945 had been \$53,600,000,000 and the tax reduction measure created prospects for fiscal 1946 of a deficit of about \$30,000,000,000, both of which strengthened inflationary pressures. During the first three quarters, the federal government had spent about \$74,500,000,000 of which about \$37,900,000,000 had been repaid as taxes, and, after allowing about \$9,000,000,000 for depreciation, other reserves and undistributed profits, about \$27,000,000,000 net had been added to the disposable incomes to individuals.

Retail Prices.—From the beginning of 1945 until V-E day, the index number of retail prices of the department of commerce remained almost stationary at 139 (1935-39=100). Between January and September, the retail price of anthracite coal rose from 98 to 106; food from 136 to 139; fruits and vegetables from 168 to 172; while substantially small increases

were shown for dairy products, cereals, meats, wearing apparel, house furnishings and piece goods. Food prices rose 2.8% during the first quarter, 3.8% during the second quarter and became the source of widespread consumer complaints against the rising costs of living during the second half of the year. The bureau of labour statistics reported that between Aug. 1939 and June 1945, farm products had risen 113.8% and food prices generally about 60%. In April, the primary markets for livestock and poultry products reached the peak of 136.4% of 1926 prices, the highest level ever recorded by that bureau.

Wholesale Prices.—The combined index (889 commodity prices) revealed that wholesale prices in January stood at 104.9% of 1926 prices, slowly advanced until June to 106.1% and then gradually declined to 105.2% in September. Then followed a reversal in price trends and in November, the wholesale prices reached 106.7%, the highest level in 20 years. The bureau of labour statistics explained that the change came about chiefly because of "continued advances in the prices of agricultural commodities." The wholesale markets price index of farm products had risen from 127 in October to 132 by the close of November, while the range of wholesale prices for commodities other than farm products had ranged from 99.1 in January to 99.8 for September. The purchasing power of the 1935-39 dollar as measured by wholesale prices in September had fallen to 76.5 cents, while measured by the prices received by farmers, had sunk to 54.1 cents, and had dropped to 71.6 cents when measured by retail food prices, so that the 1945 dollar was placed in its most favourable light when viewed from the perspective of wholesale prices.

Cost of Living.—Between the opening and the end of the war in Europe, the cost of living, measured by prices of consumer goods in primary markets, showed an increase of 30.8%: the cost of food had risen 50.9%; clothing, 45%; house furnishings, 45%; fuel, electricity and ice, 12.8%; rent, 3.8%; and miscellaneous living costs 23.5%. Retail prices of living essentials rose at the rate of 1.2% for the second half of the year. With the expansion of liquid assets in the hands of buyers, price controls became more difficult, and in May the OPA increased the mill prices of 14 basic steel products, raised the ceiling prices of coal to cover higher wage concessions and three days after V-E day announced its plan of "selective reconversion to a peacetime economy during the war with Japan" by bringing civilian goods back on the markets at 1942 prices. This policy aroused widespread dissatisfaction among producers because of the industrial inability to cover 1945 costs by 1942 prices. Approximately 125 price schedules were abandoned between V-E day and the end of June, but basic price controls were retained for automobiles, refrigerators, stoves, farm machinery and radios.

Many lines of men's apparel were depleted by September. Although the housing cost index remained relatively stable, and rent controls indexes were held constant, the housing shortage became more realistic than shown in the data in Table III. Rumours of numerous black

Table III.—Monthly Indexes of the U.S. Cost of Living, 1945  
(1935-39=100)

Month	Combined cost of living	Food	Clothing	Housing	Fuel and light	Miscel- laneous	Purchasing power of dollar measured by cost of living
1944							
Sept. . . .	126.5	137.0	141.4	108.2	109.8	122.4	79.1
Oct. . . .	126.5	136.4	141.9	108.2	109.8	122.8	79.1
Nov. . . .	126.6	136.5	142.1	108.2	109.9	122.9	79.0
Dec. . . .	127.0	137.4	142.8	108.3	109.4	123.1	78.7
1945							
Jan. . . .	127.1	137.3	143.0	108.3	109.7	123.3	78.7
Feb. . . .	126.9	136.5	143.3	108.3	110.0	123.4	78.8
March . . .	126.8	135.9	143.7	108.3	110.0	123.6	78.9
April . . .	127.1	136.6	144.1	108.3	109.8	123.8	78.7
May . . . .	128.1	138.8	144.6	108.3	110.0	123.9	78.1
June . . . .	129.0	141.1	145.4	108.3	110.0	124.0	77.5
July . . . .	129.4	141.7	145.7	108.3	111.2	124.2	77.3
Aug. . . .	129.3	140.9	146.2	108.3	111.4	124.4	77.3
Sept. . . .	128.9	139.4	148.2	108.3	110.7	124.6	77.6
Oct. . . .							
Nov. . . .							
Dec. . . .							

Source: U.S. Department of Commerce, Survey of Current Business, Nov. 1945.

Table IV.—Monthly Trends in U.S. Income, 1945

Month	Income payments (value) 1935-39 = 100*	Whole- sale prices 1926 = 100*	Factory pay rolls, 1939 = 100* (U)	Factory employ- ment 1939 = 100* (U)	Purchasing power of dollar measured in farm prices 1935-39 = 100†	Prices of farm products 1935-39 = 100†
1944						
Sept. . . .	232.5	104.0	333.8	164.9	55.4	122.7
Oct. . . .	235.5	104.1	335.1	163.3	54.8	123.4
Nov. . . .	237.5	104.4	331.8	162.6	54.3	124.4
Dec. . . .	239.0	104.7	336.8	163.0	53.2	125.5
1945						
Jan. . . .	241.9	104.9	335.2	162.9	53.0	126.2
Feb. . . .	245.2	105.2	333.7	162.5	53.5	127.0
March . . .	244.1	105.3	330.2	160.6	53.7	127.2
April . . .	242.3	105.7	321.5	157.6	52.5	129.0
May . . . .	241.9	106.0	307.0	154.5	53.2	129.9
June . . . .	244.6	106.1	302.5	151.0	51.6	130.4
July . . . .	243.4	105.9	286.5	145.5	51.6	129.0
Aug. . . .	236.0	105.7	257.5(r)	141.4	52.1	126.9
Sept. . . .	229.0	105.2(p)	215.7(r)	123.2(r)	54.1	124.3
Oct. . . .	232.3	105.9(p)			53.5	127.3
Nov. . . .						
Dec. . . .						

p=preliminary. U=unadjusted. r=revised.

\*Source: Federal Reserve Bulletin.

†Source: U.S. Department of Commerce, Survey of Current Business, Dec. 1945.

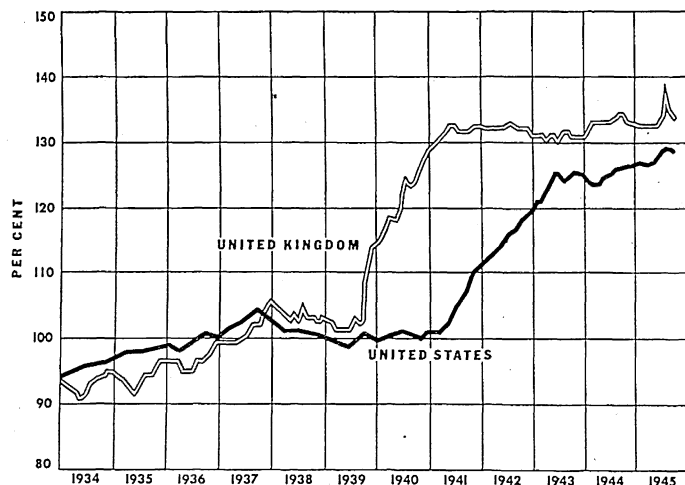


Fig. 2.—RETAIL PRICES IN THE UNITED KINGDOM AND THE UNITED STATES, 1934-45. (Sources: Cost of living indexes. Ministry of Labour, converted to 1935-39 base for the United Kingdom; Bureau of Labor Statistics for index of consumer prices.) Because of the war, the retail price increase shown for the United Kingdom is understated, and to a lesser extent for the United States

market arrangements also vitiated the conclusiveness of the governmental indexes set forth in Table III.

The real burden of the costs of living for 1945 did not appear in the relative stability of the indexes shown in Table III, since the incomes that consumers had available to meet those costs did not remain stable, but declined, as shown in Table IV.

Income payments fell from 242 in January to 229 in September; factory pay rolls dropped precipitously from 335 in January to 257 in August; factory employment also continued its downward trend from 163 in January to 123 in September. Although heroic efforts were taken by industry and government to stabilize living costs, much less success was attained in the maintenance of monthly incomes. These data are summarized in Table IV. (See also AGRICULTURE; BUSINESS REVIEW; CONSUMER CREDIT; INCOME AND PRODUCT, U.S.; PRICE ADMINISTRATION; OFFICE OF; STOCKS AND BONDS; WAGES AND HOURS; and articles on individual commodities.)

(E. H. HE.)

**Primary Education:** see EDUCATION.

**Prince Edward Island.** The smallest of the Canadian provinces, Prince Edward Island lies in the Gulf of St. Lawrence. The island is 130 mi. long and has an average width of 21 mi. The population was 95,047 (1941 census), and predominantly rural. The largest centre is Charlottetown, the provincial capital.

**History.**—Throughout 1945, the Liberal administration of T. Walter Jones continued in office. On Dec. 19, by-elections were held in Prince county, the Liberals carrying one constituency; the Progressive Conservatives the other. Party standing in the assembly remained as formerly, Liberals 20; Progressive Conservatives 10. At the dominion general elections (June 11), three Liberals and one Progressive Conservative were returned to the Ottawa parliament.

**Education.**—For the school session, 1941-42, enrolment in all educational institutions was 19,544; the total revenue of all provincially controlled schools in 1943 was \$539,527. The two chief educational institutions of the island are Prince of Wales college and St. Dunstan's university, both situated at Charlottetown.

**Agriculture and Industry.**—In 1944 the estimated gross value of agricultural production was \$27,240,000; income of farmers, \$13,800,000. In 1943 the value of fur production was \$1,588,037. In 1945 the value of field crops was \$18,755,000 (1944, \$18,248,000). Thus Prince Edward Island was one of the three areas in which field crops showed an increased value during 1945. In 1944 the value of the fisheries was \$1,762,000.

FILMS.—*Maritime Provinces* (Encyclopædia Britannica Films Inc.). (J. I. C.)

**Princeton University.** An institution of higher learning at Princeton, N.J. By the end of 1945, its 199th year, Princeton university was returning to the ways of peace, and, as its major contribution to postwar education, was formulating, on an international scale, plans for its bi-centennial celebration. It announced for its 200th year, 1946-47, a series of conferences at which scholars of many countries would exchange and debate ideas in all fields of learning.

For its own undergraduates, Princeton adopted during the year a postwar plan of study which provided improved integration of the elements of formal education. With the gradual return of undergraduates from war service, its program for servicemen went into operation.

As 1945 drew to a close, Princeton added to its permanent installations a naval reserve officers training corps unit. Only this and the long-standing army R.O.T.C. unit remained of the 12 special military schools which had trained 20,000 uniformed men during World War II.

Two major building projects awaited availability of materials: the \$4,000,000 Harvey S. Firestone Memorial library, uniquely planned to provide physical facilities for the postwar plan of study; and the \$1,500,000 Herbert L. Dillon gymnasium, a re-

placement for the 40-year-old structure destroyed by fire in 1944.

(For statistics of enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (H. W. Do.)

**Principe:** see PORTUGUESE COLONIAL EMPIRE.

**Printing.** Most dramatic graphic arts development during the year of 1945 was demonstrated by the *Chicago Tribune* when it published a full-colour, full-page illustration of the Big Three—Roosevelt, Churchill and Stalin. Colour separations for making the printing plates were sent from Europe by radio.

Transmission is practically the same as for one-colour continuous tone (photograph) or line copy sent by wire or through the air. Such one-colour pictures were commonplace in newspapers.

Space does not permit detailed description of mechanism or method of sending either one or full-colour pictures. To produce from a one-colour print on the drum of the sending mechanism the equivalent of the primary colour separation prints heretofore used, a colour disk is set between a scanning eye and a photoelectric cell. These prints are received by a triple electro-optical recording unit in contact with a cylinder of triple length holding three undeveloped negatives. Positives are received and are developed in the order sent. Assembling them into a picture is no different than making an ordinary colour print of a photograph.

No manufacturer predicted early revolutionary changes in presses, universally regarded as the key printing-plant machine, but all announced refinements. One builder of offset presses said numerous innovations were developed during World War II while supplying machines for armed forces. One such was the installation of four form rollers on a machine, the size of which had not heretofore been thought to require that many. It was asserted that quality of product improved. Another press builder announced a colour-convertible newspaper press. Colour printing equipment may be handily added where and when it is required. The respected inventor of the really revolutionary type of press (one operating without paper contacting plate and by ink "jumping" from plate to paper by electrostatic or electromagnetic action) applied electronics, and called his machine—not as yet in production—an Electronograph press.

It was generally believed that all makers of typesetting machines, as well as others, were working on a photo-composing machine. At the close of the year there were seemingly justified rumours that one such outfit would be officially announced in the near future. For presses which require plates—those for doing offset and gravure—such equipment would make type and slugs of type required only for relief printing.

Infra-red equipment for drying printing inks was established. A new use—burning in top enamel on photoengraved plates—was developed. When the plate is put into the infra-red oven, the operator turns on an automatic time switch which turns lamps off at the proper time, in approximately 5 min. This infra-red oven supplants a hand method, and does the work both better and faster. More and more graphic arts operations were being made automatic or semi-automatic.

The so-called Kromolite process was subject to wide use and, so, was important. It represents a method for automatically dropping out high-light areas of photoengravings. (J. L. F.)

**Printing Office, U.S. Government.** The office was established by congress in 1860 and was in continuous operation from that time. In addition to doing all of the printing and binding



ordered for congress, the office executes all the printing and binding required by the various executive and judicial departments, all independent establishments, and emergency war agencies of the U.S. government.

The total area occupied by the government printing office proper in 1944 was 1,396,973 sq.ft. or 32.1 ac. In addition, the office occupied seven warehouses in various sections of the U.S. covering 125,237 sq.ft. of floor space or 2.9 ac. During the fiscal year 1945 it was necessary to place orders with outside contractors for printing in the amount of \$28,116,779.65, as the government printing office was unable to handle the volume of printing necessary in connection with the war. The value of the office buildings in 1945 was \$9,634,825; machinery and equipment \$6,598,293; making the total value of the plant \$16,233,118. At the close of the fiscal year 1945, there were 6,914 employees on the rolls with a pay roll of approximately \$20,000,000. The office made charges for 1,045,739,990 copies of publications of all classes. This total included 6,966,725 copies of the *Congressional Record*, 5,976,886 copies of the *Federal Register*, 3,632,330 copies of specifications of patents, trademarks, designs, etc., and 309,212 copies of the patent office *Official Gazette* and annual indexes. The number of postal cards printed amounted to 2,386,933,000 and money orders 300,696,304. The stores division and warehouses handled 6,314 carloads of paper weighing 292,110,941 lb. The division of public documents mailed out 166,748,939 publications and forms; its receipts from the sale of government publications during the year amounted to \$2,180,476.66. The total charges made to congress and all other government agencies during the fiscal year were \$77,528,513.47.

(A. E. Gl.)

## Priorities and Allocations.

In the secret development of the atomic bomb, the U.S. War Production board acted as arbiter when overriding priorities for the Manhattan District project (its camouflage title) collided head on with programs for weapons of proven value that were urgently needed on the battle front. The hidden conflicts over this secret project were felt on several occasions in virtually all of the WPB industry divisions, when producers' order boards were being disrupted and carefully timed program deadlines set back by Manhattan District demands for scarce materials and equipment.

Many WPB divisions aided the completion of the Manhattan District project. In virtually all scheduling, programming and allocation of materials, component parts and end products, the project received 100% of its stated requirements. Uranium supplies and uses were carefully controlled through the miscellaneous minerals division and by allocation of all imported uranium. The Urgency Priority committee gave it top priority from the start, and it appeared at the head of every issue of the National Production Urgency List, which determined priority in local labour referrals. In total, these measures speeded by months the success of the first atomic bombing of Japan, and helped bring the war to an early conclusion.

**Removal of War Controls.**—On Sept. 30, 1945, the War Production board removed two broad wartime controls: In the transition from war to peace production the hitherto prevailing priorities system was replaced by a new, much simplified system and the Controlled Materials plan was cancelled. By Oct. 31, the board had in force only about 55 of a peak total of 650 orders and schedules over materials and supplies. It had taken general action to help industry by stepping up production, as follows:

1. Ordered its field staff to give special attention to enforcing compliance with the board's inventory controls. These controls were intended to assure that scarce materials be not immobilized in excess inventories, but would be used in current production.

2. Revised and simplified its priorities system. Priorities were being used to break "bottlenecks" in key reconversion production, and to expand the production of scarce essential items, such as low-cost textiles.

3. Gave free rein to industrial construction and took off highway construction controls; also, lifted controls on repair work and alterations of the transportation systems of the United States, and ordered revocation of construction order L-41, as of Oct. 15. The board ordered its field staff to give "spot" assistance to industrial expansions.

Meanwhile the board was aiding all other agencies concerned in acting to expand production. For example, not enough bricks and other clay products were being made to meet the needs of the important and expanding construction industry. The board accordingly had its field representatives visit plants and determine their requirements, giving priorities for needed machinery and equipment, while the Office of Price Administration granted a general increase in prices, and the U.S. Employment service "spotlighted" the brick industry in job referrals. Production, as a result, picked up, while the government watched developments closely in case of need for additional action.

**Civilian Production Administration.**—On Oct. 4, 1945, when the president announced the dissolution of the War Production board (effective Nov. 3), he ordered the establishment in its place of the Civilian Production administration. This new body took over and carried forward the remaining WPB functions and controls that would be required for the period of reconversion, as laid down by federal statutes and executive orders of the president. As announced by J. D. Small, the new administrator, these transferred functions were to be utilized to "further a swift, orderly transition from wartime production to a maximum peacetime production in industry, free from wartime government controls, with due regard for the stability of prices and costs." Thereafter its five bureaus were to handle, respectively, industrial operations, priorities, field operations, international supply, and demobilization of the former WPB functions which were to be closed out, or in certain cases transferred to other agencies. Meanwhile it continued compliance activities during the remainder of 1945, in order to prevent possible violators of remaining orders from taking unfair advantage over the majority of law-abiding business concerns.

The new CPA proceeded to expand production of materials which were in short supply and to limit their use until sufficient for the needs of civilian industry. It restricted the accumulation of inventories, thus guarding against speculation, hoarding and unbalanced distribution of materials which would curtail total production. It further extended priorities assistance to break bottlenecks which threatened to impede the reconversion process, and allocated scarce materials or facilities needed for production of low-priced items in forwarding the price-stabilization program. Finally, it facilitated fulfilment of the United Nations relief and other export programs.

With powers conferred under the general policies established by the director of war mobilization and reconversion, the administrator proceeded to liquidate the functions delegated by the president to the CPA as deemed by him in the public interest. At the same time the president lodged with the director of the bureau of the budget authority to effect terminations and transfers to other government agencies when the CPA should be abolished. (See also BUSINESS REVIEW; PRICE ADMINISTRATION, OFFICE OF; WAR PRODUCTION, U.S.; WAR PRODUCTION BOARD.)

(J. A. K.)

## Prisoners of War and Displaced Persons.

Before the end of World War II in 1945 the population of war prisoner camps was estimated at 4,000,000 men. Definite figures were not available because no information was given regarding the number of prisoners held by the U.S.S.R. or the number of Russian prisoners taken by Germany. Similarly, no information was available regarding Japanese or Chinese held by each other. Allied prisoners in Germany, exclusive of Russians, totalled 1,800,000; held by Japan 145,000. The 765,000 French held as war prisoners in Germany was the largest single group. Other large groups in Germany included 550,000 Italians, 200,000 British (United Kingdom and empire), 125,000 Yugoslavs and 90,000 Americans. The principal groups held by the Japanese were 108,000 British (United Kingdom and empire), 22,000 Dutch and 15,000 Americans.

Axis prisoners held by the Allies, other than those in the soviet union, were reported to include 630,000 Germans, 428,500 Italians and 11,600 Japanese. Italians were held as prisoners by both axis and Allied powers.

During the early months of 1945, the condition of prisoners of war held by Germany in Europe rapidly deteriorated. The Allied bombings disrupted internal transportation necessary for the shipment of relief supplies; the rations of the German military and civilian populations were curtailed with a corresponding effect upon the diet of their captives; and the disorganization precedent to total defeat was reflected in the maladministration of the camps. Many of the camps were hurriedly moved before the advancing Allied armies and prisoners were marched



Above: RUSSIAN PRISONERS of war liberated in Germany by troops of the U.S. 9th army in the spring of 1945

Right: BOWED AND SILENT, Japanese inmates of a prisoner of war camp on Guam listened to the news of Japan's unconditional surrender in Aug. 1945

Below, left: ALLIED PRISONERS interned at Yokohama waved excitedly at a low-flying navy plane shortly before their liberation in 1945

Below, right: GERMAN EX-SOLDIERS leaving Vienna, Austria, under Russian guard in Aug. 1945, to labour on reconstruction projects in the U.S.S.R.







GERMAN PRISONERS of war watching a U.S. signal corps film in 1945, in which victims of nazi concentration camps were exhumed for identification by German civilians. The men were photographed without their knowledge, by previously placed remote action cameras

to new locations. One group of prisoners from Oflag 64, in Poland, marched westward more than 400 mi. before liberation by the Allies.

An outstanding service to these prisoners was performed by the International Red Cross committee in the distribution of food packages and other relief supplies by means of special truck convoys substituted when rail transportation became impossible. Trucks provided by the U.S. and British Red Cross societies were assembled in Switzerland and Sweden and safe-conduct arrangements were made with Germany by the committee. Food parcels furnished by the Allied governments and Red Cross societies were carried to isolated camps and to wandering groups of prisoners throughout Germany in the final weeks of the European phase of World War II without molestation by the hungry civilians or the disorganized German military forces and with only slight casualties from Allied aerial activity. These same trucks and supplies were used to bring food and medicines to the survivors of liberated concentration camps.

The International Red Cross committee maintained delegations in the belligerent countries, with the exception of the soviet union which had not adhered to the 1929 Geneva Prisoners of War convention. These delegations reported on prison conditions and arranged for relief in the months preceding the end of the war. They assisted in the succeeding repatriation. The Young Men's Christian association and other voluntary agencies continued their efforts to supply recreational, educational and religious supplies for the prisoners of both sides until the armistice.

The repatriation of Allied prisoners in Europe and the far east was rapid. Planes were used by the Allied military forces in both areas to bring relief supplies to the liberated prisoners and to carry the liberated to rear areas where rapid transportation home was available. Allied prisoners overtaken by the Russian forces were repatriated through Odessa. Supplies of food and medicines were dropped from planes to isolated camps in the far east following the Japanese surrender. Messages from home collected by the American, British, Canadian, Australian and Netherlands Red Cross societies were delivered shortly after liberation to prisoners in the far east. U.S. army and navy facilities were used to repatriate Allied prisoners liberated in the far east. Some came out through the Philippines, some through

Okinawa and others through India.

Repatriation of axis prisoners held by the Allies proceeded slowly pending agreement among the Allies regarding the numbers which could be reabsorbed in axis countries and determination of policy regarding the use of prisoners for labour in Allied areas. Final plans for repatriation of axis prisoners was expected to be incorporated in peace treaties, but all axis prisoners in the U.S. were scheduled for repatriation by April 1946. By the end of 1945, 75,000 Germans and 25,000 Italians had left the U.S. Approximately 3,000 hospitalized Japanese prisoners had been returned to Japan by Dec. 1945, the remaining 3,500 were to be transferred to Hawaii early in 1946.

In Dec. 1945 the Nobel Peace prize for 1944 was awarded to the International Red Cross committee in recognition of the committee's work on behalf of prisoners of war.

**Displaced Persons.**—The term "displaced persons" as used during 1945 applied to persons of foreign nationality found in territories liberated or occupied by Allied forces. They consisted of United Nations displaced persons and ex-enemy displaced persons depending upon their nationality. Persons of enemy nationality and stateless persons who because of race, religion or political activity had been held in German concentration camps were described as "persecuted persons" and given special assistance by the Allies.

Approximately 6,400,000 United Nations displaced persons and persecuted persons were uncovered by the Allies in Germany and Austria. The military authorities assumed responsibility for their care and repatriation. In accordance with agreements made with their various governments and with transportation arranged by the military more than 5,000,000 had been repatriated in 1945. The 1,000,000 remaining at the end of the year consisted principally of Poles, Yugoslavs and Balts who objected to being returned to their countries, and Jews either stateless or of ex-enemy nationality. Their number was increased near the end of the year by the return to the U.S. and British occupation zones in Germany of persons once repatriated to the eastern European countries.

In the emergency period following V-E day, American Red Cross civilian relief workers assisted the military in the organization of centres and services for displaced persons. The United Nations Relief and Rehabilitation administration (U.N.R.R.A.) was later requested by the military to furnish teams to operate displaced persons assembly centres in Germany and Austria. The military, however, continued to have responsibility for repatriation movements, the furnishing of basic supplies and for



security measures. By Dec. 1945, U.N.R.R.A. was operating 350 assembly centres in Germany and Austria and had employed 5,000 persons for this work. U.N.R.R.A. responsibility for camp operations included health and welfare activities with remedial and preventive medical services, educational and recreational facilities and assistance in locating missing relatives. Under arrangements made by U.N.R.R.A., location bureaus were established in various Allied countries and a central tracing bureau at Frankfurt, Germany, in an effort to speed the reuniting of families. The International Red Cross committee, the national Red Cross societies and other social agencies collaborated in these efforts. Many voluntary agencies furnished personnel and supplies to assist displaced persons in co-operation with U.N.R.R.A. Among the U.S. agencies were included the Friends' Service committee, Joint Distribution committee, National Catholic Welfare conference and Young Men's Christian association, as well as relief groups interested in specific nationalities.

Some of the Jewish displaced persons of ex-enemy and stateless nationality classified as persecuted persons received asylum outside of Central Europe. Ten thousand persons from the Bergen-Belsen camp were received by Sweden and 1,000 orphans from the Buchenwald camp were taken to Great Britain. The problem of 100,000 such persons was still unsolved at the end of the year.

In the middle east U.N.R.R.A. continued to operate the camps for refugees previously transferred to that organization by the Middle East Refugee and Relief administration—a British organization. In 1944 when the transfer was made these camps housed 40,000 refugees, principally Greeks, Poles and Yugoslavs. During 1945 U.N.R.R.A. repatriated 20,000 Yugoslavs and 6,000 Greeks from the middle east camps.

By the end of 1945 no reliable over-all estimates were available regarding the number of displaced persons in the far east. An U.N.R.R.A. mission was in that area at the request of the military authorities to study the problem. The military government of Japan and Korea began the repatriation of Japanese from Korea and Koreans from Japan but only a small part of each group had been moved by the end of the year. U.N.R.R.A. developed plans for a displaced persons headquarters in Shanghai, China. (See also FEDERAL BUREAU OF INVESTIGATION; INTERNATIONAL LAW; RED CROSS; REFUGEES.) (P. E. R.)

**Prisons.** Reports issued during the latter part of 1945 revealed that inmates of United States state prisons manufactured, after Pearl Harbor, almost \$60,000,000 worth of matériel for the armed forces. That included steel navy pontoons, submarine and cargo nets, uniforms, mattresses, parachute cords, packing boxes for ammunition and rifles, stretchers, shirts, barrage balloons, camouflage nettings and ropes of all kinds. The federal institutions produced in excess of \$65,000,000 worth of war matériel. In addition, various penal farms raised a considerable amount of produce (meats, vegetables and fruits). Other reports revealed that thousands of inmates gave blood to the Red Cross blood banks, and some acted as "guinea pigs" to the cause of science.

With the termination of World War II against the axis, the matter of penal industries became an important problem for administrators. When war matériel was no longer required, the question arose: What can inmates now produce? Idleness is hardly conducive to the rehabilitation of inmates. Consequently, every effort was made to place penal industries on a firm peacetime foundation. The most practical way to create inmate jobs was to have institutions produce food, clothing and other articles for state institutions (e.g., hospitals, asylums, etc.) under what is known as the state use system. And there should also be ex-

change of products between states.

Because of the war and the consequent restricted use of materials, no new buildings were erected in the prisons. In many, however, educational facilities continued to be extended—particularly in vocational fields—to prepare inmates for useful work within the prisons or upon their release.

On July 8, 1945, Robert P. Patterson, then undersecretary of war, issued a report which showed that in 1944 only about 18,000 soldiers were convicted by general courts-martial. And in 1945, only 33,519 were imprisoned in the United States or overseas. Every attempt was made to rehabilitate those men, the aim of the army's program being "to restore to honorable status in the army all prisoners, who give evidence of their fitness for further service, and to provide, for those to be discharged because of unfitness, a program of educational vocational training which will help them to meet their obligations as citizens."

With the exception of England, no information was available about prisons in Europe. In England, inmates continued to aid in the war effort until victory was won. They produced considerable matériel and worked on both institutional and private farms, from which no escapes were reported. (See also CHILD WELFARE; CRIME.) (L. E. L.)

**Private Schools:** see EDUCATION.

## Prizes of 1945. Literary Prizes.—The literary prizes for the year 1945 were as follows:

AMERICAN ACADEMY OF ARTS AND LETTERS.—The WILLIAM DEAN HOWELLS MEDAL for the most distinguished work of American fiction published during the previous five years to Booth Tarkington. The poetry prize of \$1,000 and the medal of the AWARD OF MERIT to W. H. Auden. Six literature awards of \$1,000 each, of the Academy and the National Institute of Arts and Letters, to Kenneth Fearing, Feike Feikema, Norman Rosten, Jean Stafford, Marguerite Young and Alexander Greendale. National Institute AWARD FOR DISTINGUISHED SERVICE, \$1,000 to Dr. Richard Beer-Hoffman.

ANISFIELD-WOLF AWARDS (*Saturday Review of Literature*) for the best books on the subject of race relations. Two awards annually. The amount may vary from \$500 to \$1,500. To Gwethalyn Graham for her novel *Earth and High Heaven* (Lippincott) and to Gunnar Myrdal for *An American Dilemma: The Negro Problem and Modern Democracy* (Harper).

JAMES TAIT BLACK MEMORIAL AWARD (British) to Cicely V. Wedgwood for *William the Silent, 1533-1584* (Yale).

JOHN BURROUGHS ASSOCIATION BRONZE MEDAL for a "literary work in the field so eminently occupied during his life by John Burroughs" to Rutherford Platt for *This Green World* (Dodd).

NICHOLAS MURRAY BUTLER GOLD MEDAL (Columbia university) to George Santayana for *Realms of Being* (Scribner). SILVER MEDAL to Sidney Hook, professor of philosophy at New York university, New York, N.Y., for writings on educational theory (John Day).

CANADIAN NOVEL PRIZE, \$1,000 to John Macdonald for *Darkly the River Flows* (Coward-McCann).

CANADIAN GOVERNOR-GENERAL'S AWARDS, four silver medals for the best books by Canadian authors in fiction, poetry, creative nonfiction and academic nonfiction. To Gwethalyn Graham for *Earth and High Heaven* (Lippincott); to Dorothy Livesay for her verse *Day and Night* (Bruce Humphries); to Dorothy Duncan for *Partner in Three Worlds*, a biography of Jan Rieger, a Czech (Harper); to Edgar McInnis for *The War: Fourth Year* (Oxford).

CAREY-THOMAS AWARD for creative publishing to E. P. Dutton and Company, Inc. for the works of Van Wyck Brooks.

GEORGE WASHINGTON CARVER MEMORIAL AWARD, \$2,500 for Mrs. Palmer's *Honey*, a work on the importance of the Negro, by Fannie Cook (Doubleday).

COMMONWEALTH CLUB OF CALIFORNIA.—GOLD MEDAL FOR GENERAL LITERATURE to Sally Carrighar for *One Day on Beetle Rock* (Knopf); GOLD MEDAL FOR SCHOLARSHIP AND RESEARCH to Thomas Bailey for *Woodrow Wilson and the Lost Peace* (Macmillan); SILVER MEDALS to Edwin V. Westrate for *Forward Observer* (Dutton); Donald Hough for *Captain Retread* (Norton); Will Durant for *Caesar and Christ* (Simon); SILVER MEDAL for the best book of poetry to Kenneth Rexroth for *The Phoenix and the Tortoise* (New Directions); for the best juvenile to Howard Pease for *Thunderbolt House* (Doubleday).

DODD, MEAD PRIZES.—RED BADGE DETECTIVE STORY PRIZE, \$1,000 to Elinor Chamberlain for *Appointment in Manila*; INTERCOLLEGIATE LITERARY FELLOWSHIP prizes to Karon Kehoe for *City in The Sun*; to Constance Beresford-Howe for *The Unreasoning Heart*, \$1,200 each.

DOUBLEDAY, DORAN NOVEL PRIZE, \$20,000 to Elizabeth Metzger Howard for *Before the Sun Goes Down*; NEW WRITERS CONTEST PRIZE, \$4,000, to Charles Andrews Fenton for *But We Had Fun*.

FEMINA-VIE HEUREUSE PRIZE, 5,000 francs awarded to the *Editions de Minuit* (Midnight editions), 21 clandestine booklets published in France during the occupation. The prize was refused.

JOHN SIMON GUGGENHEIM MEMORIAL FOUNDATION FELLOWSHIPS.—Among the 96 fellowships awarded are the following: To Major Hodding

Carter for a book on the West Florida republic; Corporal Stanley J. Kunitz for poetry; Jerre Mangione for a work on the reconstruction of Sicily; Lieutenant Commander Laurance Thompson for a biography of Robert Frost; Marianne Moore; Theodore Roethke; Jean Stafford Lowell; Robert Pick.

GONCOURT PRIZE, 5,000 francs to Elsa Triolet for her collection of stories, *The First Blow Costs Two Hundred Francs*, the first work by a woman ever to win the prize.

O. HENRY MEMORIAL AWARD PRIZE STORIES, \$300 to Walter Van Tilburg Clark for "The Wind and the Snow of Winter" (*Yale Review*); \$200 to Irwin Shaw for "Gunners' Passage" (*New Yorker*); \$100 to Ben Hur Lampman for "Old Bill Bent to Drink" (*Atlantic Monthly*); \$100 to Captain Laurence Critchell for a first-published story, "Flesh and Blood" (*Atlantic Monthly*).

AVERY HOPWOOD FICTION AWARDS, to William Kehoe for *A Sweep of Dusk* (Dutton); to Rene Kuhn for *34 Charlton* (Appleton-Century); to Fynette Rowe for *The Chapin Sisters* (Current Books, Inc.).

HOUGHTON MIFFLIN LIFE IN AMERICA AWARD, \$2,500 to Wallace Stegner and the editors of *Look for One Nation* (picture book); \$2,500 to Lora Wood Hughes for *No Time For Tears*. HOUGHTON MIFFLIN FELLOWSHIPS, \$1,000 to Elizabeth Bishop for *North and South* (poetry); \$2,400 to Ann Petry for *The Street*, a novel about Harlem; \$2,400 to Beatrice Griffith for a study of Mexicans in the United States.

THOMAS JEFFERSON SOUTHERN AWARD, \$2,500 to Ben Lucien Burman for his novel, *Rooster Crows For Day* (Dutton).

ALFRED A. KNOPF LITERARY FELLOWSHIPS, \$5,000 each to Dr. Richard Hofstadter for his proposed book, *Men and Ideas in American Politics*, and Dr. R. Carlyle Buley to work on his history, *The Old Northwest, 1815-1840*.

LEAGUE TO SUPPORT POETRY, prize selection, *Brief Enterprise* by Alice Monks Mears (Dutton).

LIMITED EDITIONS CLUB GOLD MEDAL, to E. B. White for *One Man's Meat* (Harper).

MACMILLAN CENTENARY AWARDS for books by members of the armed forces of the United Nations in honour of the firm's 100th anniversary. \$2,500 each to Sergeant Josiah E. Greene for his novel, *Not in Our Stars* and Staff Sergeant Spencer Logan for *Democracy Needs the Negro*. Awards in England of £500 each to Captain George C. Greenfield for his novel *Desert Episode* and to Lieutenant John Davies for *Lower Deck*. Awards of £100 to Sergeant C. R. Livingstone, Major H. Montgomery Hyde and Flying Officer Dobson.

METRO-GOLDWYN-MAYER ANNUAL NOVEL AWARD, \$175,000 maximum, contingent upon sales, to Elizabeth Metzger Howard for *Before The Sun Goes Down* (Doubleday).

NEW YORK DRAMA CRITICS AWARD, to Tennessee Williams for *The Glass Menagerie* (Random House).

W. W. NORTON AND COMPANY MEDICAL AWARD, to Carl A. L. Binger, M.D. for *The Doctor's Job* (Norton).

SATURDAY REVIEW OF LITERATURE AWARD for distinguished service to American literature, to the Council on Books in Wartime for its *Armed Services Editions*.

EUGENE E. SAXTON MEMORIAL FELLOWSHIP founded by Harper and Brothers, to Richard Plant.

SHELLEY MEMORIAL AWARD (Poetry Society of America) to E. E. Cummings.

CONSTANCE LINDSAY SKINNER AWARD (Women's National Book association) to Lillian Smith, author of *Strange Fruit* (Reynal).

SOUTHERN AUTHOR'S AWARD, to Hodding Carter for *The Winds of Fear* (Farrar).

STANFORD UNIVERSITY DRAMATISTS' ALLIANCE.—THE STEVENS AWARD to Geneva Harrison for *The Daylight Grows*; the ETHEREGE AWARD to Sergeants Malvin Wald and Walter Doniger for *Father Was President*; the ALDEN AWARD to James Broughton for *Summer Fury*.

TWENTIETH CENTURY-FOX FILM CORPORATION FELLOWSHIPS.—Five fiction awards of \$1,500 each to Corporal Len Zinberg for *Golden Time*; Commander W. J. Lederer for *A Thing of Life*; Fletcher Markle for *There Was a Young Man*; Lieutenant Martin A. Dibner for *Journey For Jason*; Lieutenant E. Shippen Geer for *Overture to War*.

Children's Books.—CALDECOTT MEDAL for the most distinguished picture book to Elizabeth Orton Jones for her illustrations of *Prayer For a Child* by Rachel Field (Macmillan).

DOWNNEY MEDAL for the finest American children's book written in the Catholic tradition to Mairin Cregan for her *Rathina* (Macmillan).

JULIA ELLSWORTH FORD FOUNDATION, \$1,250 to Nancy Barnes for *The Wonderful Year* (Messner).

JUNIOR SCHOLASTIC GOLD SEALS, to Martha Mann for *Nathan Hale, Patriot* (Dodd, Mead) and to Cornelia Spencer for *The Land of the Chinese People* (Lippincott).

HERALD TRIBUNE SPRING BOOK FESTIVAL, \$200 each to Norma Cohn for *Little People in a Big Country* (Oxford); to Ruth Brindze for *Gulf Stream* (Vanguard); to Elizabeth Janet Gray for *Sandy* (Viking).

JOHN NEWBERY MEDAL to Robert Lawson for his *Rabbit Hill* (Viking).

PARENTS' MAGAZINE MEDAL for the year's most outstanding book for parents to George K. Pratt, M.D. for *Soldier to Civilian* (Whittlesey).

YOUNG READER'S CHOICE AWARD (Pacific Northwest Library association) *Snow Treasure* by Marie McSwigan.

Pulitzer Prizes.—The Pulitzer prizes in journalism and letters were endowed by Joseph Pulitzer, publisher of the *New York World*, and are awarded annually by the trustees of Columbia university on recommendation of the advisory board of the graduate school of journalism. In 1945 awards were made in 15 classifications as follows: \$500 novel award to John Hersey for *A Bell for Adano* (Knopf); \$500 drama award to Mary Chase for *Harvey*; \$500 history award to Stephen Bonsal for *Unfinished Business* (Doubleday); \$500 biography award to Russel Blaine Nye for *George Bancroft: Brahmin Rebel* (Knopf); \$500 poetry award to Karl Jay Shapiro for *V-Letter and Other Poems* (Reynal); \$500 music award to Aaron Copland; \$500 for meritorious public service to the *Detroit Free Press*; \$500 for distinguished editorial writing to George W. Potter of the *Providence Journal-Bulletin*; \$500 for distinguished correspondence to Harold V. (Hal) Boyle; \$500 for a distinguished example of a car-

toonist's work to Bill Mauldin; \$500 for news photography to Joe Rosenthal; \$500 each for telegraphic reporting (national) to James B. Reston; (international) to Mark S. Watson; (local) to Jack S. McDowell; special citation to the cartographers of the American press whose maps of the war fronts have helped notably to clarify and increase public information.

Nobel Prizes.—The Nobel prizes are five in number and are awarded annually. No awards were made for the years 1940, 1941 and 1942.

The 1945 literature award was made by the Swedish academy to Gabriela Mistral, whose real name is Lucila Godoy, a Chilean poet, teacher and diplomat, and the first Latin-American author to win the award. She served as Chilean consul in Petropolis 1940-45 and was formerly a teacher in the United States at Middlebury college, Middlebury, Vt., and at Barnard college, New York city.

The award of the 1945 peace prize was made by the Norwegian parliament to Cordell Hull, secretary of state in the Franklin D. Roosevelt cabinet, 1933-44.

The physics prize went to Professor Wolfgang Pauli of Vienna; the chemistry prize to Artturi Wirtanen of Finland; the medicine and physiology prize was divided among three scientists: Sir Alexander Fleming (English), discoverer of penicillin, and Dr. Ernest Boris Chain (British citizen) and Sir Howard Walter Florey (English), who developed penicillin into a lifesaving remedy.

(For prizes in other fields see ART EXHIBITIONS; CANADIAN LITERATURE; MATHEMATICS; MINERALOGY; MOTION PICTURES; RED CROSS; SCULPTURE; SOCIETIES AND ASSOCIATIONS; THEATRES; etc.) (B. GM.)

**Production, Industrial:** see BUSINESS REVIEW; WAR PRODUCTION, U.S.

**Profits, Company:** see BUSINESS REVIEW; TAXATION.

**Progressive Education:** see EDUCATION.

**Proportional Representation:** see MUNICIPAL GOVERNMENT.

**Protestant Episcopal Church.** In 1945 the life and work of the Episcopal Church was deeply influenced by the three great events which affected the life of the United States and the world: first, the ending of World War II; second, the efforts for the establishment of world peace; and last, but not least, the unleashing of atomic energy, the effects of which were only vaguely realized.

Many of the clergy who had served as chaplains resumed their regular work in the church, and there were indications that a considerable number of the young men who had been in military service would offer themselves as candidates for holy orders.

The statistics for the year showed some encouraging increases. The number of clergy in 1945 was 6,449, the largest on record. The total number of baptisms during the year was 86,410, the largest ever recorded in one year. The confirmations reported were 68,868, an increase of 5,109 over 1944. The total number of church members (baptized persons) was 2,269,962, and the total number of communicants was 1,568,152, both these items showing increases over 1944. Contributions for all purposes increased by \$7,052,029 over 1944, reaching a total of \$46,170,035. During 1945 the Episcopal Church launched a great special appeal for a fund to strengthen the religious work in the missionary fields, especially those which had been devastated by the war. This effort was in progress and it was hoped that this fund for reconstruction and advance would reach a sum of not less than \$10,000,000. (See also CHURCH MEMBERSHIP.)

(W. T. M.)

**Protons:** see ATOMIC BOMB; PHYSICS.

**Prunes:** see FRUIT.

**Psychiatry.** The chief topics under consideration in 1945 were the treatment of the acute mental casualties incident to active participation in battle and the problem of rehabilitation, particularly the integration of the psychoneurotic soldier into civilian life.

Narcosynthesis.—The use of drugs, given intravenously, as a means of inducing a state of narcosis, received wide recognition. R. R. Grinker and J. P. Spiegel augmented their previous reports on the value of sodium pentothal as a narcotizing agent and referred to their extensive experience, both in actual battle zones and also in hospitals and rehabilitation centres in the

United States. They treated members of the U.S. army air forces who were suffering from severe and moderate anxiety states. Sodium pentothal was given to combat fliers. Its intravenous use proved to be both a diagnostic tool and a therapeutic agent. The authors reported that under narcosis they, as observers, were able to gain from their patients a clear view of the intensity of anxiety, the degree of regression, the strength of dependent trend, the super ego attitude, and the dynamic relation of all these factors to each other. The repressed emotional situation was often clearly exposed in the narcotic state but simple exposure did not achieve synthesis. The material revealed was frequently lost when the individual was aroused from the effect of the pentothal and no change in his emotionally disturbed state had occurred. Narcosynthesis, according to R. R. Grinker and J. P. Spiegel, in this instance cannot result in any systematic improvement in the patient. This use of sodium pentothal for this purpose corresponds to the sodium amytal "interview" known as narcoanalysis and long used in civilian psychiatry, the benefits resulting almost entirely from the knowledge the therapists gain concerning the patient's concealed difficulties. Therapeutic gains only accrued after the use of sodium pentothal when the repressed painful or traumatic events and the anxieties and hostilities connected with them were not only exposed but accepted by the flier's ego. He then was able to live with them in an economical and realistic fashion, giving up the neurotic compromise which had resulted in his symptoms. This is the process which Grinker and Spiegel call narcosynthesis, in contradistinction to narcoanalysis. It was believed that this method may have use in the treatment of civilian neurosis. If only used as a diagnostic tool, the method should be of great help to psychiatrists in understanding the problems with which they have to deal. Psychiatrists used the amytal interview successfully and proved its value in the recovery of forgotten or painful experiences or conflicts.

"A.W.O.L.ism."—M. S. Guttmacher and F. A. Stewart pointed out that absence without official leave is one of the most serious behaviour maladjustments with which armies have to deal. The authors examined a series of men who were charged with A.W.O.L. at a training centre in the U.S. army and compared them with another group consisting of men referred to the same centre without A.W.O.L. as the reason for investigation. In general, the A.W.O.L. group had a much lower intelligence level and at least two-thirds of the men were psychiatrically abnormal. One-third were diagnosed as psychopaths, and a high percentage had a history of head injury, bed-wetting, alcoholism, criminalism or previous mental disorder. These same men also gave a story of truancy in school and the frequent quitting of jobs at work and over half of the men had previous convictions in civilian courts. "A.W.O.L.ers" came from the heedless, irresponsible parts of the population and many had failed to meet social and communal responsibilities in the past. In meeting this problem, the authors suggested that the psychopaths, which formed the bulk of the group, did not respond to ordinary persuasive reasoning or the usual reward and punishment. The psychiatrists reported that the expenditure of time and energy in trying to train this group was not worthwhile. On the other hand, men without a psychiatric disorder needed special handling and were treated by education and by assignment to a job, in an attempt to raise morale, consistent with the soldier's capabilities and civilian experience. "A.W.O.L.ism" in an army can never be eliminated entirely, but by careful handling on a sound psychiatric basis Guttmacher and Stewart believe that much of it can be reduced to a minimum.

**Rehabilitation.**—About 45% of the medical discharges from the armed forces in 1945 were for neuropsychiatric disabilities. To rehabilitate thoroughly this large group of individuals, there

were not enough psychiatrists nor were there adequate facilities to give this type of soldier all the treatment the medical profession would like to provide. On the other hand, there was observed a distinct aversion in the mind of the veteran for psychiatric treatment, and the problem for this reason was not quite as large as the actual figures of men discharged for neuropsychiatric disability implied. Treatment, to be successful, must be based on the individual relationship existing between doctor and patient, and the task, therefore, will fall to the civilian physicians for they are the men who know these patients best and are familiar with the facilities of the communities in which they live. It is with the group who carry the diagnosis of psychoneurosis that most trouble is likely to occur. In some cases, employers have refused to accept men with this diagnosis, although it is quite clear that such a diagnosis carries with it no adverse implication concerning that person's re-employability in industry. Of all the men rejected for military service many of them went back into civilian life in a successful manner.

There was a growing feeling, moreover, that the term psychoneurosis had been used with greater frequency than justifiable in medical diagnosis. Many patients with fears, anxieties and mild depressions were labelled psychoneurotic. In most cases, these symptoms were only of a temporary nature and due to a maladjustment which was readily righted. Modern psychiatry tended, therefore, to make diagnosis such as simple adult maladjustment. It was thought that the label psychoneurosis is often unjustified and indeed may be even dangerous as it tended, in the mind of the person so labelled and in the minds of others, to distinguish and to separate him from the rest of the supposedly normal world.

The psychiatric casualties of the war were roughly divided into two groups: Those suffering from previous difficulties and integrations, and those who break down due to intolerable circumstances but who were normal before the circumstances were evoked. The prognosis is very much better for the second group.

Reports indicated that there were many obstacles in the way of the veteran before he could be successfully reoriented into civilian life. Often a patient's family exerted a powerful influence on the man, and the personal life of the soldier at home offered a fertile field for anxiety. There may have been excessive fear of his wife's fidelity while he was away, or the anxiety about the children recognizing their father as the paternal parent, some children never having seen the father at all. The veteran's wife, moreover, may have been working during the war receiving an excellent salary, sometimes greater than the veteran's compensation. How this matter should be solved was another source of anxiety. Rehabilitation clinics should be distinct community affairs in which employers are an integral part. Once the veteran feels that the community is behind him, he will seek advice from the rehabilitation centre. It was hoped that industry would avoid the mistakes often made when it worked on a basis that the individual must be fit for all duties or for none at all. This was often a marked psychological barrier for the returning veteran. This attitude, however, gradually changed with the times, particularly due to the infiltration of psychiatrists and psychiatric teaching in industry during 1945. It was quite clear that some of the most efficient workers in any industry have partial handicaps but these are circumvented by applying the man's assets in other ways and minimizing his liabilities.

Much more important, moreover, was the attitude that some industrialists took in regard to the man discharged for a neuropsychiatric disability. The veteran often found it impossible to gain employment because the misunderstanding in regard to his disability led the industrialist to reject him. Much



of this was overcome by certain farsighted industrialists. One company kept in touch with about 5,000 employees who were in military service. Thus, when the man returned and sought his old employment, there was a basis for understanding even if the man had been discharged on psychiatric grounds. It was found that the group comprising battle-incurred disability discharges and men discharged as unfit for service because of some slight mental or physical disability did not prove to be much of a problem as far as rehabilitation was concerned. Those men, however, who were discharged because they were temperamentally unsuited for service were found to be emotionally unstable and this characteristic was not acquired in the service, but it was inherent in the man. This same man was a problem before the war, and as a veteran, he was more of a problem than ever because he took advantage of being classified as a veteran. He wanted preferential regard. He was a misfit and had been a misfit even before he entered the service.

A certain amount of sound literature was produced to aid the veteran, the employer and the public as well as the general medical profession in helping the returned service man and woman. Particularly to be recommended are: *The Shaping of Psychiatry by War* (1945), by John Rawlings Rees; *When He Comes Back and If He Comes Back Nervous* (1944), by Thomas A. C. Rennie and Luther E. Woodward; *Soldier to Civilian* (1944), by George K. Pratt.

Attempts at organization of the rehabilitation problem among industrial workers was established in Great Britain by the National Council for Rehabilitation. A centre was set up at Roffey Park subsidized by various progressive firms, employers and interested benefactors. Various governmental agencies gave approval including the ministry of health. The centre proved a success in making available appropriate treatment for patients with various symptoms of subhealth including industrial fatigue, depression, anxiety states and other forms of disability. The program was carefully graded according to patients' capacities and special attention paid to principles of practice of wholesome feeding habits and social activities. A follow-up study of 600 patients six months after discharge showed that more than 80% were in good health and doing full-time work.

**Civilian Rehabilitation.**—Observations were made in occupied Holland, in liberated France, Belgium and other parts of Holland which convinced A. M. Meerloo that the people needed rest and must be handled with patience, for nearly all were slightly neurotic or psychopathic. The principal psychopathic attitudes found were a general mental paralysis, intent suspicion and increased aggressiveness. Gradually, as the people got better food, more rest and adapted themselves to more normal society, the normal reaction came back. They talked less about themselves, anxiety symptoms disappeared and their minds became more active as they became absorbed in the more important problems of the times. Among the young, the aftereffects lasted longer than among the older people whose characters were already formed before the war. Terror, fear and exhaustion continued to make themselves felt for a long time. The problems of mental hygiene and the psychological recovery of the masses surpassed in difficulty many other problems.

**Shock Therapy.**—A vast amount of knowledge accumulated on the subject of shock therapy, a subject being studied in all civilized countries in the world. New material was added which tended to change the points of view without minimizing the value of this type of treatment in psychiatry. It was believed that shock therapy had a definite place in the practice of psychiatry. The greatest advantage of the insulin method seemed to be in its effect on schizophrenia while the convulsive therapy methods were found to be the applications of choice in the affective condition.

**Man's Frontal Lobes.**—The function of the two large frontal lobes of man's brain has long been a topic of investigation and of speculation. It was almost universally thought that removal of these lobes by a surgical procedure would produce serious psychological defects in the patient and, indeed, many reports appeared in the medical literature to this effect. One of them, which was widely quoted as the patient was carefully studied both before and after the operation, was the case of a 16-year-old boy who sustained a fracture of the skull which destroyed both frontal lobes of his brain. A report in 1940 indicated that the boy, who had suffered from severe epileptic attacks and irresponsibility for ten years, had shown considerable recovery a year after operation. Prior to the removal of both frontal lobes, the patient was childish, violent, stubborn and destructive and had a gross defect of memory and ordinary judgment. There were periods, however, of normal responsiveness and a restrained behaviour. The patient was re-examined by D. O. Hebb, six years later. In 1945, his relatives were sure that the patient was normal in every way and independent testimony from three residents of the village

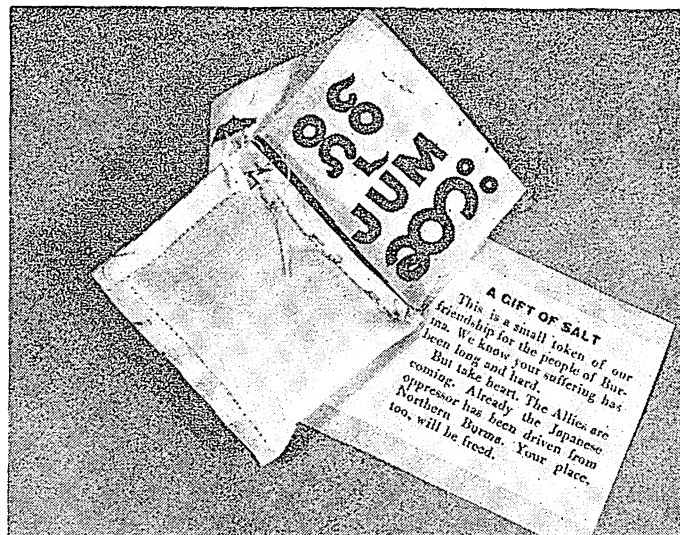
in Nova Scotia where the patient lived indicated that there was nothing wrong with the patient's behaviour. The patient was able to join the Canadian army in Feb. 1942. A psychiatric examination failed to reveal any defect in this man, and it was not until he had an epileptic attack, ten months after enlistment, that it was felt he should be discharged. The patient continued to have infrequent epileptic attacks but made a good social and economic adjustment. He showed some defect in planning for the distant future but this defect was not clearly shown to be due to brain destruction. No defect of foresight for the immediate future was noted. (See also **PSYCHOLOGY**.)

**BIBLIOGRAPHY.**—R. R. Grinker and J. P. Spiegel, *Men Under Stress in and after Combat* (1945); M. S. Guttmacher and F. A. Stewart, "A Psychiatric Study of Absence without Leave," *Am. J. Psychiat.*, 102: 74-81 (July 1945); First Annual Report, National Council for the Rehabilitation of Industrial Workers (London, 1945); J. E. Davis, "Rehabilitation Jitters—Industry's Phantom Bugaboo," *Occup. Therapy*, 23:304-309 (Dec. 1944); A. M. Meerloo, "Psychopathic Reactions in Liberated Countries," *Lancet*, 1:443-444 (April 1945); D. O. Hebb, "Man's Frontal Lobes," *Arch. Neurol. & Psychiat.*, 54:10-24 (July 1945). (H. R. V.)

**Psychology.** Psychology as an academic discipline and as an applied profession was in the process of transformation as a result of World War II. The most general aspect of the change was the nullification of the divorce between the self-centred psychological laboratory, with its emphasis upon the cult of pure science, and the world of practical human problems. Laboratory psychology in its pursuit of scientific rigour had been so steeped in the traditional methodology of an elementaristic psycho-physics that its approach to psychological processes was often artifactual. The same atomistic philosophy carried over to many applied psychologists who tended to ignore the significant dimensions of their problems for the item-reliability approach of the psychometrician. The vacuum created by the lack of an adequate experimental psychology was filled by the work of practitioners, psychiatrists and social scientists. The importance of making popular psychology scientific and scientific psychology fertile did receive attention before World War II but it took the mobilization of resources toward a common goal to achieve major progress in this direction. Specifically, World War II affected psychology in three ways:

(1) In place of its concentration upon man's responses to isolated aspects of his inanimate environment, the laboratory studied man's adaptation to machines. Many of the OSRD (Office of Scientific Research and Development) projects in psychology during World War II were concerned with fitting machines to men, i.e., finding out how instruments and equipment for planes, tanks and ships could be constructed for maximum efficient use by their human operators. This type of research could be readily applied both to industrial production and to consumer use of products. Psychologists returning to universities were co-operating with private industry to develop such

TWO-OUNCE PACKETS of salt, like this, were dropped on Burmese villages, where salt was dangerously scarce in 1945, at the suggestion of the OWI's branch of psychological warfare



human engineering. The navy department in its research laboratories was maintaining a special section headed by psychologists to ensure that in addition to having the best equipment mechanically it would also have the most useful apparatus psychologically. The importance of this development was that the laboratory would study the human being not as a bundle of unrelated reflexes and sense organs but as an integrated functioning organism in the perception and manipulation of his world.

(2) The evaluation of personality, formerly restricted to the measurement of single traits in artificial situations, was increasingly taking into account the total person in life situations. The major impetus here came from the Office of Strategic Services which called in some of the leading psychologists and psychiatrists of the U.S. to aid in the selection and training of agents for intelligence and undercover work. These experts collaborating in assessment schools devised crucial situations in which candidates could be observed and evaluated. Candidates, for example, upon reporting to assessment camps had to live there for several days under assumed identities with complete loss of social status and with no knowledge of the extent to which the problem-situations were staged. British psychologists also departed from the atomism of psychometric testing in working out procedures for the selection of non-nazi Germans for administrative posts in Germany. Through long clinical interviewing of German prisoners of war, of known degrees of nazi identification, the British scientists found that the significant personal core of nazism was a matter of authoritarian character structure. From the detailed psychiatric interview key questions were selected, most of them indirect in nature, which searched into the educational philosophy and the everyday values of the subject. These questions comprised a short, practical test which was employed by the British occupying forces.

(3) Problems of human relationships, difficult if not impossible for laboratory experimentation, were being studied through field methods which utilized adequate scientific controls. The opinion polls had stimulated the idea of field research for ascertaining popular feeling and thinking, but under the urgency of war needs, field methods were evolved to observe and record human reactions at the deeper levels of motivation and behaviour. The leadership in this development came from the Program Surveys division of the U.S. department of agriculture under the directorship of R. Likert. This division, set up to study administrative problems at the grass-roots level, was used by OWI, OPA, WPB and the U.S. treasury department to find out how well war programs were functioning. The division improved sampling procedures, developed depth interviewing to get at motivational factors, constructed its studies with experimental design on the basis of psychological hypotheses and conducted supplementary check studies directed toward key informants and behaviour records.

Perhaps the best example of the application of field methods in social-psychological research was the work of the morale division of the U.S. Strategic Bombing Survey. President Roosevelt in the fall of 1944 directed the secretary of war to set up a survey in the secretary's office to evaluate the effects of strategic bombing upon the German war effort. Social psychologists were recruited for a morale division of the survey to determine how the capacity and the will of the German people to resist was affected by bombing. Preliminary studies were made in the spring of 1945 of captured German civilian mail, of German prisoners of war, of French escapees and of civilians in captured German towns. For purposes of the final study, conducted in June and July 1945, Germany was divided into city groups on the basis of bomb tonnage, from unbombed towns to heavily bombed cities. Cross-sections of the populations were inter-



AT THE SUGGESTION of U.S. military intelligence, balloon-held streamers announcing the Japanese surrender were dropped over the Sierra Madre range of Luzon in Aug. 1945; they brought many remaining Japanese out of hiding to surrender

viewed in these areas, house destruction and other physical damage was recorded, official German records including the famous *Stimmungsberichte* were consulted and displaced Russians, Poles and Italians were questioned. Since the extent of bombing was already established, the interview schedule with German civilians did not ask directly about bombing but inquired into the many aspects of morale. Relative level of morale in different areas could then be related to degree of bombing without being affected by a certain amount of absolute distortion in answers. The results showed little confirmation of the belief that bombing strengthens morale. The German will to win was seriously depressed by the heavy air attacks and the majority of civilians were ready to accept surrender long before the end. They remained in the war because of the repressive nazi controls and because of the lack of revolutionary initiative among the German people. The nazis also countered the adverse morale effects of bombing with excellent air raid shelters and a well organized system of relief and evacuation. Some 350,000 German civilians were killed and about twice that number injured by air attacks—a smaller casualty rate in relation to bomb tonnage than that of England. The findings indicated, moreover, that continued heavy bombing does not bring successive decrements of morale. Under repeated bombings people became wholly concerned with the problems of fox-hole existence and grew politically apathetic. Hence they showed no active resistance to the regime in power. German industrial morale also declined under bombing but production was maintained for a long time by nazi penalties, rewards and countermeasures. By the fall of 1944, however, bad cracks appeared in the structure and in a few months the collapse was complete.

In general, psychology emerged from World War II with a growing realization that while as a young science it lacked the formidable body of proved fact of physics and chemistry, it

possessed the methods to obtain answers to important problems if given the opportunity and the resources. In this connection should be noted the move of social psychologists to start research on the number one world problem, the preservation of peace. The Society for the Psychological Study of Social Issues devoted its third yearbook under the editorship of G. Murphy to the assembling of research findings and psychological thinking on maintaining peace.

Research in the interest of the war effort followed two organizational patterns: (1) operational research carried on directly by a military or governmental agency and (2) the farming out of projects to individuals and institutions under the aegis of the OSRD, the N.R.C. (National Research Council) or the National Defense Research Committee. The committee on the Selection and Training of Aircraft Pilots of the N.R.C. was an outstanding example of the second pattern. This committee stimulated, supervised and partially supported experimentation at 40 universities and centres for a five-year period under grants from the Civil Aeronautics Administration amounting to about \$900,000. Many of the tests employed by the army and navy for the selection and classification of pilot candidates were either developed by or in collaboration with the committee. For example, the biographical inventory which served as one of basic instruments in cadet selection in the navy was the immediate outcome of the committee's Purdue project. Likewise the psychomotor tests employed by the army air forces, especially the rotary pursuit test, grew out of co-operation between university and army research. In the training of pilots, moreover, the committee showed the casual nature of flight instruction and aided in the development of courses in flight instruction, in flight manuals, in the use of a standard flight and in a general systematizing of pilot instruction in the air and on the ground. Its studies, indicating that fatal accidents are associated with stalls growing out of turns at low altitudes, emphasized a shift in training from precision entries and execution of stalls and spins to extended practise in slow flying and other procedures making for training in the avoidance of and immediate recovery from the stall.

Within the armed services themselves psychological research centred about the selection and classification of men, their training for specific assignments, their morale and the salvaging of psychological casualties. Instances of the type of work done follow. An answer to malingering on mental tests was devised by H. Goldstein on the assumption that the malingerer does not follow the same pattern of error as the bona fide failure. The assumption was applied specifically to constructing a malingering key for the army's visual classification test but the method can be applied to most psychological tests. The broader aspects of malingering were studied by navy psychologists who found a distinctive pattern of performance on the Rorschach test associated with illness and incapacity. Malingerers showed a low total number of responses, a complete failure to respond to some plates, a slow reaction time and a striking difference between performance on the Rorschach and other tests.

Validation, the most difficult problem in personality testing, was successfully met in one army special training centre by modifying and combining into one test of maladjustment the Bell inventory, the paranoia and hypochondria subtests of the Minnesota Multiphasic Personality inventory and a specific army adjustment scale. This instrument was validated against actual success in the training centre and gave predictive value beyond that of the aptitude tests. Another validation procedure for personality testing involved the use of the pattern or profile of responses to the Bernreuter inventory rather than the total item score on the traits it seeks to measure. Pattern analysis differentiated a random or normal group of men in the air forces

from the men diagnosed as psychoneurotic or constitutionally psychopathic.

In treating combat neuroses, drugs were used extensively by military psychiatrists to reduce the time necessary for the uncovering of unconscious pathogenic material and the production of abreactions. Narcosynthesis through the use of sodium pentothal was preferred in the air forces to shock therapy (insulin or electric) or to narcosis (continued sleep treatment). Continuous sleep induced by sodium amytal did not permit sufficient activity of the ego to produce synthesis of dissociated ideas and emotions.

As World War II drew to a close the nature of the psychological work in the services shifted from job analysis and personnel classification to design of training procedures, to an evaluation of U.S. and enemy methods of warfare, to clinical psychology and to separation counselling. A preview of veteran adjustment problems can be seen in the kind and extent of maladjustment in the army. About one-half of all discharges before V-J day were due to mental defects. In returning to civilian life this group was expected to be a greater problem than before, because they might not find their way back to the type of simple environment to which many of them had adapted. In the case of the psychoneurotic and the psychopath there was also the prospect of the intensification of the disorder both because of maladjustment in the army and of the dislocation in trying to adjust once more to civilian life. In these cases as well as in cases of war neuroses and combat fatigue the whole problem is circularly re-enforced by the labelling of discharges as abnormal. To give the veteran insight into his own problems of adjustment the emergency committee of the N.R.C. published *Psychology for the Returning Serviceman*. This volume though popular in presentation was prepared by experts, under the editorship of I. Child and M. Van de Water, and covers both the problems common to all servicemen and the particular needs of special groups as, for example, those who suffered casualty or combat shock.

**BIBLIOGRAPHY.**—G. Murphy, *Human Nature and Enduring Peace* (1945); M. S. Viteles, *Psychological Bulletin*, 42:489-526 (1945); H. Goldstein, *ibid.*, 42:104-118 (1945); A. L. Benton, *Journal of Abnormal and Social Psychology*, 40:94-96 (1945); W. D. Altus and H. M. Bell, *Psychological Bulletin*, 42:98-103 (1945); H. O. Schmidt and F. Y. Billingslea, *Journal of Abnormal and Social Psychology*, 40:70-76 (1945); R. R. Grinker and J. P. Spiegel, *Men Under Stress* (1945); G. M. Gilbert, *Journal of Abnormal and Social Psychology*, 40:287-300 (1945); I. Child and M. Van de Water, "Psychology for the Returning Serviceman," *Infantry Journal* (1945); D. G. Marquis, *Psychological Bulletin*, 42:225-230 (1945). (D. KA.)

**Public Assistance:** see CHILD WELFARE; RELIEF; SOCIAL SECURITY.

**Public Buildings Administration:** see FEDERAL WORKS AGENCY.

**Public Health Engineering.** **Water Supply.**—Experiments with the application of fluorides to public water supply for protection of certain age groups against dental caries were extended in 1945. The most important addition to this large-scale effort to avoid serious disabilities in young children was in the application of sodium fluoride to the public water supply of Grand Rapids, Mich., with a population of about 165,000. The experiment was expected to continue over a period of at least ten years and was started on Jan. 25, 1945.

In order to establish a dental base line for evaluating the results of this large-scale undertaking, 30,000 Grand Rapids school children were examined. Several thousand school children were to be examined annually to determine the variations from the beginning of the experiment.

The city of Muskegon, Mich., with a population of about



48,000, was to serve as the control community, since it too obtains its water supply from Lake Michigan. From 6,000 to 8,000 children were examined in this community.

These large-scale efforts included control operations in Kingston and Newburgh in New York state and Brantford, Ontario, in Canada.

Important evidence of peculiar epidemics associated with water supply transmission was developed during 1945. Epidemics of infectious hepatitis were studied in the United States and elsewhere, which appeared to have had their origin in sewage polluted waters. For the most part, these epidemics were attributed to gross sewage pollution primarily of unprotected underground waters. Heavy chlorination of water appears to give adequate protection against the virus of this disease. Little or no additional evidence was at hand to link the occurrence of poliomyelitis cases with the potable water supplies generally in use.

The heavily polluted underground waters appeared to be incriminated also in the deaths of infants. Cyanosis due to methaemoglobinaemia may occur in infants with gastrointestinal disturbances who receive boiled water which comes from poorly constructed dug or drilled farmyard wells with defective casings. The water may contain large amounts of nitrate compounds which, when ingested, are converted by bacterial action to nitrites. The nitrite ion is absorbed and oxidizes haemoglobin to methaemoglobin.

Apparently the condition was not rare in 1945 and investigators believed that ample opportunity for frequent occurrence of the cyanosis existed.

Real progress was made in better understanding of the mechanism of the action of chlorine and its compound in bacterial disinfection.

In field operation, where high organic contents and high bacterial concentrations are frequently encountered, important substitute materials were developed during 1945. Success was being obtained with the triiodides, particularly triglycine hydrotriiodide, in which elemental iodine is the active agent. The compound was prepared in the form of stable, quickly dissolving tablets, liberating some 7.5 p.p.m. of elemental iodine in a quart of water.

Synthetic ion-exchange resins were being steadily improved for the treatment of water supply so that large-scale central demineralization units, particularly in industrial plants, supplied a purer water at a lower cost than formerly available. Reductions of the chemical constituents of water, approaching the concentrations of highly distilled waters, were practically attainable.

**Insect Control.**—DDT, or dichloro-diphenyl-trichloroethane, continued to hold the stage as one of the "miracle compounds" of World War II. Its use was extended through the world in the control of flies, mosquitoes, lice and other insects, with marked reductions in malaria, typhus, bubonic plague and dengue fever.

Its application by means of aeroplane dispersion and by spraying on the walls of houses extended the successful use of this material with constantly diminishing costs. The methods adjusted to local requirements by means of entomological control were expected to result in reducing materially and economically insect-borne diseases throughout the world.

Dimethyl phthalate, a liquid insect repellent, was very successful against mosquitoes and mites ("chiggers"), when applied to the skin and to the clothes.

**Rodenticides.**—Rodents as reservoirs of diseases affecting man and as predatory animals have resisted control for centuries. War-created shortages of chemicals familiar as rodenticides actually favoured the development of substitute or improved chemical compounds for these purposes. Two effective materials developed during the war might supersede the more conventional ones of the past. They are "1080," or sodium fluoroacetate, and "antú," or alpha-naphthyl-thio-urea. Both compounds are highly toxic, stable, dependable and acceptable to rats and perhaps to most other rodents.

**Air Sanitation.**—Studies were continued in army, navy and civilian installations to answer two major questions in this new field of environmental sanitation: (a) where and under what conditions is droplet infection sufficiently important to warrant control, and (b) what methods are most effective and most economical? The conclusions to be anticipated from these studies "may well open the way to a new field of environmental sanitation of major importance to human health and welfare."

**BIBLIOGRAPHY.**—Gordon M. Fair, "The Present Status of Water Dis-

infectants for Emergency Use," *Bull. No. 59*, Com. on Medical Research, Office of Scientific Research and Development (Sept. 1945); David E. Green, "Sterilization of Drinking Water. Mode of Action of Chlorinating Agents," *Bimonthly Progress Report No. 4*, Com. on Medical Research, OSRD (Feb. 1945); W. C. Bauman, "Synthetic Ion-Exchange Resins," *J.A.W.W.A.*, 37:11 (Nov. 1945); H. Comly Hunter, "Cyanosis in Infants Caused by Nitrates in Well Water," *J.A.M.A.*, 129:2 (Sept. 1945); S. W. Simmons and staff, "Tests of the Effectiveness of DDT in Anopheline Control," *Public Health Reports*, 60:32 (Aug. 1945) United States Public Health Service; R. L. Metcalf, A. D. Hess, G. M. Jeffery and G. W. Ludwig, "Observations on the Use of DDT for the Control of *Anopheles Quadrimaculatus*," *ibid.* 60:27 (July 1945); Carlos Ortiz-Mariotte, Felipe Malo-Juvera, "Control of Typhus Fever in Mexican Villages and Rural Populations through the Use of DDT," *A.J.P.H.*, 35:11 (Nov. 1945); "Orlando Scientists Develop New Insect Repellents," *J. Franklin Inst.*, 240:5 (Nov. 1945); James E. Perkins, "Evaluation of Methods to Control Air-borne Infections," *A.J.P.H.*, 35:9 (Sept. 1945). (Ab. W.)

**Public Health Service:** see EPIDEMICS AND PUBLIC HEALTH CONTROL; FEDERAL SECURITY AGENCY; VENEREAL DISEASES.

**Public Housing Authority, Federal:** see HOUSING.

**Public Libraries:** see AMERICAN LIBRARY ASSOCIATION; LIBRARIES.

**Public Opinion Surveys.** **Elections.**—During 1945, their tenth year of operation, public opinion surveys offered further evidence of the accuracy of representative sampling methods by predicting the outcome of elections in Canada, Britain, France and Denmark within an average margin of error of 1½%. Despite the presence of from three to five major parties along with a scattering of minor parties in each of these elections, and despite the difficulties imposed by postwar conditions, the maximum deviation of survey from actual figures was in no case more than 3%. But the fact that the Labour party sweep in the British elections took most journalists by surprise indicated that opinion surveying had yet to win acceptance in its most publicized and most conspicuously successful activity.

**New Organizations.**—Following the example of the Svenska Gallup Institutet, which had been operating after 1943, newspapers and magazines in the three other Scandinavian countries sponsored surveying organizations in 1945: the Dansk Gallup Institut, the Suomen Gallup Oy and the Norwegian Institute of Public Opinion.

The formation of International Public Opinion Research, Inc., of New York city, to investigate public opinion in South American countries was announced by Elmo Roper, conductor of the *Fortune* survey, and Joshua B. Powers, newspaper representative. Preliminary reports were made to corporate sponsors in the U.S.

The trend toward local surveys in the U.S., noted in 1944, was continued with the establishment of a District of Columbia poll by the *Washington Post* and the announcement of plans to resume and expand a Texas poll discontinued at the outbreak of war.

**Basic Findings.**—In a book, *The People's Choice*, Paul Lazarsfeld, Bernard Berelson and Hazel Gaudet reported the results of an intensive, continuing study of the effect of political propaganda and discussion on the people of Erie county, Ohio. The field work had been done in 1940 under the direction of Elmo Roper and Elmo C. Wilson. Among the conclusions reached by the authors were these: political propaganda has little or no direct influence on votes, except that it "gets the vote out"; "leadership" in a large society is created anew in every small social group and therefore seldom flows "from the top down."

In Oct. 1945 the *Fortune* survey published a summary of its four-year findings on the influence of information on opinion. It demonstrated that well-informed people reach definite opinions more readily than do uninformed people, and that the opinions reached by the well-informed are more moderate in

character. The uninformed tend to go to extremes. A close relationship between the amount of current affairs information possessed by people and the amount of formal education they had completed was also established.

**Occupied Countries.**—Elmo C. Wilson recorded very wide shifts in the attitude of German prisoners of the U.S. army toward the Nazi party after the prisoners had been shown pictures of German concentration camps.

Guided by Rensis Likert of the U.S. department of agriculture, the morale division of the U.S. Strategic Bombing survey conducted several thousand interviews with German citizens and with displaced persons in the occupation zones of the U.S. and British armies. Using an "open interview" method, which permitted statistical tabulation but preserved free individual response, interrogators sought to trace the decline of faith in Hitler, in the Nazi party, and in German victory; the rise of clandestine radio listening; the direct effects of bombing; the morale differences between much-bombed and little-bombed areas. By the end of 1945 a similar study had been completed in Japan, with American-born Japanese as interrogators. It was expected that both studies would be published early in 1946.

The public opinion survey section of the Japanese board of information was abolished by occupation authorities on the ground that it was a device for introducing officials into private homes and editorial offices in order that they might discover and coerce opinion—hence it was a continuation of forbidden "thought control" activities. Many hastily improvised surveys of Japanese public opinion were prepared by Japanese individuals for sale to foreign press representatives.

**The Atomic Bomb.**—From the dropping of the first atomic bombs in August until the end of 1945 both the American Institute of Public Opinion, under the direction of Dr. George Gallup, and the National Opinion Research centre, under the direction of Harry Field, continuously probed U.S. opinion on the bomb and its control. Both surveyors reported an extraordinarily high and continuously maintained interest in the bomb even after it had ceased to dominate the newspaper headlines. U.S. opinion favoured measures for international control of atomic fission, but hesitated to give up the secret of making the bomb. Nevertheless most people in the U.S. believed that other nations would discover the secret for themselves in four or five years. Reluctance to share the secret seemed to hinge on uncertainty concerning effective controls and hope that the U.S. would maintain an advantage in atomic science. U.S. negotiators at international meetings on the atomic bomb seemed to be following the line of their public opinion at home. (R. Wd.)

**Public Roads Administration:** see FEDERAL WORKS AGENCY; ROADS AND HIGHWAYS.

**Public Utilities.** A summary of the events important for public utilities in the United States during the year 1945 may well divide the year into two segments: the three-quarters interval ending in September during which the dominant note continued to be public utility operation in the interests of the war effort and their control by war agencies, especially by the Office of War Utilities of the War Production board; the remainder segment is the quarter year interval during which war control practically reached the vanishing point.

The year began with a brownout order by War Mobilization Director James F. Byrnes to save coal, followed by a WPB order forbidding the use of electric energy for nonessential advertising and ornamental lighting. By May 1945, as war contract terminations and cutbacks grew, the gradual revocation of orders controlling the production and use of power, water, gas and communication services once more permitted the resumption

of these services for unrestricted civilian supply. In the main only travel and communications restrictions remained with telephone service subject to a revised system of priority ratings that emphasized reconversion needs.

Despite the opposition of about 80% of the water users in the Colorado river watershed, notably the city of Los Angeles and other southern California cities and irrigated areas, the Foreign Relations committee approved the Mexican Water treaty 18 to 4 in February. It was later ratified by the senate with 11 reservations by a vote 76 to 10. The treaty provided for the construction of a series of multiple purpose dams in the lower and boundary section of the Rio Grande river, together with auxiliary flood protection works by a joint boundary commission. Electric power produced from the flood waters thus conserved would be divided equally between the two countries. Since two thirds of the water supplied would come from Mexican sources, while the treaty accorded the annual use of at least 350,000 ac.ft. of the same for irrigation purposes in Texas, the unequal distribution of irrigation water in the lower reaches of the Rio Grande near Brownsville was balanced off by the concession of 750,000 ac.ft. additional guaranteed supply to Mexico out of the water stored back of Boulder dam. This supply would be delivered to Mexico at the border through the All-American canal supplying the Imperial valley of California or through diversion works in the lower river itself. Californians were willing to concede the use of 750,000 ac.ft. based upon prior use on Mexican lands, but regarded the additional quantity as a good-will concession to Mexico in the interests of hemisphere solidarity but at the expense of and in violation of implied agreements with U.S. contract users.

For the first time after the depression of the early 1930s electric power output registered a decline. While the generator capacity grew to almost 50,000,000 kw. with a net increase for the year of 712,000 kw., there was a significant decline over the increases in capacity recorded for the previous war years. The total output, however, declined from 231,000,000,000 kw.hr. to 222,000,000,000. The decline was due to decreased sales to the large energy users engaged in war production. On the bright side of the picture it is necessary to record, however, that the output from hydro plants increased because 1945 was a good water year. Moreover, the availability of surplus power brought increased sales to other users, new customers aggregating 851,000 and an over-all increase of almost \$60,000,000 in revenues.

Construction activities were held down by the shortage of labour and materials. But there was no shortage of planning for future activities. In Dec. 1944 President Roosevelt signed a Flood Control bill which looked forward to the development of river systems with incidental irrigation, navigation, soil erosion control and electric power benefits, estimated to equal the \$1,500,000,000 to be expended by the government upon these projects. This legislation brought to a head the controversy over Senator James E. Murray's bill providing for a Missouri Valley authority, analogous in its provisions to the TVA. Reintroduced in January the bill caused vehement differences before congressional committees and elsewhere over the question whether these conservational activities should be in the hands either of autonomous federal corporations or of the traditional old-line agencies like the army engineers or the interior department's bureau of reclamation. A related question was involved in the legislation passed toward the close of the year giving the president broad powers to reorganize and condense the governmental administrative machinery. Under the plan as adopted the reorganization would become automatically effective in 60 days unless vetoed by both houses of congress. The public utility interest in the matter was that such agencies as TVA,

the Federal Communications commission and the Federal Power commission might find that they had lost the independent status which they hitherto enjoyed.

Another long-standing issue of public policy was reaching its final solution toward the close of the year as the U.S. supreme court began hearings on the constitutionality of the so-called "death sentence" clause of the Public Utility Holding Company act of 1935. The North American Co. appealed the divestment order of the Securities and Exchange commission by virtue of which it would retain only its electric utility holdings in and around St. Louis, Mo.

It might well be that the most significant event of 1945 for all power producing utilities was the successful release of atomic power at Alamogordo, N.M. (See also ATOMIC BOMB; DAMS; ELECTRICAL INDUSTRIES; LAW; RURAL ELECTRIFICATION; TENNESSEE VALLEY AUTHORITY.) (M. G. G.)

**Publishing (Book):** see BOOK PUBLISHING.

**Puerto Rico.** A United States insular dependency in the West Indies; area, 3,423 sq.mi.; pop., 1943 est. 2,037,255 (1940 census: 1,869,255). Whites comprised 76.2%, Negroes, 23.8%. The chief cities (with 1943 estimated populations) are San Juan, the capital (185,879); Ponce (67,423); Mayagüez (53,216); Caguas (25,300); Arecibo (26,184); Río Piedras (21,537). Languages: Spanish and English; religion: predominantly Roman Catholic. Governor in 1945: Rexford Guy Tugwell.

**History.**—Various proposals for a change in Puerto Rico's political status, long a subject of agitation in the territory, were made during 1945. The most significant event, however, was the statement by President Truman in his Oct. 16 message to congress when he urged that Puerto Ricans be permitted to vote upon whatever proposal or proposals for a change of status congress was prepared to enact into law. Alternatives under discussion, as listed by the president, included granting to Puerto Rico the right to elect its own governor and to enjoy more self-government, statehood, complete independence and a dominion form of status.

Economic conditions continued relatively good in the territory during 1945. Seasonal unemployment increased in the fall, following the harvesting of the sugar crop. At the year's end, many former servicemen and civilian workers who had been employed on the mainland were beginning to return to the territory, bringing the threat of greater unemployment as well as the loss of substantial earnings which had formerly been remitted to the island.

At the end of the year, the valid awaiting assignment load reached 194,943 registrants which, together with 19,733 persons working on emergency projects on June 30, 1945, showed that a total of 214,676 persons still were in need of employment. The average number of persons employed in the War Emergency program during the fiscal year 1944-45 was 31,612. Of that number, 25,540, or more than four-fifths, were unskilled labourers. The largest number of workers was used in projects for the construction of highways, roads and streets, about 17,001 being employed in that work.

Prices continued to rise parallel to those on the mainland, although they were under strict control. Part of the rise was attributed to the extreme shortages of many goods, shipments of which had been cut off during the war years. Shipping was much easier, however, and all cargo controls to the island were abandoned in July.

**Education.**—A total of 341,511, or 53.31% of the population of Puerto Rico between the ages of 6 and 18 was enrolled in public and private day schools in 1945. The grand enrolment in public schools and private day, vocational, evening and adult schools was 355,872, which represented an

increase of 7.36% over that of the preceding year.

In the public day schools, the enrolment was 330,870, an increase of 21,275, or 6.87% over that of 1944. The total number of teachers, principals and assistant superintendents in the public schools was 8,062, of whom 53.17% were normal or college graduates.

Expenditures for public educational purposes totalled \$18,789,256, and for private schools an estimated \$931,931.

**Finance.**—The monetary unit is the United States dollar. Bank deposits in July 1945 were \$255,700,000, debits were \$296,000,000 and loans were \$53,000,000. Island income was estimated at \$409,700,000 in 1944.

Revenues in the fiscal year 1945 totalled \$123,121,700, of which \$79,502,500 was received in the general fund and \$43,619,200 in special funds. The greatest single source of revenue was the tax on rum, which produced \$37,724,700. Disbursements during the fiscal year 1945 were \$108,248,513, leaving a balance in the treasury of \$136,605,381. Bonded indebtedness was increased 6.61% during the fiscal year 1945 from \$12,254,000 to \$13,064,513. Municipal debt stood at \$15,756,747 on June 30, 1945, as compared with \$16,571,000 at the end of the preceding fiscal year.

Funds were appropriated for the budget for the fiscal year 1946 as follows: operating expenses \$35,953,036; public debt \$192,762; special relief (W.E.P.) \$8,732,000; contributions to public service enterprises \$80,266,745; capital improvements \$22,229,315; or a total of \$147,373,858.

**Trade and Communication.**—During 1944 shipping to and from Puerto Rico was, for the most part, free from wartime restrictions, and both imports and exports increased substantially in dollar value over those of the preceding calendar year.

In 1944, Puerto Rico imported goods from the United States valued at approximately \$120,099,206, an increase of \$33,079,409 over similar imports in the calendar year 1943. Exports to the United States from the island in 1944 were valued at \$123,747,071, as compared with shipments worth \$99,226,148 in 1943.

Daily air service with the United States, Panamá and the Virgin Islands increased during the year. About two-thirds of Puerto Rico's air traffic was with the United States and the Virgin Islands. During the first half of the year 1944, air travel on Puerto Rican routes totalled 22,775 passengers.

Internal communication was provided by 387 mi. of railway and by 1,487 mi. of main highway, supplemented by local and military roads. Radio-telephone and cable service connected Puerto Rico with the United States and other countries. There also were six radio broadcasting stations and six newspapers in operation on the island.

**Agriculture.**—Agriculture is the principal economic pursuit in Puerto Rico, with 1,022,278 ac. of its 1,200,000 tillable acres of land under cultivation. Fertilizer is important to successful agriculture, and although its importation was restricted after the outbreak of World War II, better shipping conditions brought the supply up to normal during the year 1945. Most important products in 1945 were: sugar 963,775 short tons; tobacco 37,226,500 field weight; coffee 30,455,600 lb.; cotton 1,693,900 lb.; pineapples, 550,000 crates; coconuts 21,000,000 nuts (est.); vegetables, rice, corn and beans for local consumption.

Sales of forest products in the fiscal year amounted to \$6,329.99, the demand being chiefly for posts, cordwood for charcoal making, fuel wood and stakes.

Livestock (census 1940) totalled: 51,494 work and 112,585 other cattle, and 22,709 horses, mules and donkeys.

The Puerto Rico Agricultural company was created by an act of the legislature in 1945 to encourage the maximum development of the agricultural resources of Puerto Rico.

**Manufacturing.**—Manufacturing was confined to goods for domestic consumption with a few noteworthy exceptions. Production of rum during the first eight months of 1945 totalled 17,752,350 gal. Needlework, the production of which is second only to sugar in Puerto Rican economy, was shipped to the United States in the value of \$12,235,539 in the first seven months of 1945. In 1944, the dollar value of needlework exported to the mainland was \$19,936,255. The island produced an estimated 144,105,240 cigars in the fiscal year 1945, an increase of 25,914,597 over the cigar production of 1943.

A glass container factory operated by the Puerto Rico Glass corporation started production early in 1945, and a building for a paperboard mill neared completion at the end of the fiscal year. Machinery and engineering services were contracted for to construct a wallboard plant and a clay products plant. Pilot plants were established during 1945 for silk culture, textile design, basketry, furniture and handiwork novelties.

The Puerto Rico Development company, established by the territorial legislature in 1942 to promote the industrial development of the territory, initiated in 1945 an "Aid to Industrial Development" program.

**FILMS.**—*West Indies* (Encyclopædia Britannica Films Inc.). (E. G. A.)

**Pugilism:** see BOXING.

**Pulitzer Prizes:** see PRIZES OF 1945.

**Pulp Industry:** see PAPER AND PULP INDUSTRY.

**Pulstones:** see ABRASIVES.

**Pumice:** see ABRASIVES.

**Purdue University.** Indiana's link in the great chain of land-grant colleges and universities was established formally May 6, 1869, when the Indiana general assembly accepted \$200,000 in cash and 150 ac. of land from John Purdue and other citizens of Lafayette, Ind. Prior to World War II, Purdue had the largest enrolment in engineering



of any university in the U.S. and during the war was devoted largely to the training of men for the armed services, civilian enrolment dropping to less than 1,500 students at one time, from a high of 7,121. With the end of the fighting, enrolment began to mount and at the Nov. 1945 term was back to almost 6,000, including about 1,600 returning veterans. Indications for the March term were for more than 7,500 students.

On June 30, 1945, Dr. Edward C. Elliott retired as president, and Dr. A. A. Potter, dean of the engineering schools, was named acting president, holding this post until Frederick L. Hovde, who headed the rocket bomb development program in the United States, assumed this post early in Jan. 1946. The university's department of aeronautical engineering was organized as a separate school in the engineering group and offered a new degree in air transportation. The university offered a degree in agricultural engineering, and another in naval science as a result of establishment of a naval R.O.T.C. on the campus. Schools of the university in 1945 were: agriculture, science, home economics, pharmacy and the following in engineering: civil and engineering mechanics; electrical; aeronautical; mechanical; chemical and metallurgical. Degrees also were offered in education and applied psychology; in trade and industrial education, in physical education and engineering law. (For statistics on enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.)

**Pyle, Ernest Taylor** (1900-1945), U.S. newspaperman, was born Aug. 3, on a farm near Dana, Ind. He studied journalism at Indiana university and quit a few months before his graduation to become a reporter for a small town newspaper. He was copy editor for the *Washington Daily News*, 1923-26, and aviation editor for the Scripps-Howard papers from 1928 to 1932, but wearying of editing, he acquired a roving assignment and his daily experiences furnished him material for a column which appeared in 200 newspapers. His simple human touch won a wide following and thousands of readers shared in the restless wanderlust of the writer. When World War II started, he went to England and his vivid eye-witness descriptions of how Londoners were enduring the German air blitz established his reputation as one of the foremost American war correspondents. From England he went to North Africa where he lived in foxholes and ate and slept with the ordinary soldier. His columns, interpreting in simple, everyday language the fears, the hurts and the loneliness of the soldiers, established a link between the G.I. and his family back home. His coverage of the campaigns in North Africa, Sicily, Italy and France brought him the Pulitzer prize in 1944 and several other newspaper awards. Fighting men looked upon him as their friend and officers regarded him as a great morale-booster. In the fall of 1944, he apologetically withdrew from the war front to return home for a rest. Compilations of his columns appeared in book form: the first, *Ernie Pyle in England* (1941), was followed by two best sellers, *Here Is Your War* (1943) and *Brave Men* (1944). After a brief stay in the United States, Pyle, compelled by a sense of duty, returned to the war theatre—this time the Pacific. He went to Iwo Island, moved on to Okinawa with the marines and then to nearby Ie Island. There, at a point where all enemy opposition seemingly had been overcome, he was killed by Japanese machine-gun fire, April 18.

**Pyrite.** The production of pyrite in the United States decreased from 898,670 short tons in 1943 to 883,154 tons in 1944 but the sulphur content increased from 367,556 tons to 372,691 tons. Imports decreased from 287,065 tons to 202,455 tons, mostly from Canada. Imports declined after 1939,

and Spain, the source of 92% of the 1937 imports, contributed only 8% in 1944.

Spain produced 563,634 short tons in 1944, as compared with 971,302 tons in 1943, with Great Britain as the heaviest buyer. Unofficial figures put the Norwegian output at 1,129,817 short tons in 1939, 840,305 tons in 1940, 1,052,202 tons in 1941, 910,967 tons in 1942, and 882,731 tons in 1943. The sulphur content of pyrite exported from Canada decreased from 104,509 short tons in 1943 to 90,836 tons in 1944. (See also SULPHUR.) (G. A. Ro.)

**Quakers:** see FRIENDS, RELIGIOUS SOCIETY OF.

**Quebec.** One of the central provinces of Canada, Quebec was admitted to the union in 1867. The area is 594,534 sq.mi.; the population, 3,331,882 (1941 census), of which 65% is urban. The chief cities are: Quebec, the provincial capital (150,757); Montreal (903,007); Trois Rivières (42,007); Sherbrooke (35,956); Hull (32,947). Local administration is in the hands of a provincial parliament composed of a lieutenant governor, executive council, legislative council, and legislative assembly of 91 members. Quebec is represented at Ottawa by 65 members of the house of commons and 24 senators. The lieutenant governor in 1945 was Sir Eugene Fiset; the premier, Maurice Duplessis.

**History.**—The chief political event in provincial circles was the by-election in Beauce, Nov. 22. The government candidate (*L'Union Nationale*) was successful. This increased the *L'Union Nationale* lead in the assembly by one seat. Standing in the assembly following the Beauce election was as follows: *L'Union Nationale* 49; Liberals 37; *Bloc Populaire Canadien* 3; Independents 2. In the national elections on June 11, 1945, Quebec returned to Ottawa the following numbers for the dominion parliament: Liberals 52; Progressive Conservative 1; Independent Progressive Conservative 1; Independent Liberals 8; Labour Progressive 1; *Bloc Populaire Canadien* 2.

**Education.**—The total enrolment in all educational institutions in the period 1941-42 was 695,000. The total revenues of provincially controlled schools in 1943 was \$28,799,798. The chief universities of the province were Laval (Quebec), l'Université de Montréal (Montreal), McGill university (Montreal) and the University of Bishop's college (Lennoxville).

**Agriculture.**—The total value of all agricultural production in 1944 was \$624,608,000; farm income \$593,300,000. In 1945, the value of field crops was \$161,776,000 (1944 \$164,983,000). During 1945 the inspected slaughtering of livestock was as follows: cattle 236,822; calves 340,274; hogs 810,726; sheep 301,823. The preceding figures on slaughtering include the maritime provinces as well. Tobacco production was 4,016,250 lb.; cigar leaf 2,453,000 lb. The run of maple sap was 40% below normal. The production of honey was also below average.

**Mining.**—In 1944, the total value of mineral production was \$90,844,295. Included in this were, asbestos 420,800 tons, valued at \$21,594,787, and copper 110,568,297 lb., valued at \$13,270,596.

**Manufacturing.**—Pulp and paper, and the smelting and refining of nonferrous metals, represent the largest items of Quebec's industrial output. In 1943, Quebec manufactured more than one-third of all the chemical and allied products made in Canada, with a value of \$264,525,244. Employees numbered 67,672, distributed among 299 factories. There were also in Quebec 72 of the nation's 224 leather footwear factories. According to a survey made early in 1944, Quebec possessed more than 52%, or 8,459,000 h.p., of Canada's water power.

**FILMS.**—*Industrial Provinces* (Encyclopædia Britannica Films Inc.) (J. I. C.)

**Queensland.** A state of the Australian commonwealth lying in the northeast and occupying 670,500 sq.mi.; pop. (est. Dec. 31, 1943) 1,065,414. Chief cities (pop. Dec. 31, 1943): Brisbane, cap., 370,500; (Dec. 31, 1940) Rockhampton 35,500; Townsville 31,450. Governor: Sir Leslie Orme Wilson.

**History.**—The premier, F. A. Cooper, in 1945 visited the United Kingdom, returning via Canada and the United States, E. M. Hanlon acting as premier during his absence. While abroad he met leading British industrialists and discussed the postwar potentialities of Queensland for industrial expansion, stating in London that Queensland was capable of supporting a population of 20,000,000. To meet the possibility of a labour surplus arising as a result of the release of servicemen, the state government had a works program of \$76,800,000 ready to put into operation. It was to provide not only for the adequate development of the state, but also for the rehabilitation of servicemen.

**Education.**—In 1941: schools 1,898; scholars 178,893.

**Finance.**—Revenue (1943-44) \$92,698,000; expenditure (1943-44) \$92,333,000. Debts outstanding (June 30, 1944) \$413,373,000. (Conversion rate: £A1=\$3.2 U.S.)

**Communication.**—Roads (1940) 125,095 mi.; railways (June 30, 1944) 6,497 mi. Motor vehicles licensed (March 31, 1945): cars 68,963; commercial vehicles 52,907; cycles 6,192. Wireless receiving set licences (June 1944) 180,090.

**Agriculture, Manufacturing, Mineral Production.**—Production (in short tons) 1943-44: sugar cane 700,000; wheat 152,640; maize 135,360; gold (1939) 145,667 fine oz.; silver (1942) 3,100,000 oz.; coal (1942) 1,913,000. Industry, manufacturing (1942-43): factories 2,641; employees 64,292; gross value of output \$275,883,000; unemployment (trade union returns), Feb. 1945, 0.5%. (W. D. MA.)

**Quicksilver:** see MERCURY.

**Quisling, Vidkun Abraham** (1887-1945), Norwegian politician, was born July 18 at Fyrisdal, Norway, and was trained from his youth for a political career. After passing the Norwegian college examinations, 1911, he entered the army, was commissioned as a captain and promoted to a major of field artillery. He pursued a diplomatic career, as military attaché at Petrograd, 1918-19, and Helsinki, 1919-21. In May 1933, four months after Adolf Hitler became chancellor of Germany, Quisling formed the *Nasjonal Samling*, a Norwegian fascist party. He assisted the German invasion of Norway by using his authority as an army officer to delay mobilization and surrender certain key positions and by urging his countrymen not to resist the nazis. A grateful fuhrer rewarded Quisling for his aid by making him on Sept. 25, 1940, fuhrer of Norway. His task, the German occupation forces proclaimed, was to "reconstruct" his country in conformance with nazi principles. Quisling, who became prime minister in Feb. 1942, was never able to command the respect of the Norwegians, and in an effort to force their obedience he instituted increasingly severe measures. Repression, however, only served to heighten resistance to his regime. Toward the last days of the war in Europe, his rule tottered and on May 9, 1945, two days after Germany's collapse, Quisling and six of his cabinet members were arrested by Norwegian resistance authorities and he was arraigned promptly for trial. He was tried on charges of treason before an Oslo court in sessions that lasted from Aug. 20 through Sept. 10, during which the puppet leader denied the treason charges and contended he was the "saviour" of Norway. The seven-man trial court found Quisling guilty on Sept. 10 on many counts including murder,

treason and theft and sentenced him to die before a firing squad. The man whose name, during World War II, had become a synonym for traitor, was executed Oct. 24 and his body was cremated immediately thereafter.

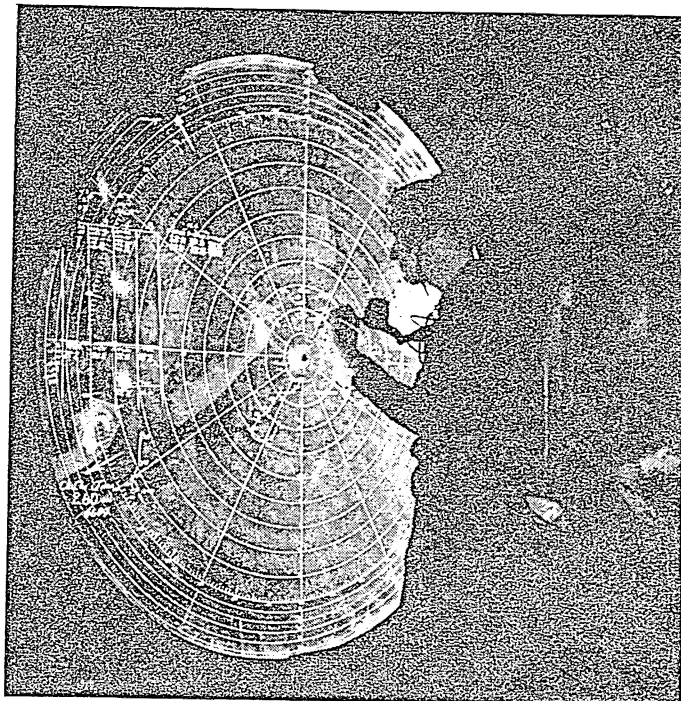
**Racing and Races:** see DOG RACING; HORSE RACING; TRACK AND FIELD SPORTS.

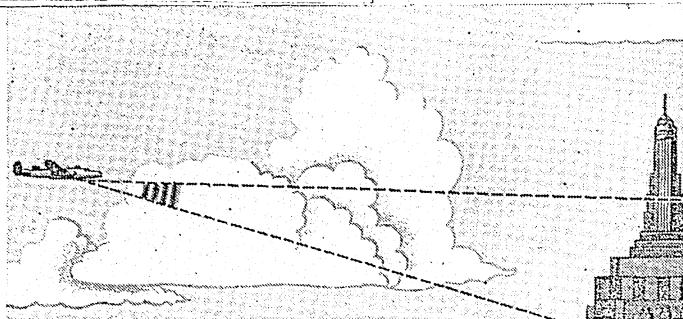
**Radar.** The first release of reasonably full information on the use of radio methods of locating ships and aeroplanes came on Aug. 15, 1945, when a detailed account was issued both in Great Britain and the United States. This was followed by papers in the technical press giving details of specific sets (e.g., a description of the SCR-584, one of the most versatile of radar sets, in *Electronics*, vol. 18, No. 11, p. 104 and No. 12, p. 104).

The word "radar," coined in the United States from "radio detection and ranging," came into general use, even in England, where it was first referred to as "radiolocation." Basically, it consists in transmitting a radio pulse, lasting on the order of a few millionths of a second and receiving the reflection of this pulse as it echoes back from an aeroplane or ship. The amount of energy reflected is a very small fraction of that emitted, and it is greatly attenuated on the return journey; thus, a high degree of sensitivity and amplification is necessary to utilize it. Usually the receiver and transmitter share a common antenna. The length of each pulse is considerably less than the time required for it to travel to the target and return, and the transmitter is silent until after the echo is received. Then the next pulse is radiated. Another advantage of the pulse method is that it is possible to use momentarily, peak power much higher than if the signal were continuous.

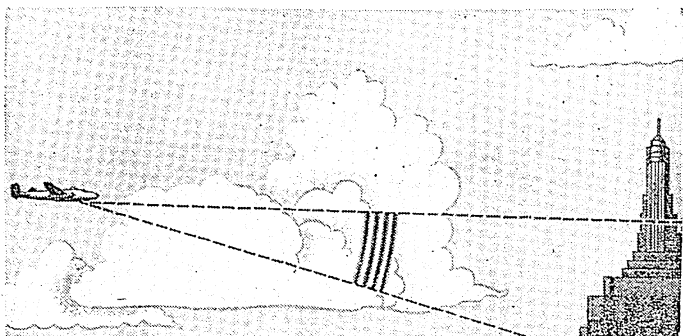
The distance, or "range," of an object is determined by the elapsed time between the transmission of the pulse and the reception of the echo. Radio waves, like light, travel at a speed of approximately 186,000 miles per second or about 328 yards each millionth of a second. For an object 1,000 yards away the waves must travel out and back, taking about six millionths of a second. Development of means to measure such short intervals was one of the technical triumphs of radar, for time can be measured to an accuracy of about one-thirtieth of a millionth

RECORDING the information received by radar on a plotting board, aboard a U.S. carrier during a strike against the Japanese in 1945

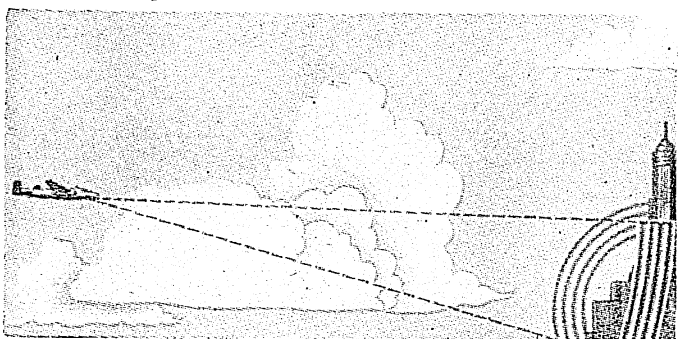




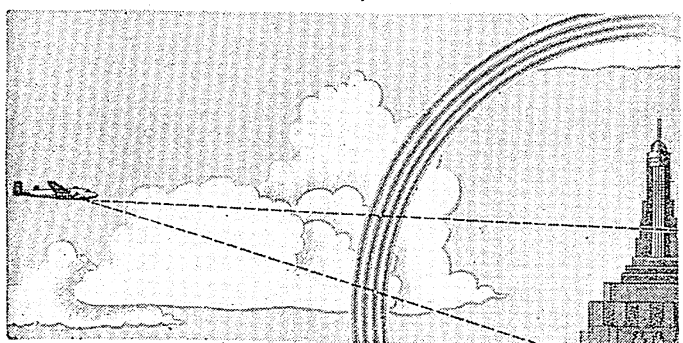
A. Wave impulse is sent out by the plane.



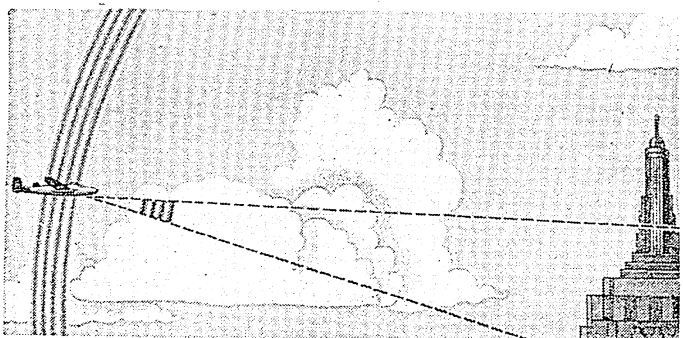
B. Wave precedes plane at the speed of light.



C. Wave hits object and bounces back.



D. Wave rebounds in all directions from the object.



E. Echo-wave has returned with the speed of light and is received by the cathode-ray tube in the plane, and another wave impulse has been sent out by the plane.

RADAR operates on the principles that very short radio waves can be directed in a beam, like light, and that such waves bounce back from solid objects. Rebounding wave impulses form images on a cathode-ray tube, as in television, indicating the direction, distance and height of an object. Radar was used during 1945 by ships as well as planes, in both defensive and offensive operations, for navigation through fog, darkness or unfamiliar areas, and to detect the position of enemy objects

of a second, corresponding to five or ten yards in range.

Various means are used to display the radar's data, usually on the face of a cathode ray tube such as that in a television receiver on which the picture appears. In the widely used "A" type of presentation the electron beam traces a horizontal, luminous line. A vertical "pip" appears in the line at the left to indicate the transmitted pulse. When an echo is received there is another and smaller pip farther to the right at a distance from the first which is proportional to the time required for its return. Thus, the range can be read from the distance between the pips.

Direction is obtained by using radio waves which are very short, perhaps only a few centimetres in length. With an antenna at the focus of a parabolic reflector a few feet in diameter, these waves can be focused in a beam much like the light beam from a searchlight. As it sweeps around the horizon, the echo comes only when it is directed toward a target and the direction, or "bearing," is indicated.

Another type of presentation, known as P.P.I. for "plan position indicator," can be used with such a directed beam. Synchronized with the movement of the antenna is a luminous radial line moving clockwise on the face of the tube. An echo causes a brightening of this line at a point whose distance from the centre is proportional to the range. Usually the glowing material in the tube is one in which luminescence persists for a few seconds until the line sweeps around again. The result is essentially a circular map of the area with the radar set at the centre. Reflecting objects are shown at their correct position and distance.

Carried on planes, the P.P.I. was used for bombing through clouds. A land area reflects the beam diffusely and some of the energy returns to the set. Water acts more like a mirror and although the pulse is reflected, it is not sent back to the radar except from straight below. Details of shore lines, rivers, ships, bridges, lakes and other features can be identified. This method of bombing through overcast, known as B.T.O., was first used by the 8th air force in a raid over Germany on Nov. 3, 1943.

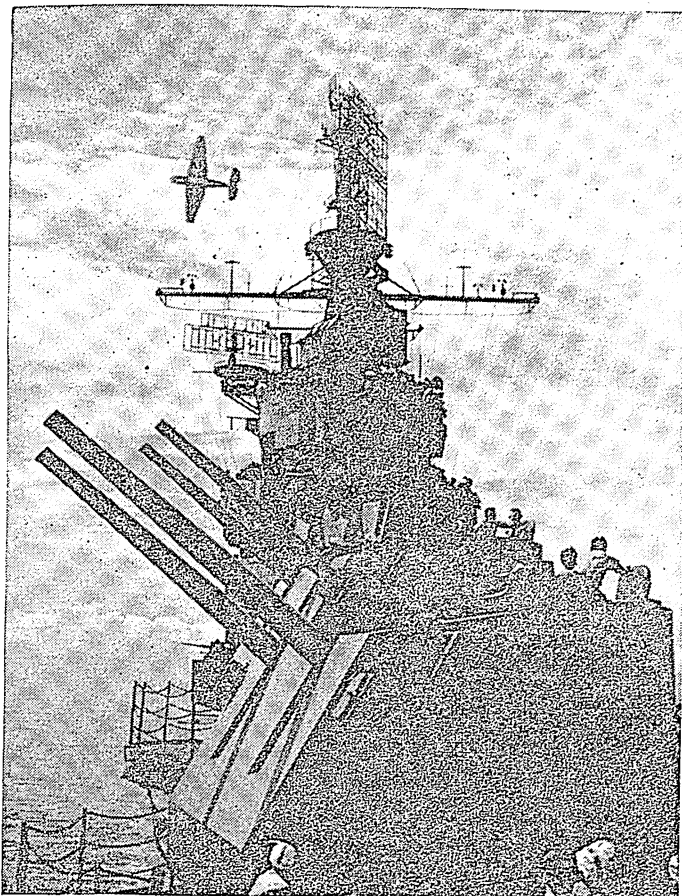
The peacetime usefulness of such equipment is obvious, for it will aid flying in completely cloudy weather. A radar equipped with the P.P.I. scope is also useful for marine navigation in bad weather, in revealing other ships and shore features. One large manufacturer announced a simplified radar set of this kind for commercial vessels.

Closely related to radar is Loran, for "long range navigation," which was developed in 1941-42 at the radiation laboratory of the Massachusetts Institute of Technology, Cambridge, Mass., principal centre of radar research. Its principles are similar to those of an independently developed British system. On the shore there is a pair of stations a number of miles apart. One is a master, the other a slave. The master station sends out a pulse; the slave station receives it and immediately and automatically sends out its own pulse.

On a ship equipped for Loran both pulses are received and on a scope the difference between the times of their arrival is indicated, and the relative distance from the two stations is shown. This places the ship on a hyperbolic curve connecting all the points which are at the same relative distance from the stations. Then if the signals from another pair of stations are received, the ship is located on another curve, and the intersection of the two curves marks the ship's position, with an accuracy as great as that from celestial observations.

Unlike the corresponding British system, which uses short waves that do not travel much beyond the visible horizon, Loran uses long waves similar to those employed in communication, and operates as much as 1,000 mi. from the stations. During the war a Loran network was established covering a large





RADAR ANTENNAE atop a U.S. carrier are shown outlined against the sky. Radar fire control directs the fire of the 5-inch anti-aircraft batteries in the foreground, and fighter director radar guides the carrier's planes to enemy targets

part of the navigable oceans of the world. Special charts, on which were drawn the hyperbolic curves of equal relative distance, were prepared to facilitate use of the Loran system. It can be used by ships and also by aircraft.

Since an enemy and a friendly plane reflect radio waves alike, an important adjunct to radar was I.F.F., for "identification, friend or foe." A special slave transmitter on the plane when interrogated by radar automatically sends back a coded pulse on another frequency. When a plane was located and did not return the correct answer upon interrogation it was assumed to be an enemy. Radio beacons of the same general sort have been widely used. In this case the responding transmitter is on the ground.

A radar pulse from a ship or plane causes it to send back the characteristic signal so it serves a function similar to that of the flash from a lighthouse.

Radar sets have been made in a wide variety of sizes and functions. Some ship-borne sets consist of many tons of elaborate equipment. Near the other end of the scale is a "tail warning" set for fighter planes. This weighs but a few pounds, and simply rings a bell or flashes a light in the pilot's compartment when another plane approaches from the rear. Still smaller and simpler is the "proximity fuse," essentially a radar set. This was placed in a bomb or shell so that it would explode when it came near its target, no actual contact being required.

It appeared in 1945 that radar would not work on an automobile or a locomotive to warn of the approach of other ground vehicles, because of all the reflections from buildings and other structures, but it did offer many peacetime applications for marine and air use.

But the most important results of this wartime work were expected to be indirect since many electronic problems have

been solved which can be applied elsewhere in the large but still growing field of electronics. (J. Sto.)

**Radar Countermeasures.** When, on Feb. 11, 1942, the German battle cruisers "Gneisenau" and "Scharnhorst" escaped from the harbour of Brest, where they had been bottled up by the British, radar might have detected them even through the protecting fog had not the Germans "jammed" the British radar. As a result, both in Great Britain and the United States, consideration began to be given to the subject of radar countermeasures referred to as R.C.M. Because the British were then at war, the problem was more urgent for them, and extensive work was started, but preliminary investigations were also made in the U.S. After Pearl Harbor, U.S. activities were accelerated, resulting, at the end of 1942, in the organization of division 15 of the National Defense Research committee.

Although the work of the division included countermeasures against many kinds of electronic equipment used by the enemy, about two-thirds of the \$31,000,000 expended by the division went into radar countermeasures. The centre of this work was the Radio Research laboratory at Harvard university, Cambridge, Mass. However, a great deal of work, particularly in the design and construction of new electronic tubes, was done in other laboratories, both industrial and university, under contract.

Radar depends on the return from a distant plane or ship of a radio echo which is very much weaker than the original signal, so the latter must have tremendous strength. A radar set is continually advertising its presence, and any radio receiver, tuned to its frequency, can detect it from a distance far beyond the greatest range at which the radar itself is effective. Once detected, its direction can be found with radio direction finders. A third weakness of radar is the low intensity of the echo. A sound echo returned from a cliff is many times weaker than the original shout, and another man, shouting continuously, could easily drown it out. Similarly a radio "shout" sent out continually from another transmitter can drown out, or "jam," the radar receiver. This jamming transmitter does not need to compete in power with the original radar transmitter. It merely has to be powerful enough to cover up the returning echo.

There is, however, one important difference between a radar and a jamming transmitter. The former operates in brief pulses and can be pushed to peak power much higher than that at which it will operate steadily. The jammer must counter many radars, with pulses coming at any time, so it can have no rest periods. It is a short-wave broadcasting station and its program is "random noise," which may be heard as a hiss on a loud speaker attached to a properly tuned receiver. On the radar scope, with "A" type of presentation (see article RADAR) this "noise" looks like many fine blades of grass moving about in random fashion. These may completely cover the vertical spikes which reveal a plane or ship. With P.P.I. (plan position indicators) presentation it appears as a general brightening of certain areas of the screen, also covering up the wanted reflections.

A simple but very effective countermeasure against radar takes advantage of the fact that it is unable to distinguish the nature of a small object. Thin, metallic strips, cut to a length proportional to the radar waves, resonate to the signal and send back a remarkably strong echo. Several thousand such strips, which were known by the code name of "window," weigh a total of less than 2 oz. When allowed to fall freely through the air, they will return an echo equivalent to that from a bomber.

Window was first used by the R.A.F. in a raid on Hamburg in July 1943. It was dropped from the leading planes and was so effective that losses were only a small fraction of those sustained on previous raids. Later long ribbons of foil, called "rope," were

used, particularly in the Pacific. They were dropped with a small parachute to retard their fall and also gave false echoes. Perhaps an enemy radar operator could recognize window or rope from the fact that they did not show as much movement as real planes. Nevertheless, when the air was thoroughly saturated the material would still act as an electronic "smoke screen" through which many planes could fly without detection.

Though window was widely used and had the virtue of simplicity, even more effective was "electronic" jamming—broadcasting a noise-modulated signal from a special transmitter. One electronic jammer, known as "carpet," designed in 1942 at the Radio Research laboratory, was used to overcome the German Wurzburg radars used to aim their anti-aircraft guns. Early in World War II these had been standardized in a few types, as Hitler had expected a short war and had decided that further research to improve them was unnecessary. When, after two years, German research was resumed they had such a large investment in the Wurzburg system that they devoted their major technical efforts to trying to make it work despite Allied countermeasures, rather than in developing a new system which would have been less susceptible. German documents found after the invasion testify to the effectiveness of the countermeasures which made possible the heavy bombing of their cities.

A special problem arose in connection with the Lichtenstein radar used by the German night fighters against the British bombers in 1942. Jammers could not be used on the bombers themselves, for then the enemy could more easily locate them, by direction finders. It was decided to set up a jammer in England, with power a thousandfold greater than any previously attained in the frequency range involved. Because of the huge parabolic antenna in the experimental model, it was designated as "Tuba." A tube, called the resonatron, perfected by Dr. D. H. Sloan at the Westinghouse Research laboratories under division 15 auspices, was utilized to provide the required power, which was comparable with the most powerful U.S. broadcasting stations (50,000 watts) but of a frequency 500 times as high. The equipment was ordered by the British under lend-lease and in June 1944, the complete installation, which could be carried in seven army trucks, was in operation in England. Later two more equipments were ordered.

One of the most important electronic tubes used in countermeasures work was the magnetron, originally invented by Dr. Albert W. Hull of the General Electric Research laboratory. The passage of current takes place in a strong magnetic field. On the basis of further work, particularly in England, Dr. Hull and his associates produced a complete line of high-powered magnetrons. These covered a wide range of frequencies and, like tubes developed in other industrial laboratories, were put into countermeasures systems at the Radio Research laboratory. Some of these were used effectively against radar-guided Japanese torpedo bombers which appeared in Oct. 1944, with devastating results to U.S. fleet units.

Although radar has a number of peacetime applications, radio countermeasures as such have little utility except in war. However, the techniques devised were expected to be useful in future radio developments, such as frequency modulation broadcasting, television and radio relay transmission. (J. Stro.)

**Radio. Industrial Developments.**—Radio manufacturing broke all volume records during 1945, but it was all in the war category. Such hitherto secret radio-electronic weapons as radar and the radio proximity fuse, which proved so potent in the winning of World War II, were among the products of the radio laboratories and factories during 1945, which rolled up an aggregate estimated value of nearly \$5,000,000,000. With the war's termination, there were substantial cutbacks, but scarcity

of materials, delay in allocations for new broadcast services and labour impasses converged to stall civilian manufacture of radio receivers and transmitters, as well as related electronic devices.

Freezes on civilian production were lifted even before V-J day, but manufacturers were unable to place products on the market before the year ended beyond a thin trickle of display models for dealers. The total number of radio receiving sets in use at the end of 1945 was approximately 56,000,000—a decrease of about 1,000,000 as compared with the preceding year. The number of homes with radio sets, however, increased to approximately 34,000,000—a million ahead of the preceding year. This increase was attributed to the availability of spare parts and tubes in 1945, permitting activation of receivers which were "dead" during the preceding war years when such parts were virtually unobtainable.

Of the aggregate number of sets in use, automobile receivers represented some 6,000,000. The total number of civilian sets manufactured during 1945 was a mere 500,000 (as compared with the peak of 13,000,000 in 1941). Civilian tubes manufactured aggregated some 30,000,000, valued at \$35,000,000.

The total investment in the radio manufacturing industry as of Jan. 1, 1946, was estimated at \$350,000,000, representing no change from the preceding year. Taking into account cutbacks on government military contracts, the annual gross revenue was computed at \$3,000,000,000. The average number of employees for the year retained by the 1,200 manufacturers was 350,000, with an annual pay roll of \$750,000,000. The latter figures compared with 530,000 employees with an annual payroll of \$1,200,000,000 for 1944. Radio distributors, dealers and other retail establishments represented on Jan. 1, 1946, a total investment of \$280,000,000, with an annual gross revenue of \$200,000,000 and with 100,000 employees who drew \$150,000,000. These figures represented no change from either 1943 or 1944.

Aside from military requirements, there were no exports of radio transmitting or receiving equipment during 1945. Military figures had not yet been released. It was known, however, that vast stock piles of surplus equipment, particularly transmitting apparatus used for all modes of military communication, existed abroad and would be disposed of as surplus. There were some exports of receivers and transmitters to Latin American countries, as well as to the United Nations, on a lend-lease basis, but the number and value remained unpublished.

Military installations in both the European and Pacific war theatres were gradually being dismantled, although regular broadcast service was being maintained for occupation forces in all theatres. With the demobilization of the expeditionary establishments, however, only sufficient radio service to service U.S. troops remaining abroad would be retained.

On Jan. 1, 1946, there were 940 standard broadcast stations in operation (not including 64 under construction) as against 919 a year earlier. The Federal Communications commission (FCC), however, had pending some 250 applications for new standard broadcast stations and the likelihood was that the number of stations in operation, including those holding construction permits, would probably eclipse 1,200 before the year ended.

All told, it was estimated that there would be as many as 2,000 broadcast stations—amplitude modulation (AM), frequency modulation (FM) and television—by the end of 1946. As the year ended, the FCC had granted approximately 250 new FM stations in all sections of the country. Most of these would begin operation, it was predicted, before midyear, 1946, with several hundred others to be authorized by that time and to undertake construction. Television, it was felt, would be slower in starting because of the expense entailed in construction and because of the limited number of facilities. With only five sta-

tions in operation prior to the war on a regular commercial basis, experts felt that probably as many as 50 stations would be on the air or would near completion during the ensuing year.

Allocations were settled toward the end of 1945, with FM moved to the 100 megacycle (mc.) area over the objection of many of the engineering pioneers, including Dr. Edwin H. Armstrong, FM inventor.

Television was placed on a dual system, with frequencies for low-definition video service assigned in the "downstairs" area around 50 mc., but with provision made for high-definition and possibly colour television in the upper reaches of the spectrum where virtually unlimited expansion could occur. Broadcasters generally, however, looked to 1946 as the most critical year in their quarter-century of history. In addition to ordinary items of overhead, which were increasing in tempo with other industry, they were faced with the responsibility of developing both FM and television.

**FM.**—Modifying previous estimates, radio authorities forecast construction of between 2,000 and 3,000 FM stations within five years after the war. As 1945 ended, there were some 60 FM stations authorized to operate, aside from the 250 conditional grants (on Jan. 21, 1946 the number totalled 279).

Before the war-imposed freezes on equipment, approximately 500,000 FM receivers were sold to the public, representing a \$30,000,000 investment. Cost of FM transmitters, according to a government survey conducted by the senate small business committee in collaboration with the FCC, indicated average cost for installation of six major items of broadcast equipment for a 250-watt FM station of \$9,508; for a 1,000-watt station of \$14,758; a 3,000-watt station, \$17,858; 10,000-watt station, \$27,308; and a 50,000-watt "high power" station, \$80,558. The items for each class of station include transmitter, antenna (excluding supporting structure), control console, remote pickup, turntable and monitor.

**Television.**—See TELEVISION.

**Facsimile.**—This mode of record transmission by radio, similar to wirephoto or radiophoto, remained the "sleeper" during 1945. Used with great success on the battlefields, the full story of facsimile was not unfolded as the year ended, particularly as to its wartime applications. It was thought, however, that the new year would see the emergence of facsimile by radio on something more than an experimental basis. Newspaper pages were being produced in laboratory tests at the rate of more than a foot a minute, and colour processes also were evolved. Facsimile functions on a very narrow band (two kilocycles) and the service can be "multiplexed" on FM channels without disturbing the FM transmission.

**Commercial Broadcasting.**—During 1945 commercial broadcasting continued to reflect the unprecedentedly high level of national income and employment which was evidenced in all industries in spite of reconversion. Total net time sales (representing gross billings less frequency and promotional discounts) reached an aggregate of approximately \$311,000,000—a new all-time high, but far less than the relative net gains made during preceding years.

Estimates made by *Broadcasting Magazine* indicated that revenues from the sale of time increased 7.4% over the 1944 level, as compared with a 26.8% gain in the 1943-44 period and a 19.6% gain during the period 1932-43.

Approximately \$55,000,000 was spent by advertisers for talent and programs on their own account—at least \$5,000,000 more than the preceding year. Of the aggregate network billings, food and food beverages, drugs and toilet goods and cigars and tobacco represented roughly two-thirds of the aggregate income. Network billings, however, were only fractionally ahead of the preceding year, because of loss of revenue during the

political campaigns, as well as losses entailed by cancellation of all commercial programs for such radio epochs as V-E day, the death of Pres. Roosevelt and V-J day. Practically all commercial sponsorship was jettisoned by the networks for these extraordinary news events, which required rebates to sponsors for their talent commitments.

The latter half of 1945 saw widespread experiments in programming by most of the networks and by many stations to buoy structures which programming and production officials thought might sag because of the war's end and the tapering off of war news listening. With average listening per receiver about four-and-one-half-hours per day, program builders sought to devise means of enlarging the audience through program innovations and recasting of schedules. Audience participation programs were inaugurated in the afternoon on one network. Another began a popular orchestra and glee club—Fred Waring—in the early forenoon and found that it had attracted a new audience, since ratings for competitive programs, such as so-called "soap operas," did not diminish.

News broadcasts maintained their relatively high position despite the absence of reports from the war fronts. Individual stations began placing emphasis on local news and found sponsors readily available. A trend toward stricter application of commercial standards, particularly in connection with spot announcements, developed during the year, with the National Association of Broadcasters (N.A.B.) urging all stations voluntarily to reduce commercial credits by approximately 15% in all types of programs.

A number of stations decided to eliminate "middle commercials" from news programs altogether. These commercials were labelled "plug-uglies" by the *St. Louis Post-Dispatch*, which itself operates radio station KSD. Transcribed musical spots or "singing commercials" likewise appeared to taper off as a result of both station management and some listener disapproval.

Fresh from his 1944 conquest of forcing major recording companies to capitulate to his requirements for royalties on production of phonograph records and transcriptions, James C. Petrillo, president of the American Federation of Musicians (A.F.M.), unleashed a series of new ukases against radio in 1945. These included:

- (1) A ban against performance on television by union members until the international headquarters of A.F.M. decided on employment requirements.
- (2) A ukase against dual performance on FM stations of musical programs for AM networks or stations, unless a full standby orchestra (or a separate orchestra) is retained.
- (3) A prohibition against broadcasts of musical programs in the U.S. from abroad, effective Dec. 31, 1945.

As 1945 ended, nothing further had been done by the A.F.M. head about his pronouncements, but the N.A.B. regarded him as their number one adversary in 1946. Chairman Clarence F. Lea, of the house Interstate and Foreign Commerce committee, had introduced a bill (HR-5117) to prevent the musicians' union from using "coercive practices affecting broadcasting."

During 1945, radio continued its close collaboration with the government in clearing war messages. Even with the war's termination, voluntary contribution of time to governmental agencies was continued. During 1944, according to final figures, stations, networks and advertisers contributed \$162,000,000 in time and talent for such war messages, as against \$103,000,000 the preceding year. All such programs were cleared through the War Advertising council while the conflict was on. When the war ended, the council continued functioning as the Advertising council on a voluntary basis.

There were two changes on the seven-man FCC during 1945. On March 14 Charles R. Denny, 33-year-old general counsel, was elevated to a commissionership, to succeed T. A. M. Craven, who resigned following six years of service to re-enter the broadcasting industry. Rosel H. Hyde, assistant general



counsel, was elevated to the general counselship. William Henry Wills, former governor of Vermont, on June 13 was named by Pres. Truman to succeed former Governor Norman S. Case, of Rhode Island, for a seven-year term. Governor Case, who was a candidate for reappointment, terminated 11 years of service and entered private law practice in Washington.

**Revenue and Finance.**—During 1944 (1945 figures were not available by Jan. 1946) the broadcasting industry continued to reflect the high level of wartime prosperity, as well as the year-to-year improvement which had been typical of radio. Gross time sales in 1944 totalled \$391,887,000, as compared with \$307,191,000 for the preceding year, or 20.8% greater than 1943. Net time sales, after deduction of commissions and promotional discounts, aggregated \$285,100,000 in 1944, or a gain of approximately 25% over 1943.

Rough preliminary estimates placed the 1945 gross revenue at approximately \$420,000,000, with the net time sales figure at approximately \$311,000,000. If estimated talent expenditures by advertisers, as well as receipts from sale of talent and similar sources, are taken into account, the 1945 net expenditures for radio advertising probably totalled approximately \$385,000,000.

Table I.—Radio Advertising Revenue, 1944 and 1943

	1944	1943
Major and regional network advertising revenue . . .	\$129,369,501	\$104,645,685
National "spot" advertising* . . . . .	73,312,899	59,352,170
Local advertising† . . . . .	84,960,347	64,104,309
Total . . . . .	\$287,642,747	\$228,102,164

\*Advertising by nation-wide distributors placed over individual stations (as opposed to chain, or network, advertising).

†Advertising placed by local advertisers over the individual stations in their market areas.

The figures in Table II are based on returns received (Jan. 1945) by the FCC from 875 standard broadcast stations, the regional and national networks, including key stations of the major networks, and 23 managed and operated stations. They are not projected to cover the entire roster of 950-odd stations, leaving about 75 which did not supply usable reports.

Table II.—Revenue and Expenses of Radio Industry in 1944

	1944	Pct. change over 1943
Station revenue:		
Sale of time to major and regional chains . . . . .	\$47,539,778	19.8
Sale of time to national spot advertisers . . . . .	73,312,899	23.5
Sale of time to local advertisers . . . . .	84,960,347	32.6
Total sale of station time . . . . .	\$205,813,024	26.2
Network revenue:		
Revenue retained after paying affiliated stations . . . . .	81,829,723	26.0
Total industry time sales . . . . .	\$287,642,747	26.1
Deduct commission to advertising agencies . . . . .	41,303,215	27.5
Total industry net time sales . . . . .	\$246,339,532	25.9
Incidental revenue . . . . .	28,959,079	47.6
Total net industry revenues . . . . .	\$275,298,611	27.9
Expenses:		
Total deductions . . . . .	\$185,025,760	24.3
Broadcast service income (total revenue in excess of expenses before taxes) . . . . .	\$ 90,272,851	35.8

While the improvement in 1944 revenues over 1943 was substantial—approximately \$90,000,000 as against \$66,000,000—a substantial portion of the increase was siphoned off in excess profits taxes, according to reliable industry estimates. FCC compilations do not cover net income after taxes, because of the many variable factors introduced in radio resulting from diversity of ownership and lack of uniformity in accounting methods. Moreover, total broadcast expenses rose from approximately \$150,000,000 in 1943 to more than \$185,000,000 in 1944.

During 1944 gains were general within all portions of the broadcasting medium. National network net time sales increased an estimated 21% as compared with a 19% boost during the preceding year. Regional networks advanced approximately 35%. National and regional nonnetwork (spot) business rose approximately 26%, while local volume increased about 28%. All classes of stations benefited from the increased

business, with smaller outlets experiencing the greatest gain, because of a lack of availabilities on top-rated stations in most of the major markets.

Regional stations experienced a 30% increase in national and regional spot business, while volume on local stations rose about 45%. More than three-fourths of all national and regional spot was placed on clear channel and regional stations, while local stations accounted for the remaining one-fourth.

**Profit.**—In 1944 the average total revenues from the sale of time (less payments to networks and stations) was \$232,326 as compared with \$186,568—a gain of nearly 25%. This increase compared with approximately 14.5% over 1942. Net revenues from the sale of time averaged \$209,270 in 1944 as against \$168,239 for each of the stations audited in 1943—again a gain of approximately 25%. The average broadcast expenses of the composite station were \$144,275 in 1944 as against \$123,689 in 1943, or nearly 17%. In 1943, the increased expenses as compared with the preceding year were only 3.75%. Broadcast income (revenues less expenses before federal income tax) averaged \$80,266 in 1944, as against \$55,981 the preceding year, or a 43.38% increase. This was approximately the same as for the preceding year.

**Industry Assets.**—The tangible property of the broadcasting industry remained relatively unchanged during 1945 because of the freeze on new construction during World War II. While this freeze was thawed slightly in May 1945 and lifted entirely the following August, only nominal installation and construction operations got under way during 1945. The snail-like pace toward reconversion in radio, plus the uncertainty as to allocations, contributed to the virtual standstill in new construction during the entire year. Trade estimates were that there were only 500,000 civilian sets manufactured during 1945, having a value of approximately \$20,000,000. Tubes for civilian use manufactured aggregated 30,000,000, with a value of \$35,000,000 for an aggregate of \$105,000,000 for reception equipment during the entire year. Radio set repairs and services during the year entailed expenditures by listeners of approximately \$60,000,000, according to trade sources, while radio parts and supplies, exclusive of replacement tubes, totalled \$70,000,000.

The public's investment in radio receiving sets in use, estimated at 56,000,000, was \$3,500,000,000—virtually no change from the preceding year.

The tangible property of the broadcasting industry, showing original and depreciated costs for broadcast stations and associated equipment, had a composition as shown in Table III prepared by the FCC.

Table III.—Composition of Tangible Property of Radio Industry in 1944

	865 stations	Major networks	Regional networks	Total
Original cost . . . . .	\$68,466,362	\$14,418,690	\$112,598	\$82,997,650
Depreciated cost . . . . .	34,050,431	6,433,298	68,544	40,552,273

**Programming.**—**Network Commercial Programs.**—The 15 most popular network programs as of Dec. 1, 1945, compared with those of 1944 were<sup>1</sup>:

1945	1944
1. Bob Hope	1. Bob Hope
2. Fibber McGee & Molly	2. Fibber McGee & Molly
3. Red Skelton	3. Bing Crosby
4. Charlie McCarthy	4. Charlie McCarthy
5. Jack Benny	5. Joan Davis—Jack Haley
6. Screen Guild Players	6. Walter Winchell
7. Radio Theatre	7. Radio Theatre
8. Walter Winchell	8. Abbott and Costello
9. Mr. District Attorney	9. Mr. District Attorney
10. Fred Allen	10. Eddie Cantor
11. Eddie Cantor	11. Jack Benny

<sup>1</sup>These ratings are supplied through the courtesy of C. E. Hooper Inc., creator of the Hooper Audience Analysis Ratings and are copyrighted by the company.

12. Take It or Leave It
13. Truth or Consequences
14. Abbott and Costello
15. Amos 'n' Andy

12. Screen Guild Players
13. Hildegard
14. Kay Kyser
15. Your Hit Parade

The ten top daytime leaders as of Dec. 1945 compared with the preceding year, reported by Hooper, were as follows:

- 1945
1. When A Girl Marries
  2. Portia Faces Life
  3. Ma Perkins
  4. Breakfast in Hollywood (Kellogg)
  5. Romance of Helen Trent
  6. Pepper Young's Family
  7. Young Widder Brown
  8. Breakfast in Hollywood (P. & G.)
  9. Our Gal Sunday
  10. Stella Dallas

- 1944
1. When a Girl Marries
  2. Aunt Jenny
  3. Life Can Be Beautiful
  4. Ma Perkins
  5. Romance of Helen Trent
  6. Kate Smith Speaks
  7. Big Sister
  8. Portia Faces Life
  9. Stella Dallas
  10. Young Widder Brown

The year of victory saw the final entry in wartime radio audience measurements. Both V-E day and V-J day lifted listening to highest peaks after the declaration of war on Dec. 8, 1941. The peak audiences reached on both victory days by coincidence were identical—63.1% of all receiving sets in use—according to the Hooper survey. On D-day the previous year, the audience totalled 53%, and on the night of the 1944 elections 56.6%.

The fall of 1945 saw the greatest influx of new programs in radio history. This turnover reflected the change to a peacetime advertising perspective, the influx of new program ideas and the return from war pursuits of many old radio favourites. According to the Cooperative Analysis of Broadcasting (C.A.B.), radio's major fact-finding body in the field of program ratings, there were 80 new programs rated in the new fall reports.

New programs that found popularity among radio listeners in 1945 included the "Danny Kaye Show," "Meet Me at Parky's," "Theatre Guild of the Air," "Teen-timers Show," "Request Performance," "Powderbox Theatre," "His Honor the Barber," "This Is Your FBI," "Beulah" and "Textron Theatre."

Returning radio veterans were headed by Fred Allen, who immediately jumped into sixth place among the top nighttime leaders. Red Skelton's return from the army in December brought him a prompt rating, with C.A.B. reports showing him in seventh place among nighttime leaders.

**Network Programs by Types.**—The general composition of network evening programming, based on latest available information, appears in Table IV.

**Talent Costs.**—As in previous years, there was no accurate data computed covering aggregate talent costs of network commercial programs. Rough trade estimates covering the 1944-45 period indicated approximately \$50,000,000 for nighttime programs and some \$10,000,000 for daytime programs, as against \$45,000,000 and \$10,000,000 respectively the preceding year.

National Association of

Table IV.—General Composition of Network Evening Programs

Type of program	1945 % of time on the air	1944 % of time on the air
Drama, serial drama . . . . .	23.4	27.8
Audience participation . . . . .	10.0	13.2
Variety . . . . .	27.8	17.9
Commentators, news and talks . . . . .	17.9	17.5
Popular music . . . . .	10.0	13.0
Familiar music . . . . .	4.0	5.2
Classical, semiclassical music . . . . .	4.9	3.0
Children's programs . . . . .	1.7	2.1

Date supplied by the Cooperative Analysis of Broadcasting.  
Note: Each program type has been allotted the number of hours which all programs in that type represent. The tabulation is based on the table of program types. 15-minute programs broadcast 5 times a week have been considered as 1 1/4 hours per week for the number of weeks investigated, 15-minute programs 3 times a week 3/4 hour, etc.

**Broadcasters.**—The N.A.B., trade association for the broadcasting industry, underwent a top-level reorganization in October. Associate Justice Justin Miller, of the U.S. court of appeals for the District of Columbia, was elected president of the association by its board of directors under a five-year contract at \$50,000 per year. He succeeded J. Harold Ryan, of Toledo, who served for more than a year as interim president until the organization selected a permanent head. Named executive vice-president of the N.A.B. was A. D. (Jess) Willard, former general manager of WBT, Charlotte, N.C. With a membership representing substantially two-thirds of all stations in the U.S., the association toward the end of 1945 merged with FM Broadcasters Inc., a trade group formed three years earlier to foster development of FM. Steps were being taken as the year ended for the fusion of Television Broadcasters association with N.A.B., to form a confederation of trade groups in the broadcasting field and in related operations. Functioning alongside the N.A.B. but as a separate entity was Broadcast Music Inc. (B.M.I.), which was created six years earlier to give battle to the American Society of Composers, Authors and Publishers, that made certain

MAYOR FIORELLO LaGUARDIA broadcasting the "funnies" over WNYC in July 1945, when a newspaper deliverers' strike deprived New Yorkers of their favourite comic strips



demands on radio for royalties on music performed. B.M.I. stock is owned entirely by active broadcasters.

Also functioning in the interests of broadcasters, advertisers and advertising agencies but as a separate entity was the Broadcast Measurement bureau (B.M.B.), created to perfect a plan to establish radio's own audience measuring stick. With the vast majority of stations and all of the radio networks supporting this venture, B.M.B. was prepared early in 1946 to launch its first nation-wide postcard questionnaire survey of the listening audience to determine radio "circulation."

**Censorship.**—Voluntary censorship of radio, invoked with the war's advent, was ended in the European theatre with V-E day in May and was terminated entirely with V-J day in August, according to prearranged plan. Byron Price, executive editor of the Associated Press (A.P.), who became the wartime censor, told his staff that his office would be the first to close with the war's end. He kept his promise.

With the formal proclamation of V-E day by Pres. Truman on May 8 voluntary censorship provisions governing program types were dropped. A new Code of Wartime Practices covering radio issued shortly thereafter embodied sweeping revisions. With V-J day, voluntary censorship of news ended entirely and Price subsequently closed the office. Toward the end of 1945 he resigned his A.P. post to become vice-president of the Motion Picture Producers and Distributors of America, in charge of Hollywood activities.

**Networks.**—A new transcontinental network—Associated Broadcasting Corp.—announced beginning of operations on Sept. 16 under the direction of Leonard A. Versluis, owner of a station in Grand Rapids, Mich. The network leased lines from the American Telephone and Telegraph Co. and affiliated with stations from coast to coast but operated in red ink for the balance of 1945.

Subsequently Associated Broadcasting Corp. changed its name to "Associated Broadcasting System," using the network symbol "ABS." That came after the American Broadcasting Co., formerly the Blue Network Co., made an arrangement to acquire the "ABC" designation. The latter then dropped the Blue name altogether and became ABC.

All four old-line networks showed substantial progress during 1945. Chester J. LaRoche, who served as vice-president and directing head of ABC, resigned and became senior partner in the advertising agency firm of LaRoche & Ellis. Mark Woods, president of ABC for several years, resumed policy direction of the network. Columbia Broadcasting system in early Jan. 1946 announced a realignment of top executives. William S. Paley, president, who served overseas as chief of radio psychological warfare under Gen. Eisenhower, became chairman of the board. Paul W. Kesten, executive vice-president and operating head, was elevated to the vice-chairmanship. Frank Stanton, 38-year-old vice-president and general manager, was elected president.

**House Investigation.**—Finis was written to the stormy house inquiry into the FCC in early 1945. The house select committee ended its hectic two-year life by giving the commission a clean bill of health, but with recommendations for sweeping revision of the Communications act. Much of the heat which engendered the inquiry was removed with the resignation of FCC Chairman James Lawrence Fly to enter private law practice, and the appointment of Paul A. Porter, publicity director of the Democratic National committee during Pres. Roosevelt's fourth term campaign, as the new chairman.

**Musical Property.**—All was not serene on the radio music front during 1945. While radio's troubles with the "copyright owners" of former years appeared to be well under control, the A.F.M. and its president, James C. Petrillo, were constantly in the limelight and the headlines. He blocked the use of live mu-

sicians on television until such time as he determined that issue. He lost his battle on unionizing all "platter turners" at radio stations—the men who doubled in brass by operating controls and flipping the records on turntables. An independent union, National Association of Broadcast Engineers & Technicians, licked him on that.

**Employment.**—Radio's weekly pay roll in 1945 increased slightly more than 8% over the preceding year—this in spite of wartime wage restrictions imposed by the government. The average broadcasting salary for the industry's 29,405 full-time employees was \$65.40 as compared with \$60.52 paid in 1944 to 26,688 employees.

An analysis made by the FCC covering the typical broadcast week of Oct. 14, 1945, disclosed that radio more than maintained its standard of high compensation as compared with other professions and pursuits. The 29,405 employees at 876 stations, nine networks (five major and four regional) compared with 26,688 employees in 1944 and 24,515 in 1943.

The average salary for full-time employees in 1945, exclusive of executives, was \$57.97 weekly, as compared with \$53.85 the preceding year. While no comparable figures were available for other industries in 1945, the motion picture industry of California in 1944 had an average weekly wage of \$74.74, exclusive of executives and professionals. In the same month newspapers and periodicals reported an average wage, exclusive of executives, of \$49.96.

Station employees in executive capacities earned the following averages in Oct. 1945 according to the FCC data:

General managerial, \$159.36; technical, \$79.86; program, \$82.02; commercial, \$128.73; publicity, \$86.56; other, \$90.15. The average executive salary for all stations was \$115.35 weekly. The average for all stations, including networks, for the typical week was \$112.63. Network (and key station) executive personnel averaged \$208.57 weekly.

Nonexecutive employees of the 866 standard stations (including the ten key stations of major networks that reported) had average salaries as follows:

Technical—research and development, \$78.32; operating, \$56.92; other, \$44.19. Program—production, \$56.75; writers, \$43.50; announcers, \$56.80; staff musicians, \$62.22; other artists, \$64.24; other, \$44.86. Commercial—outside salesmen, \$102.29; promotion and merchandising, \$49.81; other, \$41.61.

For the networks and key stations, nonexecutives averaged these salaries: Technical—research and development, \$103.47; operating, \$75.58; other, \$32.80. Program—production, \$70.87; writers, \$76.67; announcers, \$75.08; staff musicians, \$139.69; other artists, \$90.71; other, \$57.73. Commercial—outside salesmen, \$137.77; promotion and merchandising, \$59.70; other, \$38.25.

**Subscription Radio.**—Subscription radio, proposing a non-advertising broadcast service by FM, wherein the subscriber would pay a regular rental fee for program service, faded from the picture in Sept. 1945. William Benton, president and founder, announced the suspension coincident with his assumption of office as assistant secretary of state. He felt that his government position was in conflict with his private venture, which sought assignment of three FM channels for his service in New York. Moreover, the FCC had not indicated any disposition to authorize the service, evidently feeling that it was not broadcasting, but by its very designation would be restricted only to those listeners who paid a fee.

**Stratovision.**—Newest innovation of 1945 was a revolutionary plan announced by Westinghouse whereby airborne transmitters would relay television, FM and other broadcast services by interlacing transmission from plane to plane, flying anchored courses at 30,000 feet. The FCC authorized tests of



the plan, with results to be reported during 1946.

**Radio in the Western Hemisphere.**—With the end of World War II, new activity among North American nations in radio was evidenced. First signs of activity south of the U.S. developed with the announcement by Emilio Azcarraga, owner of the most important radio stations in Mexico City, that he planned to build a one-million watt standard broadcast station which would beam its signals toward the U.S. The highest powered station in the world, so far as the records go, was the 500,000-watt Radio Moscow. This mammoth station had 20 times the output of the biggest stations in the U.S.

Cuba also served notice on the North American nations signatory to the so-called Havana treaty that it desired assignments on at least 20 additional standard broadcast channels allocated to the North American continent. This resulted in the calling of an informal engineering conference in Washington in February to consider Cuban demands and also to work out plans for an extension of the five-year Havana treaty agreement (North American Regional Broadcasting agreement), which would expire by its own terms on March 29, 1946. Canada, Mexico, Cuba, Haiti, Dominican Republic, Bahamas and Newfoundland are signatories to this treaty. The agreement was entered because standard broadcast channels (550 to 1600 kc.) have a continental interference range and the same standards of engineering practice must be observed to avoid jamming of transmitted signals.

**World Conferences.**—All during 1945 preparations were being made under the aegis of the state department for international and inter-American conferences on use of the radio spectrum. One preparatory session was held in Rio de Janeiro in Sept. 1945 but this dealt almost entirely with common carrier, telegraph and safety-of-life-at-sea apparatus of radio service. A second was held in Bermuda in November, participated in by British dominions and the U.S., having to do with international radiotelegraphic and telephonic traffic and rates.

**U.S. Foreign Broadcasts.**—One of the knottiest problems confronting the administration as the year ended was that of continuing international shortwave broadcasting to all corners of the world. During wartime this was the function of the Office of War Information (OWI) and the Office of Inter-American Affairs, supplemented by home-to-troops broadcasts sponsored by the armed forces. These operations were taken over with the abolition of these war agencies by the state department and placed under the immediate direction of William Benton, assistant secretary of state. High powered transmitters with their signals beamed to all peoples were established under OWI direction during the war, but with the technical operation vested in private licensees. Programming, however, was handled by the government as part of the over-all psychological warfare campaign. Privately owned facilities employed on these operations were leased to the government during the war.

Whether the stations, some 36 in number, should be turned over to private operators or whether some variation of the wartime plan should be continued was the problem which plagued the government as the year ended.

The government, under its modified peacetime plan, was transmitting 66 program hours a day in 21 languages over 36 broadcast stations in the U.S. and relay stations in Algiers, Germany, London, Saipan, Honolulu and Manila. It appeared likely in mid-January of 1946 that a committee of newspaper executives and state department officials would be named to attempt to work out the problem. The issue boiled down to whether democratic concepts as to free flow of news could be maintained if the government programmed shortwave stations, weighed against the admitted desirability of retaining a "Voice of Amer-

ica" which built up such a following throughout the world during the arduous war years. (S. Tr.)

**Scientific Developments.**—The end of World War II made it possible to disclose publicly many of the scientific developments in radio which played a major role in winning the war. During the latter months of 1945 many of the research and engineering organizations in the radio industry were converting their activities from military projects to peacetime objectives. Some of the technical problems to which the industry could devote its efforts were highlighted by the FCC's frequency allocation report of June 27, 1945, in which frequencies above 30 mc. were assigned to many new as well as existing services. The assignment of a ten mc. band between 460 and 470 mc. for "Citizens Radio" was expected to provide ample opportunity for the exercise of technical ingenuity in developing a new communication service for the public.

**Industrial Applications of Radio Frequency Power.**—During 1945 the use of radio frequency power as an industrial tool became firmly established. One industrial application of radio frequency power which aroused considerable technical interest was in the dehydration of penicillin.

In order to retain the potency of penicillin it is necessary to dry the product thoroughly before storage or shipment. It was originally dried with the penicillin solution in a frozen condition and in a vacuum. The drying process required approximately 24 hours. The radio frequency method developed for dehydrating penicillin involved evaporating the water from the liquid penicillin in a vacuum. The boiling point was maintained at approximately 50° F. by controlling the vacuum and a radio frequency generator was utilized to supply the energy necessary for vaporization. This method reduced the drying time to less than 30 minutes and did not adversely affect the potency of the material. The cost of the electronic drying equipment and maintenance was only a fraction of the cost of the equipment previously used.

**Military Radio Equipment.**—(See RADAR; RADAR COUNTER-MEASURES.)

**Radio Relay Systems.**—In 1945 the Western Union company in co-operation with the Radio Corporation of America (RCA) established an experimental super-high-frequency radio relay system between New York and Philadelphia. Tests on the experimental system provided the experience required for planning a proposed nation-wide radio relay system. This system will utilize radio microwaves transmitted from towers spaced approximately 30 miles apart. The relay stations will be entirely automatic and unattended. Each circuit will provide a larger number of channels than were available in 1945 for the handling of telegraph traffic and can also be used to transmit telephone calls, high-speed facsimile and to operate automatic typewriters and business machines at widely separated points.

Western Union applied to the FCC for permission to establish experimental radio relay systems between New York and Washington, New York and Pittsburgh and Washington and Pittsburgh. The system to be employed between these cities would provide radio beams in each direction. Each beam could provide as many as 270 multiplex circuits.

The American Telephone and Telegraph company was installing a radio relay system between New York and Boston. This system was to be capable of carrying simultaneously a large number of telephone conversations as well as television programs and other special services. (See TELEVISION.)

**Tubes.**—*Image Orthicon.*—A new camera tube, the Image Orthicon, announced by the RCA laboratories, was expected to do much to overcome one of the serious limitations confronting the television broadcaster for it will make it possible to televise scenes under very unfavourable light conditions. The new pickup tube was reported to be at least 100 times more sensitive than

conventional camera tubes. Another advantage of the Image Orthicon is its ability to accommodate a much greater range in light intensity than was possible with the standard Orthicon.

The Image Orthicon resembles a large tubular flashlight in size and appearance. The tube has an over-all length of approximately 15 inches and a maximum diameter of three inches.

The improved sensitivity of the Image Orthicon over the pre-war Orthicon is attributed to the addition of an electron image section which permits greater photoelectric sensitivity and an electron multiplier section which greatly amplifies the relatively weak video signals which are obtained when the target is scanned. The electron multiplier section consists of a series of targets or dynodes each of which provides amplification by means of secondary electronic emission.

**Kinescopes.**—The brightness and contrast of television images were materially improved by a recent development in cathode ray tubes. In the new tubes a very thin smooth film of aluminum is deposited on the back of the fluorescent screen. The aluminum film, which must be thin enough to be penetrated by the electron beam, acts as a mirror and causes all the light produced by the fluorescent material to be emitted from the face of the tube. In conventional tubes much of the light from the inner surface of the fluorescent material is reflected about inside the tube and either lost or diffused over the screen area causing a reduction in contrast.

**Magnetrons.**—Radar transmitters operating on frequencies above 500 mc used cavity magnetrons as their source of high-frequency power. One of the outstanding characteristics of this type of tube was its high efficiency. During the war cavity magnetrons for many radar applications were developed. The peak power output of these tubes when pulse modulated ranged from a few watts to megawatts.

**Velocity Modulated Tubes.**—The capabilities and limitations of velocity modulated tubes were extensively investigated for radar applications. Microwave radar receivers operated on the superheterodyne principle and one of the major problems encountered in their design was to obtain a satisfactory heterodyne oscillator. Velocity modulated tubes provided the solution to this problem in receivers operating above 1000 mc. (See also ADVERTISING; FEDERAL COMMUNICATIONS COMMISSION.)

(B. E. Sd.; G. L. Bs.)

**Great Britain.**—In Feb. 1945 the BBC prepared for peace by convening in London a commonwealth broadcasting conference of all the broadcasting organizations of the British empire. Victory in Europe was followed by completely new broadcasting schedules for ten days. Peace made possible the re-allocation of wave-lengths and the start of peacetime broadcasting. On July 29 the home and light programs, independent of each other, and competing for the tastes of British listeners, were instituted and the regional stations resumed their independent program activity. A third national program was planned for the spring of 1946. This was to cater for minority interests and would not be bound by fixed points, such as news bulletins, so that the whole of a promenade concert or an important play might be given without interruption. The three programs, in the view of the BBC's director-general, W. J. Haley, would give British listeners the most comprehensive service in the world.

**The Radio Industry.**—From 1940 to mid-1945 the energies of the British radio industry were devoted entirely to research, development and production of radio and radar equipment, components and valves for use by the services in the radio war. For this purpose the capacity of the industry was expanded some two-and-one-half times above its prewar size. With the return of peace the industry began its reconversion to the production of civilian equipment—a reconversion which had to be carefully planned and regulated if the transition period was to be smoothly passed.

By the end of June 1945 plans were made and approved by the government for the production of nearly 1,000,000 civilian broadcast receiving sets during the following 12 months, and action to implement these plans was initiated. Of this total some 400,000 sets were for export in support of the drive for the re-establishment of export trade. In addition, the manufacture of components and valves for maintenance purposes in Britain and overseas was resumed on a substantial scale. Planning for the manufacture of television receivers was well advanced and the industry would produce television sets in line with the re-establishment of the television service and its expansion to the provinces in accordance with the recommendations of the Hankey committee. Attention was being devoted also to the application of electronic science to peacetime uses, and the production of equipment for this purpose was proceeding.

(R. P. Be.)

**Scientific Aspects of Radio.**—The year was characterized in radio science not so much by outstanding immediate progress as by the partial lifting of the veil which had been drawn over all development for military use after 1939 and earlier. First place must be given to the great upward extension in frequency range resulting primarily from the success of a research group at the University of Birmingham in developing a practical form of the cavity magnetron. This enabled adequate power to be developed at frequencies which, before the war, would have been regarded as "speculative in the extreme." In contrast, however, with the behaviour of the conventional thermionic tube, which had always been amenable to theoretical interpretation in detail, the magnetron with the added complication of a magnetic field had so far shown much less respect for theory than might have been expected. The clearing up of discrepancies under more leisurely conditions might be expected to lead to further advances in this field.

The diversion into radio research generally of some of the best brains in physical science led to the discovery of many new possibilities in circuit design. Most of these had their origin in the fundamental need of radar equipment for accurate timing. The measurement of target range to within ten yards by radar methods, which was officially quoted, implies a timing accuracy of about one-thirtieth of a millionth of a second. The developments toward the end of 1945 illustrated possible applications. The first was the demonstration in November by a British commercial firm of one-channel television in which sound transmissions were sandwiched, both at transmitter and receiver, into the minute fraction of time between successive scanings of the televised picture. The second was in the timing of the new world air speed record set up in England during the same month. The broad effect was, however, more important. Radio designers were impelled from technical to scientific thinking, the effect of which must be felt throughout electronic engineering. In the more limited field of radio navigation there was in 1945 an unresolved conflict between the rival methods of pulse technique and timing by phase difference.

In radio propagation, the use of available information on daily, seasonal and 11-year cycles of change in the ionosphere, in all cases associated with the sun, as a guide to the choice of frequencies on long-distance communications and broadcasting services, begun somewhat cautiously in the ten years before the war, was developed in 1945 to the point of precise and scientific prediction. Much information was accumulated also on anomalous local propagation at high-frequencies, at first round the British Isles, later under widely varied climatic conditions. It was shown that anomalous propagation may be associated with inversion of both the normal temperature and normal humidity gradients in the atmosphere, but that the latter factor was the more important. Meteorological correlations were worked out to a considerable extent and might prove important.

Finally, although uses of the cathode ray tube fall largely outside the scope of this article, it must be recorded that wartime radar needs led to considerable advances both in manufacture and technique of employment. Among these the introduction by the British of a rotating time base to give a direct radar indication of position was outstanding.

**FILMS.**—*Receiving Radio Messages; Sending Radio Messages; Vacuum Tubes* (Encyclopædia Britannica Films Inc.).

**Radio Detection:** see RADAR.

**Radiology.** Two significant dates in the history of radiology were commemorated in 1945, the anniversary of the birth of Wilhelm Konrad von Roentgen 100 years before and the 50th anniversary of the discovery of Roentgen rays. (See X-RAY.)

Renewed interest was shown in the diagnosis of intracranial lesions by angiography with thorium dioxide as the contrast medium. The inhalation of pure graphite dust was shown to produce pulmonary fibrosis indistinguishable on the roentgenogram from silicosis. Studies in a series of soldiers demonstrated that spontaneous pneumothorax is not infrequent between the ages of 20 and 30 after mild exercise and is usually of no pathological significance. An exhaustive study of the Roentgen appearance of pulmonary collapse and the technique of its demonstration was presented. The value of roentgenograms of the hands in the diagnosis of several diseases was demonstrated.

Asceptic necrosis of the skull appearing from 5 to 12 years after irradiation treatment to pituitary tumours was reported. Degenerative changes in the brain were demonstrated following large doses of Roentgen rays. Encouraging reports appeared on the treatment of irradiation ulcers with alpha ray ointment.

A device was invented for recording the movements of the heart or other moving organs by means of a fluoroscope and a multiplier photoelectric tube which promised to be useful in physiological studies as well as diagnostic procedures. Valuable information regarding the technical factors affecting the quality of roentgenograms appeared.

**BIBLIOGRAPHY.**—Carl F. List, Curtis H. Burge and Fred J. Hodges,

"Intracranial Angiography," *Radiology*, 45:1-14 (July 1945); Lasar Dunner, "Observations on Pulmonary Disease in Graphite Workers," *Brit. J. Radiology*, 18:33-35 (Feb. 1945); Laurence L. Robbins and Clayton H. Hale, "The Roentgen Appearance of Lobar and Segmental Collapse of the Lung: Preliminary Report," *Radiology*, 44:107-114 (Feb. 1945); Laurence L. Robbins, Clayton H. Hale and O. E. Merrill, "Roentgen Appearance of Lobar and Segmental Collapse of the Lung: Technic of Examination," *ibid.*, 44:471-476 (May 1945); Laurence L. Robbins and Clayton H. Hale, "Roentgen Appearance of Lobar and Segmental Collapse of the Lung: Normal Chest at it Pertains to Collapse," *ibid.*, 44:543-547 (June 1945); "Collapse of Entire Lung or Major Part Thereof," *ibid.*, 45:23-26 (July 1945); "Collapse of Lower Lobes," *ibid.*, 45:120-127 (Aug. 1945); "Collapse of Right Middle Lobe," *ibid.*, 45:260-266 (Sept. 1945); "Collapse of Upper Lobes," *ibid.*, 45:347-355 (Oct. 1945); John F. Holt and Fred J. Hodges, "Significant Skeletal Irregularities of the Hands," *Radiology*, 44:23-31 (Jan. 1945); John D. Camp and Robert D. Moreton, "Radiation Necrosis of the Calvarium: Report of Five Cases," *ibid.*, 45:213-219 (Sept. 1945); Russell H. Morgan, "An Analysis of the Physical Factors Controlling the Diagnostic Quality of Roentgen Images: Introduction," *ibid.*, 54:128-135 (Aug. 1945); "Maximum Resolving Power and Resolution Coefficient," *ibid.*, 395-402 (Oct. 1945). (S. J. Hy.)

**Radium.** The World War II demand for vanadium made it possible to recover appreciable amounts of the associated radium from the ores produced in the United States. No statistics were reported, but output declined in 1944, with the drop in demand for vanadium. Consumption of radium in luminous paint for watch and instrument dials and other war applications was 40 grams in 1942, 75 grams in 1943 and 50 grams in 1944. Imports reached a record high of 101.290 grams in 1944, as compared with 90.755 grams in 1943, all from Canada.

The Canadian radium mine and refinery worked full time in 1944 as a crown operation. No output was reported, but the plant is estimated to have an annual capacity of 80 to 100 grams.

The refinery at Oolen, Belgium, for treatment of the Belgian Congo ores, was found to be intact after the German surrender.

(G. A. Ro.)

**Railroad Accidents:** see DISASTERS.

**Railroad Retirement Act:** see SOCIAL SECURITY.

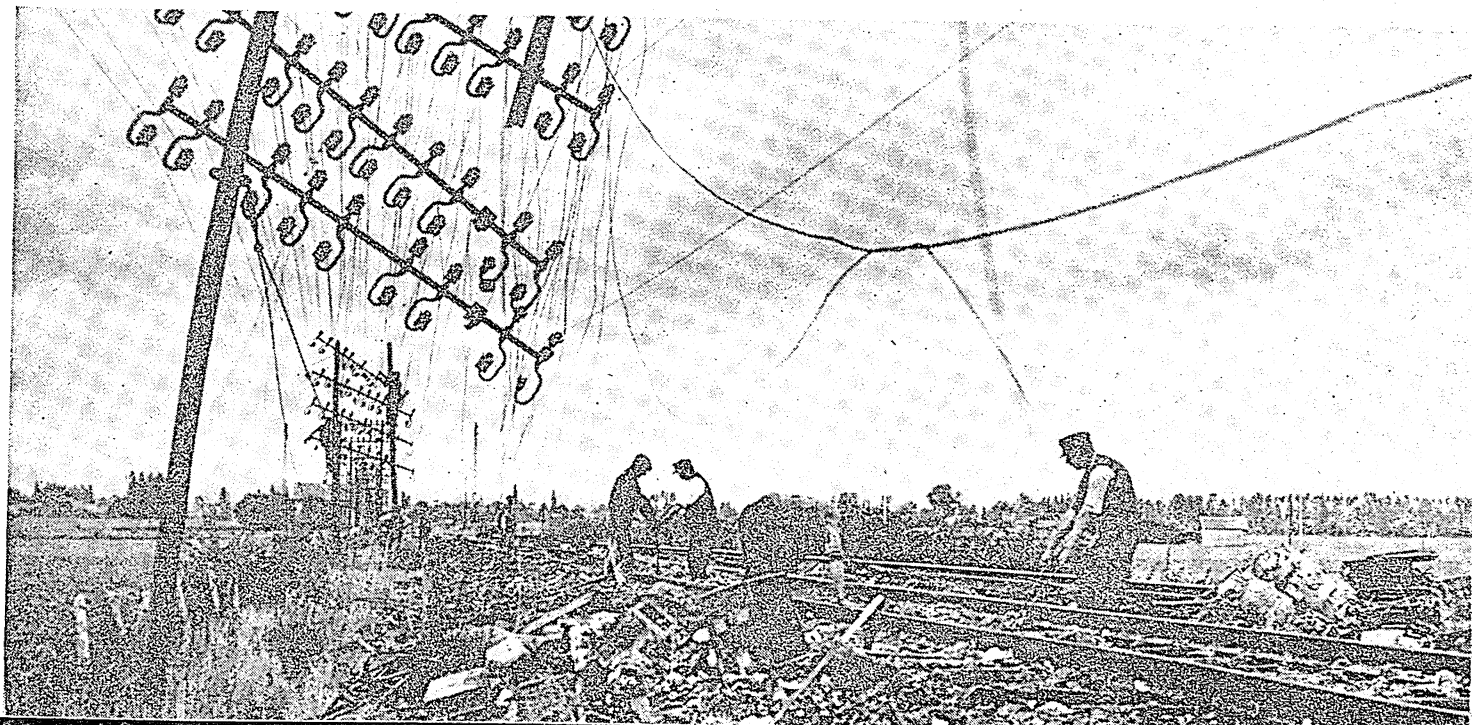
**Railroads.** From the railroad viewpoint the year 1945 in the United States was divided into three periods in which the transportation demands had distinct differences. During the first period, from January to May, World War II was at its highest intensity in Germany and Italy and large-scale operations were under way on and around the Pacific islands. Troops and supplies were moved in large volume to ports of embarkation on both the Atlantic and Pacific. In the second

period of three months between V-E day and V-J day the transportation pattern was changed by a reversal from outward to inward movement through the Atlantic ports and an intensification of outward movement through the Pacific ports as the tempo of the war against Japan was accelerated. This eased the strain on the eastern railroads but brought heavy additional loads on the transcontinental lines. The third period, following the surrender of Japan, was one in which the processes of demobilization and conversion from war to peace were begun on a large scale and the preponderance of traffic through the Pacific ports was reversed from outward to inward movement.

In both the first and second periods the service furnished by the railroads was of the same high quality and adequacy which brought praise from the military authorities in 1943 and 1944 although the overload on the western railroads in the second period occasionally resulted in slight congestion and delay. The only serious blemish on the railroad record occurred toward the close of the year when the number of veterans returning to the Pacific ports was greater than the railroads could handle expeditiously from those ports over the long distances to separation centres in the central, southern and eastern states. The delay, which was especially unfortunate in preventing many veterans from spending Christmas and New Year's at home, was due to an underestimate by the military planners as to when and in what numbers the men would be returned, and to a shortage in passenger cars, particularly in sleepers. During the war the railroads had been unable to obtain priorities for materials needed for additional passenger cars and the delivery of a large number of sleepers constructed specifically for troop movement had been delayed by labour troubles in the plant furnishing the mattresses. In lieu of sleepers, coaches were used by a substantial proportion of the soldiers, but the number available was inadequate notwithstanding the transfer of about 2,000 from eastern railroads. Civilian use of sleepers had been drastically curtailed in July by restricting their use to runs in excess of 450 mi. Thereafter more than 75% of all sleepers were assigned exclusively to military traffic.

The magnitude of the demobilization task performed by the railroads is indicated by the fact that between V-E day and Dec. 28 the army turned 4,645,000 soldiers back to civilian life. Practically all of these men were moved by rail from the ports or army posts within the United States to staging areas, then to separation centres, and then to their homes. About 90% of all military freight and 97% of military personnel in organized par-

FRENCH railroad workers restoring the communication lines so urgently needed for industrial recovery in France during 1945





ties were carried by rail.

In total freight traffic, both military and civilian, the volume in 1945, measured in ton-miles, was 8% less than in 1944. The estimate for 1945 was 680,000,000,000; the actual in 1944 was 737,000,000,000. The effects of the termination of war, first in Germany and next in Japan, are indicated by a separate comparison of the three periods mentioned in the first paragraph of this article. Compared with the same months of 1944 the decrease in ton-miles in Jan.-May 1945 was 1.5%. In the months of June-August the decrease was 4.6%, and in September-December it was 18.3%. The passenger miles of 1945 were about 91,000,000,000, approximately 5% less than in 1944, but because of demobilization of military personnel the pattern differed from that of freight in the three periods of the year. The decrease in the first period was 8.7%; in the second period 5.1%; and in the third period 0.4%.

The net financial results of railroad operation in 1945 are not cheerful reading for stockholders. They are herein estimated on the basis of the complete figures for the first ten months of the year. The operating revenues in 1945 were about 3% less than those of 1944 but the operating expenses (because of higher wages and increased prices for materials) were about 5% more, and the net railway operating income (the amount available for interest charges, dividends and other appropriations) was about 11% less. The net income after fixed charges was about 13% less than in 1944, 34% less than in 1943 and 36% less than in 1942.

Net Financial Results of Railroad Operation, 1942-45

Item (in millions)	1945*	1944	1943	1942
Operating revenues . . . . .	\$9,146	9,437	9,055	7,466
Operating expenses . . . . .	6,620	6,282	5,657	4,601
Tax accruals . . . . .	1,377	1,846	1,849	1,199
Net railway operating income . . . . .	983	1,106	1,360	1,485
Net income . . . . .	579	667	873	902
Return on investment . . . . .	3.52%	3.97%	4.92%	5.50%

\*Year ended Oct. 31, 1945. From *Railway Age*, Jan. 5, 1946.

While the net income declined steadily after 1942, notwithstanding the large increases in gross revenues, the cash position of the railroads at the close of the war period was much better than in 1941. A substantial part of the charges to operating expenses were because of depreciation and amortization of expenditures for war facilities; they were not cash expenditures. A large portion of available cash was used for the retirement of debt, and in the revised financial organization of roads which emerged from bankruptcy there were even greater reductions in interest bearing securities. Up to Sept. 30, 1945, under reorganization plans approved by the Interstate Commerce commission for 32 railroads reorganized or in process of reorganization, the funded debt was or would be reduced from \$4,300,521,178 to \$1,833,543,264, and the annual fixed charges cut from \$148,865,539 to \$40,113,369.

At the close of the year 75 railroads with 41,154 mi. of road, 10,833 mi. less than on Jan. 1, 1945, were in receivership or trusteeship, a carry-over from depression years. This reduction in bankrupt mileage was accounted for almost entirely by the discharge from trusteeship of the Chicago, Milwaukee, St. Paul and Pacific. The promise for 1946 was that the reorganization of several other important railroads would soon be completed.

The miles of railroad abandoned in 1945 because of unprofitable operation was 412, a figure lower than in any year after 1927. In the 12-year period up to Dec. 31, 1943, abandonments aggregated almost 20,000 mi., an annual average of 1,667. Additions to railroad mileage by new construction in 1945 were negligible—65 mi.

Substantial progress was made in 1945 in extension and modernization of signals. Automatic signals were installed on 1,791 additional road miles, and on 28 railroads additional sections,

aggregating 1,658 mi. of road, were equipped with centralized train control. Considerable progress was made in installations of wireless communication with moving trains and yard locomotives. The gross capital expenditures for all additions and betterments to line and equipment in 1945 were approximately \$500,000,000, a figure slightly lower than in 1944.

Railroad service was free from general strikes during the year but the railroad unions were among the first in the postwar period to demand substantial wage increases and changes in making agreements. The proceedings of negotiation and mediation were in progress during the last three months of the year but no agreement was in sight on Jan. 1, 1946. A jurisdictional dispute between the enginemen and firemen on the Illinois Central railroad led to the calling of a strike, to become effective on Aug. 24, by the firemen, who refused to accept the decision of a fact-finding board, but the strike was averted by federal seizure of the railroad on Aug. 23. At the close of the year the property was still in the hands of the government and was technically operated by the Office of Defense Transportation. As a practical matter, however, it was a "token" seizure and the railroad was operated as usual by its own officers, with nominal oversight by ODT pending settlement of the interunion controversy.

The manpower shortage, so serious in 1944, continued but during the late months of 1945, when ex-servicemen began to return to railroad service and the volume of freight traffic diminished, the shortage became less critical. The average number of employees in 1945 was 1,422,000. The comparable number in 1944 was 1,414,776.

The result of a suit brought by the department of justice in 1940 against Pullman, Inc., was a district court decision in 1944 that common ownership and control of car-building activities and the ownership and operation of Pullman cars under contractual arrangement with the railroads was a violation of the anti-trust law. The Pullman company was offered the choice of giving up one of its two activities and it chose to continue as a car builder. Its cars and operating organization were offered for sale to the railroads collectively. Following continued court hearings, at which the department of justice opposed sale to the railroads and favoured disposal to one of three nonrailroad organizations which had made bids, the court, in Dec. 1945, approved the sale to the railroads with stipulations to ensure free competition in car building. If the decision would not be reversed on appeal to higher courts, the sleeping car service would continue about as in previous years. The pooled operation of the sleepers to meet seasonal demands in different sections of the country would be administered by a railroad-owned organization instead of by the Pullman company although a few individual railroads might elect to own and operate their own sleeping cars, renting extra cars from the pool as might be required.

The decision of the Interstate Commerce commission on May 15, 1945, finding that the class rates in southern, southwestern and western trunk line territories were unreasonably high, and ordering a 10% reduction in those territories with a corresponding increase in class rates in official (east and northeast) territory, coupled with an order requiring uniform classification of freight for class rate purposes throughout the entire U.S., was an outstanding event in the history of rate regulation. It was the culmination of several years' activity of the southern governors to bring about "mile-for-mile" uniformity in rates applicable to freight moving under class rates. The scales of class rates, prescribed by the commission several years before, were higher per mile in the south and west than in the north, the difference being justified at the time by higher ton-mile costs in the south and west. Afterward the differences in cost were narrowed. In ordering a 10% decrease in class rates in the south and west and an increase of 10% on class rates in the north, the commission's

objective was to equalize between southern and northern producers and merchants the burden of transportation cost on freight which moved under class rates but no consideration was given to the commodity or exceptional rates (lower than class rates) under which about 98% of the total tonnage moves on southern railroads. The commodity rate scale in the south was lower than in the north. The change in class rates was to have become effective on Aug. 30, 1945, but the effective date was put forward to Jan. 1, 1946. On Dec. 13, 1945, the governors of New York and eight other northeastern states sought an injunction to restrain the commission from enforcing its order and on Dec. 21 a three-judge federal court granted a temporary injunction. Further court proceedings were to follow and in the meantime the commission temporarily suspended its order, pending decision as to whether the injunction would be made permanent. (See also BUSINESS REVIEW; INTERSTATE COMMERCE COMMISSION; NATIONAL MEDIATION BOARD.)

(W. J. C.)

**Great Britain.**—The immense profit gained by the government from the control agreement with the British company-owned railways and the London Passenger Transport board is revealed by the publication in 1945 of the surplus in excess of the fixed government rental, of more than £47,000,000 in 1944, bringing the total after 1940 to £176,000,000. The advent to power of a Labour government foreshadowed a policy of nationalization, or the formation of some public transport board. Wages rates were materially increased by an agreement reached in August and this would reduce the 1945 surplus.

The repair of the World War II damage demanded first priority and London transport had nearly 60,000 windows to be replaced in its vehicles alone, while during the war the London Midland and Scottish railway had 254 passenger cars and 1,250 freight wagons destroyed. New equipment orders included 800 passenger cars for the L.M.S., 250 being completed within three months after V-E day, while new Great Western railway cars were fitted with fluorescent lighting, and on the London and North Eastern railway new standard designs included cross-vestibules to ease loading and the limitation to six seats per compartment in the third class. All-metal mineral wagons of 16 tons capacity were a feature of the L.M.S. new construction with a tare weight of less than 8 tons, while some new steam locomotive designs had already appeared after V-E day, notably a 4-6-0 2-cylinder type (No. 1,000) on the G.W.R., using the high pressure of 280 lb. per sq.in., also a 2-6-4 tank design (No. 9,000) on the L.N.E.R. with 225-lb. pressure and a 32,000-lb. tractive effort—this was the most powerful locomotive of its class in Great Britain. This railway published its locomotive replacement program of 2,000 units to be carried out in ten years, and equipped certain steam locomotives with electric lighting, which previously had not been standard British practice. The Southern railway, in spite of its extensive electrified mileage, turned out in July the prototype of its new "West Country" class of 3-cylinder "Pacifics" (4-6-2) which were all to be named after famous cities and towns of the west country. These streamlined locomotives, of which 70 were to be constructed, work at a pressure of 280 lb. per sq.in. and, with an axle load of 18½ tons, are a lighter version of the "Merchant Navy" class.

As a precautionary measure the G.W.R. equipped some of its heavy freight engines with oil fuel apparatus in place of coal, an exceptional event for a line earning much of its revenue from the carriage of coal which it also exports from its South Wales ports, for instance, Cardiff and Newport. Though station reconstruction hardly began in 1945, much planning was completed and the L.N.E.R. placed in service a notable design of signal cabin, which had been designed on standard lines of brick construction with a canopy to avoid glare, sliding windows and con-

tinuous glazing. The abandonment of blackout conditions on trains and at stations, and later the improved train services and the re-introduction of the first dining cars in October, marked the first sign of a return to peacetime conditions for the traveller. Unfortunately September witnessed one of the worst railway accidents in modern British history, when an L.M.S. Scottish express was derailed near Boxmoor with 42 fatalities.

During 1945 the British railways published their scheme of projected air line operations within the country and to serve continental European capitals.

**Continental Europe.**—The railway situation in many European countries was still very indistinct in the closing months of 1945 and was likely to remain so until the census of equipment had been taken, projected for Jan. 1946. One most encouraging feature was the energy exemplified in France, where the National railways had repaired, with U.S. and British help, nearly all the main lines by July, though using temporary bridges on which speed was very restricted. That same month witnessed the re-opening of the Paris-Basle service. Since but a year earlier working was impossible on 11,185 mi. out of a total of 24,233 route miles, and 2,400 bridges, arches, viaducts, etc., had been demolished or badly damaged, the speed of reconstruction was noteworthy. Other war damage consisted in the obstruction of 43 tunnels, while 10,000 pairs of switches and 571 signal cabins were destroyed; also 115 large stations and 24 classification yards had been seriously damaged, as well as 74 large locomotive depots and 20 substations on electrified mileage. Of 16,000 locomotives in 1938 only 6,000 were serviceable in Jan. 1945, but more than 8,000 were expected to be available in Jan. 1946. The freight wagon total fell from 478,000 in 1938 to 228,000 in Jan. 1945, of which only 152,000 were serviceable. Besides in the repair of war damage progress was being made with the electrification of the great main line artery from Paris to Lyons.

The Belgian National railways presented a similar picture with more than 1,000 locomotives and 65,000 wagons lost, also 154 signal cabins and 403 bridges destroyed. In the Netherlands the situation was even worse with 70% of bridges, 50% of locomotives and 20% of stations destroyed or lost. The Danish state railways had virtually repaired all war damage by Dec. 1945, but Norway had still much to accomplish and was very short of equipment and motive power, while in the south the Italian state railways still remained with many routes out of service, and Greece was left with but 31 locomotives available in May 1945 out of 220 in 1938.

It was known that the German railway became disorganized in Jan. 1945, the paralysis beginning west of the Rhine and spreading eastward owing to Allied bombing and the closing in of the Allied armies; coal stocks in the Ruhr could not be cleared and the resulting shortage of locomotive coal was one of the causes of the final disintegration. The German rail network for control purposes was divided into four zones—U.S., British, French and Russian—and no data were made public; only essential military and civil traffic was being handled. No information was available as to the U.S.S.R. railways, but it was known that rail communication was established between Moscow and Königsberg in July 1945 and the 5-ft. U.S.S.R. gauge had been carried west to the Vistula. Polish railway mileage in 1945 was 14,656 mi. as compared with 12,493 in 1938.

Concerning neutral countries, Portugal built its first steam locomotive and Switzerland placed new electric locomotives on the Berne-Lötschberg-Simplon, and the federal railways continued widening a difficult section of the Gotthard route and electrified further lines in the Payerne and Eglisau areas. The Swedish state railways had 2,858 mi. electrified with further lines under conversion and 80% of the total traffic was

electrically hauled. Sweden built steam locomotives for export to the Netherlands.

**Asia.**—April 1945 marked the taking over by the Indian government of the last important broad or metre gauge company-operated line in that country, namely, the Dibrui-Sadiya line in Assam, thus completing a policy continuing over many decades. Further 2-8-2 type locomotives were imported from Canada, thereby easing the shortage of motive power on the North Western railway—the complete order was for 400. In August the U.S.S.R. jointly with China took over the South Manchurian and erstwhile Chinese Eastern railways. Known as the China-Changchun railway agreement, the instrument of change provided for ownership by China with administration by a joint Chinese-soviet board.

**Africa.**—In Sept. 1945 the Jibuti-Addis Ababa railway was handed back to its former French ownership, but the main railway progress to be recorded in Africa relates to the South African railways and harbours administration, which made public its £30,000,000 postwar reconstruction program embracing the rebuilding of Johannesburg, Durban, Pretoria and other large stations, as well as continuing the policy of electrification. Other items included large-scale replacement of locomotives and equipment and further elimination of grade crossings on which more than £1,500,000 had been expended in the previous 16 years.

**Canada.**—Both the Canadian National and the Canadian Pacific systems continued to be hard pressed to handle the peak passenger traffic still offering and arising in part from the return of servicemen. The C.N.R. new central station, Montreal, opened in July 1943, handled 6,500,000 passengers in its first year, with a record of 27,448 for one single day. The C.P.R. in 1945 placed in service the first Canadian boxcar with an aluminum body, thereby effecting a saving of 9% in tare weight.

**Australia.**—The most outstanding event was the publication in April of the report by Sir Harold Clapp on gauge unification. This recommended standardization on the 4 ft. 8½ in. gauge and would require the conversion of much of the 5 ft. 3 in. gauge lines in Victoria and South Australia, as well as the widening of many 3 ft. 6 in. gauge lines in Western and Southern Australia, also in Queensland. New construction of long mileages of 4 ft. 8½ in. gauge main line was recommended and the total cost of the proposals was estimated at more than £76,000,000.

**South America.**—Electrification continued to be pressed forward energetically in Brazil; one scheme related to the Sorocabana railway, with electric traction in use from São Paulo to Santo Antonio, and another to the Central of Brazil with a view to extending electric traction from Belém and Barra do Pirahy to Volta Redonda. The Paulista railway proposed to convert its line to Bauru and the São Paulo railway planned electrification to Jundiahy. Lastly, the Leopoldina was considering the electrification of its suburban routes in the Rio de Janeiro area.

The completion of the reconstruction of the Victoria-Minas railway, serving vast iron ore resources, was of considerable economic importance as it could handle 1,500,000 tons annually. Interest focused on the expectation that by 1946 the new international railway bridge between Uruguayana (Brazil) and Paso de los Libres (Argentina) would be opened for traffic, thus providing the first direct rail communication between the two countries. The Salta and Antofagasta trans-Andean rail link made progress and the Chilean section was virtually complete, with the Argentine section nearing the border. Peru had a railway project to link Cuzco with Iquitos on the Amazon (620 mi.), thus providing another trans-Andean route; three other short lines were under construction in Peru. (See also DISASTERS; UNITED STATES.)

**FILMS.**—*Development of Transportation* (Encyclopædia Britannica Films Inc.). (C. E. R. S.)

**Rainfall:** see METEOROLOGY.

**Raisins:** see FRUIT.

**Randall-Maclver, David** (1873-1945), British archaeologist and anthropologist, was born in London, the son of John MacIver, a shipowner. He later added Randall, the surname of his stepfather, to his own name. He received his bachelor's degree at Queen's college, Oxford, 1896. He was a member of one of the Flinders Petrie archaeological expeditions to Egypt and was Laycock student of egyptology at Worcester college, Oxford, 1900-06. He spent several years in Egypt doing research in comparative anthropology, studying Egyptian skull formations of various periods under direction of Sir Arthur Thompson. From 1907 to 1911 he carried out archaeological expeditions for the University of Pennsylvania in Egypt and the Sudan. He was librarian of the American Geographical society, New York, 1911-14, and served during World War I in France and Macedonia as an intelligence officer with the rank of captain. After the war, he conducted explorations and research in Italy and his writings established him as an authority on the prehistoric period of the Italian peninsula. A member of several learned societies, he contributed articles on the Comacines, Etruscans, Picenes and Villanovans in the 14th edition of the *Encyclopædia Britannica*. Among his

publications are *Mediaeval Rhodesia* (1924), *Villanovans and Early Etruscans* (1924), *The Iron Age in Italy* (1927), *The Etruscans* (1927), *Italy Before the Romans* (1928) and *Greek Cities in Italy and Sicily* (1931). He died at his home in New York city, April 30.

**Rapid Transit:** see ELECTRIC TRANSPORTATION.

**Rates of Exchange:** see EXCHANGE CONTROL AND EXCHANGE RATES.

**Rationing:** see PRICE ADMINISTRATION, OFFICE OF.

**Rayon and Other Synthetic Fibres.** Products of rayon and other synthetic fibres continued in 1945 their record-breaking rise in consumption. Total production in the United States of rayon yarn of all types was 792,100,000 lb. compared with 723,957,000 lb. in 1944. Table I shows the division as to rayon filament yarn and rayon staple fibre.

Table I.—United States Rayon Production in Millions of Pounds

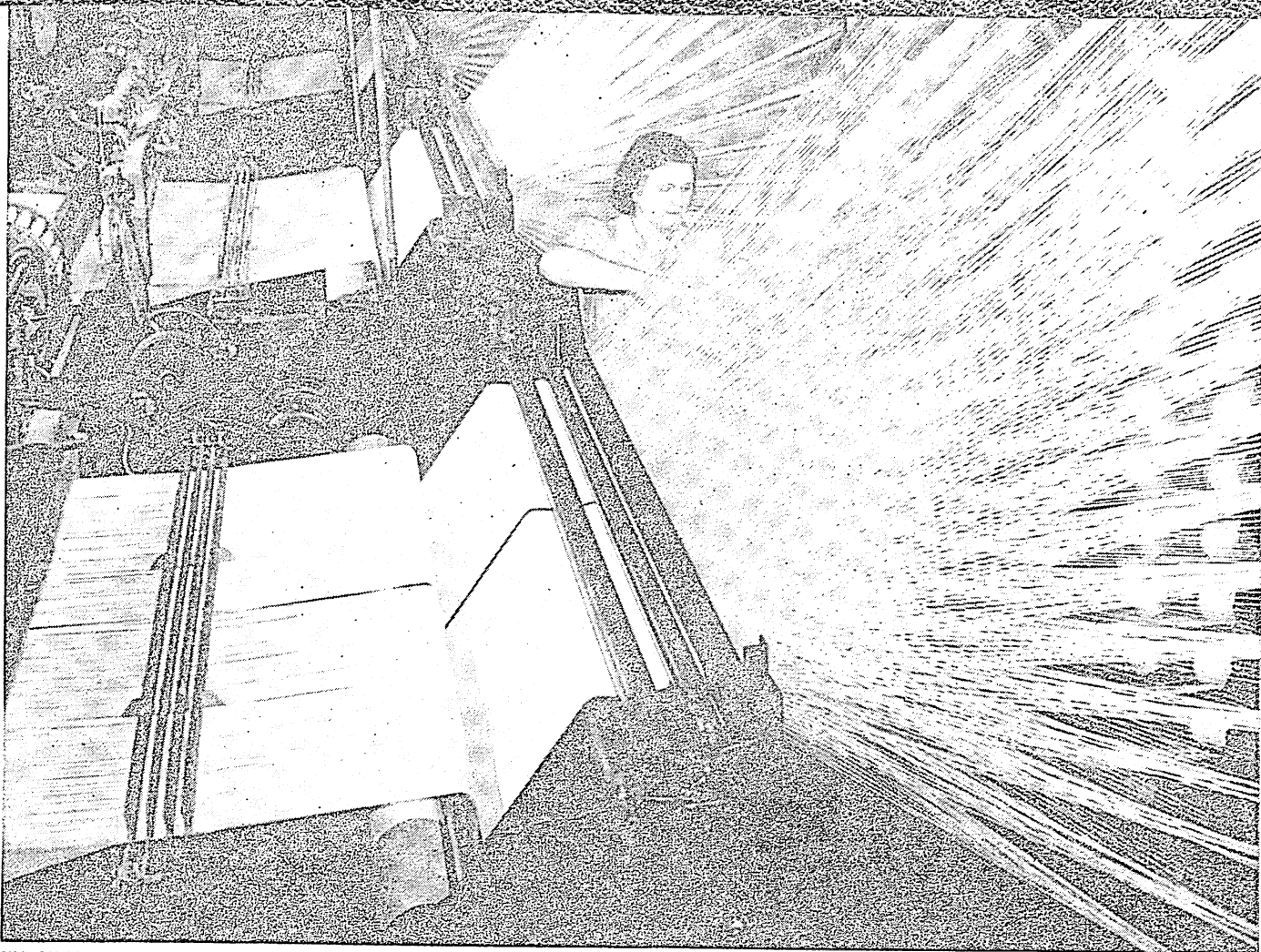
	1945	1944	1943	1942	1941	1940
Rayon filament yarn . . . .	623.7	555.2	501.1	479.3	451.2	390.1
Rayon staple fibre . . . .	168.4	165.7	162.0	153.3	122.0	81.1

The use of rayon in automobile and plane tire cord continued to show a marked increase. Rubber tire manufacturers in 1945 prepared to feature the rayon tires in their consumer advertising which meant that production of heavy denier tire yarn would not decrease, but probably would increase in 1946. On the contrary, the amount of rayon yarn available for textile fabrics used in clothing and household furnishings was the lowest after pre-war. In 1941, weavers of dress fabrics and similar materials used 70% of the available rayon supply. In 1945, this proportion had decreased approximately to 50%.

The ending of World War II had no effect in improving the yarn supply situation for the consumer. The cancellation of government military contracts represented at the maximum about 10% of the yarn supply. Aggravating the fabric weaving problem was the increased pressure from garment manufacturers and retail stores for greater yardage of material, particularly for essential clothing items such as low-priced street dresses, underwear, blouses, men's shirts, etc. In 1939, production of rayon and silk civilian fabrics totalled 1,400,000,000 yd. In 1945, the production of rayon fabrics alone (silk production was still nominal) totalled 1,554,000,000 yd., an increase of 11% over the combined rayon and silk yardage. The industry also was the subject of a series of directives from government war agencies in 1945 controlling the types of fabrics to be produced and the distribution of that production, on the grounds that the needs of the public for low and medium priced clothing were not being met because the fabrics were not available. When the end of the war came in August, it was expected that early conversion of heavier industries to peacetime products, such as automobiles, refrigerators, radios, etc., would siphon off some of this consumer spending and thus relieve the pressure on textiles. In the rayon fabric field, it was also hoped that additional relief would come with return of cotton looms to civilian fabrics. Early development of labour difficulties interfered in both heavy industry consumers' goods and in return to cotton goods.

During 1945, rayon fabric manufacturers faced by a shortage of the usual types of synthetic yarns in the filament group directed their production toward mixtures of filament yarns with spun, all spun or blends of rayon with other fibres, such as wool, protein and glass. Something of this trend is reflected in the yardage produced in the four principal groups: all filament, filament and spun rayon, all spun rayon and all others, the latter representing the blended fabrics. Comparison of production for





NYLON YARN feeding into a cord loom in a Massachusetts mill during 1945. Light, strong and elastic, nylon was used in aircraft tires during World War II, and contributed to the safety of bomber and fighter planes

January through September 1944 with the same period in 1945 is shown in Table II.

Table II.—Production of Rayon Broad Woven Fabrics (Except Tire Fabrics)  
(Thousands of lin. yd.)

	All filament	All spun rayon	Comb. filament and spun rayon	All other rayon mixtures
1944 . . . . .	832.7	116.4	113.6	118.7
1945 . . . . .	776.4	118.8	115.5	123.0
% of change .	-4.1	+2.1	+1.7	+3.6

In the hosiery industry, the other principal consumer of rayon and synthetic yarns in the United States, the end of the German hostilities and the cancellation of many government contracts for nylon parachute fabrics brought immediate hope of return of nylon, the fibre that had just started on its way by Feb. 1942, when use of nylon was forbidden for civilian products. In 1941, the last full year of production, 9,000,000 dozen pairs of women's nylon hosiery were produced, of a total of 54,000,000. In 1945, of a total production of 42,000,000 dozen pairs of women's hosiery, 35,000,000 were rayon. Throughout 1945, the production of rayon hosiery decreased, women's full-fashioned types more sharply than others, and this was reflected in the deliveries of rayon yarn to the hosiery industry. In 1944, the total poundage was 45,000,000. In 1945, it was 35,000,000. When nylon was released to the hosiery industry in August, the producers of the yarn announced that deliveries of hosiery yarns would begin about Sept. 1 in initial shipments of 30, 40 and 70 denier (size). At the same time, reduced yarn prices were announced. The amount of yarn available at existing capacity was stated to be sufficient to produce 30,000,000 dozen pairs of women's hosiery a year. Using 1945 figures of total production of hosiery, that meant 12,000,000 dozen pairs would have to be made of some other fibre, rayon; or if it were again available, silk.

Production of rayon yarn in Great Britain averaged 11,700,-

000 lb. a month, during the first nine months of 1945. In September, of the total 11,300,000 lb., 7,000,000 were continuous filament and 4,000,000 staple fibre. Spun rayon yarn rationing ended in Great Britain on Dec. 31. The cotton v. rayon competition also disturbed Britain. Rayon's encroachment on use of Egyptian cotton was commented on in April by the British cotton controller. By the end of the year, exports of British staple rayon had begun in larger quantities and U.S. processors were discussing its effect on the U.S. yarn producer.

In the Netherlands, rayon production facilities suffered seriously from the war. In Sept. 1944, two large plants of the Enka company were dismantled by the Germans and the buildings were later almost destroyed by fire in the fighting around Arnhem. Another plant in Ede was bombed but in August it was thought possible to renew operations when coal and raw materials were available. Production in the Breda plant had already started again in June.

Coal shortages prevented an early return to production in Belgium; plants were only slightly damaged by the war. Pulp came from Sweden but operations in 1945 were limited to about 25% of capacity on filament yarn and 58% on staple fibre.

South American countries reported many new ventures in rayon yarn production. A Peruvian plant was completed by December and expected to start substantial operations early in 1946. Another plant was reported planned in Brazil where a limited amount was being produced for domestic consumption. Argentina and Colombia also had plants in operation, although in several cases, it was reported early in 1945 that machinery was antiquated and the supply of raw material frequently inferior. In the meantime, demands for United States rayon yarn were increasing. At the end of the year, it was reported that the export pool of rayon yarn had dwindled from 5,000,000 to 2,000,000 lb. and would be worse as the government order to set aside

# 632 RECEIPTS, GOVERNMENT—RECONSTRUCTION FINANCE CORP.

5% of U.S. yarn production for export purposes had been revoked in October.

BIBLIOGRAPHY.—*Foreign Commerce Weekly*, Washington, D.C.; *Journal of Commerce*, New York; International Statistical Bureau, Inc., New York; Textile Economics Bureau, New York; Bureau of the Census, Washington. (I. L. BL.)

**Receipts, Government:** see BUDGET, NATIONAL.

**Reciprocal Trade Agreements:** see INTERNATIONAL TRADE.

**Reclamation:** see CANALS AND INLAND WATERWAYS; FLOODS AND FLOOD CONTROL; FORESTS; IRRIGATION; SOIL EROSION AND SOIL CONSERVATION.

**Reconstruction Finance Corporation.** The Reconstruction Finance Corporation was created by the U.S. congress on Jan. 22, 1932, and started operations on Feb. 2, 1932.

The enactment creating the corporation authorized it to extend financial assistance to agriculture, commerce and industry through direct loans to banks, trust companies, building and loan associations, insurance companies, mortgage-loan companies and various agricultural credit agencies. Loans were also authorized to closed banks to aid in their reorganization or liquidation and, upon approval of the Interstate Commerce commission, to railroads or receivers of railroads to provide temporary financial assistance. The original enactment also authorized the corporation to accept drafts and bills of exchange drawn upon it arising from the sale of agricultural or other products to buyers in foreign markets.

Through amendatory and supplemental legislation the corporation was authorized: (1) to purchase the capital stock of banks, insurance companies, agricultural credit corporations, national mortgage associations and various governmental agencies; (2) to make loans to business enterprises, mining interests, agricultural improvement districts, public school authorities and various other classes of borrowers; (3) to assist in financing the construction of public works and various self-liquidating projects; and (4) in connection with the defense and war programs, to provide financing for purposes of plant conversion and construction, working capital, mining operations and other activities; to provide war production facilities; to provide supplies of, and to stock pile, strategic and critical materials; and to undertake a wide range of other activities incident to the war effort. The corporation was also designated by the Surplus Property administrator as the disposal agency for government-owned war surpluses of aircraft, plants and industrial real estate, capital and producers' goods and consumer goods.

Certain subsidiaries were organized by the corporation for the performance of purely peacetime functions. Included in these were the following which continued in 1945 to be wholly owned and managed by the corporation: the RFC Mortgage company, created on March 14, 1935, to aid in the re-establishment of a normal market for sound mortgages on income-producing urban property; Disaster Loan corpora-

tion, created by the act of Feb. 11, 1937, and organized on Feb. 15, 1937, for the purpose of making loans to those who had suffered by reasons of floods or other disasters (this corporation was dissolved, and its functions, powers, duties and authorities transferred to the RFC, effective July 1, 1945); and Federal National Mortgage association, created on Feb. 10, 1938, to maintain a market for first mortgages insured by the Federal Housing administration under Title II of the National Housing act.

Other corporations were created for the purpose of aiding in the national defense program; namely, Metals Reserve company, Defense Supplies corporation, Rubber Reserve company, Defense Plant corporation, U.S. Commercial company, War Damage corporation, Rubber Development corporation and Petroleum Reserves corporation. U.S. Commercial company and Petroleum Reserves corporation were transferred to the Office of Economic Warfare (later the Foreign Economic administration) by executive order 9361, issued July 15, 1943. Rubber Development corporation, another subsidiary of the RFC, likewise was transferred by this executive order to the Office of Economic Warfare. Pursuant to executive order 9630, issued Sept. 27, 1945, certain functions handled by the Foreign Economic administration through Rubber Development corporation, Petroleum Reserves corporation and U.S. Commercial company were redistributed to the RFC.

By public law 109, 79th congress, approved June 30, 1945, certain national defense subsidiaries of the corporation were dissolved, effective July 1, 1945, and all their functions, powers, duties and authority were transferred to the RFC. These included Defense Plant corporation, organized on Aug. 22, 1940, for the purpose, among other things, of financing construction and equipping defense plants and projects throughout the U.S. and operating them if necessary; Defense Supplies corporation, organized Aug. 29, 1940, and Metals Reserve company, organized June 28, 1940, for the purpose of acquiring stock piles of strategic and critical materials; Rubber Reserve company, organized June 28, 1940, for the purpose of building up a national stock pile of raw rubber and of developing and supervising the operation of facilities for the production of synthetic rubber.

War Damage corporation, organized on Dec. 13, 1941, for the purpose of offering reasonable insurance against loss or damage to property resulting from enemy attack, continued

Reconstruction Finance Corporation—Summary of Loan & Purchase Activities Feb. 2, 1932, Through Dec. 31, 1945

	Authorizations	Disbursements	Repayments and other reductions
For benefit of agriculture . . . . .	\$ 2,603,733,430.83	\$ 1,452,180,464.11	\$ 1,451,914,990.45
To open banks to meet demands of depositors . . . . .	1,334,880,161.08	1,138,251,619.27	1,127,742,816.38
For distribution to depositors in closed banks . . . . .	1,422,805,381.24	1,060,157,541.49	1,055,789,788.04
For bank capital (including Export-Import bank \$176,500,000 and Federal Home Loan banks \$124,741,000) . . . . .	1,647,452,669.00	1,471,806,311.56	1,094,381,587.46
For self-liquidating projects (including PWA municipal securities) . . . . .	1,299,208,298.95	1,074,695,899.18	978,007,210.16
To business enterprises . . . . .	1,063,091,382.67	485,504,511.69	308,370,399.84
For loans to national defense . . . . .	22,950,253,659.64	21,409,656,163.20	20,746,007,984.30*
For loan to Great Britain and Northern Ireland . . . . .	425,000,000.00	390,000,000.00	138,786,814.17
For purchase of stock—national defense . . . . .	126,000,001.00	26,000,001.00	20,000,000.00
To drainage, levee and irrigation districts . . . . .	149,434,448.64	101,071,502.18	70,129,522.21
To railroads (including PWA railroad securities) . . . . .	1,767,281,871.59	1,052,068,714.70	846,802,937.76
For loans to and capital of mortgage loan companies (including \$25,000,000 capital of the RFC Mortgage company and \$11,000,000 capital Federal National Mortgage association) . . . . .	912,342,930.95	781,809,214.28	710,209,281.85
For loans to and capital of insurance companies . . . . .	151,589,750.19	137,843,209.81	106,079,865.03
To building and loan associations (including receivers) . . . . .	179,989,559.59	140,158,067.90	140,158,067.90
To public school authorities . . . . .	25,689,050.00	23,257,175.00	23,257,175.00
For catastrophe rehabilitation loans . . . . .	17,815,168.36	13,499,235.25	12,035,303.06
To state funds for insurance of deposit of public monies . . . . .	13,087,715.88	13,064,631.18	13,064,631.18
For mining, milling and smelting businesses . . . . .	19,039,100.00	8,989,409.40	4,198,641.39
For loan to Export-Import bank . . . . .	25,000,000.00	25,000,000.00	25,000,000.00
For other purposes . . . . .	669,057.07	614,813.85	614,813.85
Total—By directors of the corporation . . . . .	\$36,134,363,636.68	\$30,805,628,485.05	\$28,872,551,830.03
Allocations and loans to other governmental agencies and for relief by direction of congress . . . . .	4,254,603,216.87	3,801,390,936.51	3,381,121,094.11†
GRAND TOTAL . . . . .	\$40,388,966,853.55	\$34,607,019,421.56	\$32,253,672,924.14

\*Includes \$7,650,698,299.91, representing credits arising from the merger of RFC war affiliates with RFC under public law 109, 79th congress. As of Dec. 31, 1945, the corporation held \$8,866,774,700.49 in commodities, wartime capital facilities and other assets acquired under the merger.

†Includes \$2,785,258,704.21 of corporation's notes cancelled pursuant to act of congress approved Feb. 24, 1938.

to function as a subsidiary of the corporation during 1945.

Pursuant to Title III of the act approved June 22, 1944 ("G.I. Bill of Rights"), under which the Administrator of Veterans' Affairs was to guarantee certain loans to veterans for the purchase or construction of homes, farms and business property, the administrator issued, on Dec. 22, 1944, regulations relating to the guarantee of loans made to veterans for the purchase of business property, and subsequently on Jan. 5, 1945, designated the RFC as an agency with authority to receive and consider applications for guarantee of business loans and to forward to the Veterans' administration written recommendations as to the approval or disapproval of such guarantee applications.

Following the cessation of hostilities in 1945, a principal function of the corporation was to assist in financing industry to re-equip plants for peacetime operations, increase production, and to enter new fields of industrial activity. The corporation set forth a seven-point program which, in the main, provided for co-operation with banks in supplying funds needed for reconversion and, where local credit was not available, in making loans direct to business. As part of this program the corporation announced a blanket participation agreement plan under which the corporation, in effect, automatically guaranteed a portion of any business loan extended by an approved bank under the agreement. As of Dec. 31, 1945, more than 1,200 loans, totalling more than \$58,000,000 had been authorized under the agreement and individual loans ranged from \$240 to \$350,000, established as the maximum for any individual loan an approved bank might make under the agreement. More than 1,900 banks had been approved, as of that date, to make loans under the agreement.

The corporation was designated as the disposal agency for government-owned surplus aircraft, plants and industrial real estate, and capital and producers' goods under regulations issued by the Surplus Property administrator pursuant to executive order 9425, dated Feb. 19, 1944, and continued throughout 1945 to act as such disposal agency pursuant to section 35 of the Surplus Property act of 1944, approved Oct. 3, 1944. Executive order 9643, issued Oct. 19, 1945, terminated the Office of Surplus Property in the department of commerce and on the same day the Surplus Property administrator designated the RFC as the disposal agency for consumer goods.

Under executive order 9665, dated Dec. 27, 1945, and effective Jan. 28, 1946, the lending and surplus property disposal activities of the Smaller War Plants corporation were transferred to the RFC.

Effective Jan. 15, 1946, War Assets corporation, subsidiary of the RFC, was designated as the disposal agency for government surplus consumers' goods and capital and producers' goods.

Effective Jan. 28, 1946, all duties of certifying war veterans as eligible for preference in the purchase of surplus property were transferred from Smaller War Plants corporation to War Assets corporation. The corporation functions under the direction of a board of directors whose members are appointed by the president subject to confirmation by the senate. The board in 1945 consisted of: Charles B. Henderson, Chairman, Sam H. Husbands, Henry A. Mulligan, Charles T. Fisher, Jr., and Harvey J. Gunderson.

Loan agencies are maintained by the corporation in Atlanta, Ga.; Birmingham, Ala.; Boston, Mass.; Charlotte, N.C.; Chicago, Ill.; Cleveland, O.; Dallas, Tex.; Denver, Colo.; Detroit, Mich.; Helena, Mont.; Houston, Tex.; Jacksonville, Fla.; Kansas City, Mo.; Little Rock, Ark.; Los Angeles, Calif.; Louisville, Ky.; Minneapolis, Minn.; Nashville, Tenn.; New Orleans, La.; New York, N.Y.; Oklahoma City, Okla.; Omaha, Neb.; Philadelphia, Pa.; Portland, Ore.; Richmond, Va.; St. Louis,

Mo.; Salt Lake City, Utah; San Antonio, Tex.; San Francisco, Calif.; Seattle, Wash.; Spokane, Wash.; and a special representative of the corporation has headquarters in San Juan, Puerto Rico, and in Honolulu, T.H. (C. B. H.)

**Reconstruction Planning.** The end of World War II, the discovery and use of atomic force and the establishment of the United Nations organization to maintain international peace and security were the outstanding developments in a year of climax and sudden change. In the midst of war, the nations of the world began in 1945 to put into operation the reconstruction measures that had been planned during active hostilities.

The closing stages of the European war led to two important meetings of the leaders of Great Britain, Russia and the United States to plan the final defeat, terms of surrender and postwar treatment of the axis nations. The Big Three, conferring in Yalta in Feb. 1945, agreed on these matters and further proposed a world security conference of all the United Nations to be held in San Francisco the following April. When Germany surrendered unconditionally in May, its territory was divided into four zones of occupation under the military rule of the three largest Allies and France. The Yalta program of demilitarization of the reich, eradication of the nazi party, trial of war criminals, control of German industry and political and educational institutions was put into force.

Hard upon unexpected changes in the national leadership of the United States and Great Britain, a second conference was held in conquered Berlin in July. Stalin of Russia, Prime Minister Attlee, head of Britain's new Labour government, and President Truman, Roosevelt's successor in the United States, agreed on temporary boundaries for Germany and procedures for the transfer of German nationals from invaded countries. Plans were set in motion for the trial of war criminals by a joint Allied military tribunal, to begin in the fall. Revisions were made in the policies of the Allied control commissions in Rumania, Bulgaria and Hungary and for the treatment of Austria and Spain. Secret arrangements were completed for Russia's entry into the war against Japan. During the conference President Truman proposed for consideration a plan to internationalize European inland waterways as an aid to the future peace of Europe. A few months later a two-year transportation pact was signed in London by ten European nations and the United States, providing for joint control and allocation of civil transport resources on the European continent and for an inland transport organization to work out uniform rates and tariffs for international traffic.

A forerunner of peace was the historic United Nations Conference on International Organization held at San Francisco between April 25 and June 26. With the 50 nations attending the assembly still in the midst of the dislocations of war, a charter for world organization for peace, built on the Dumbarton Oaks proposals of the preceding fall, was agreed on and submitted to the United Nations' governments for ratification.

Between Aug. 8 when the United States approved the charter and Nov. 15 when Venezuela ratified it, 43 countries formally deposited instruments of ratification of the charter of the United Nations. Six additional countries had taken steps toward approval, making nearly 50 nations which had joined forces by the end of the year in bringing the U.N.O. into being. The first general assembly meeting was scheduled to be held in London in Jan. 1946, and the United States had been chosen as the permanent seat of the new world organization.

The shock of atomic bomb explosions in Japan in August began a new and fearful era in human relations. The new force effectively removed any doubt that international co-operation to



establish and preserve peace among the nations was the only alternative to wholesale destruction. With the sudden end of the Japanese war coming soon after, the peoples of the world were abruptly faced with the immediate need for security and control measures for victors and losers alike. Toward the end of 1945 the leaders of Great Britain, Canada and the United States, as the three powers controlling the secret of the atomic bomb, recommended that a commission be set up under the soon-to-be-established U.N.O. to consider and prepare proposals for the control of atomic energy and for an international exchange of fundamental scientific information for peaceful ends.

Besides the Yalta and Berlin meetings of the Allied heads of state, periodic conferences of the foreign ministers of Russia, Great Britain and the United States were instituted during the year. The first meeting, held in London in September, ended in a stalemate over the fundamental issue of whether or not the peace should be made by the three largest powers to the exclusion of the other United Nations. In December, when the second conference of the council of foreign ministers was held in Moscow, this issue was clarified by the underlying thesis of the agreements that all the United Nations had fought in a common war and that all should participate in the making of peace and its enforcement. The ministers agreed on a wide range of procedures for preparation of peace treaties with Italy, Rumania, Bulgaria, Hungary and Finland; for Allied supervision of Japan and other far eastern countries; and for the control of atomic force through a proposed atomic commission consisting of the members of the U.N.O. security council and Canada. The success of this proposed machinery for order and future security would depend largely on how closely the large powers could bring their foreign policies into harmony.

The war's end brought severe economic dislocation in its wake. Private and governmental agencies were at work in Europe and Asia providing food, shelter and health care. The United Nations Relief and Rehabilitation administration was the first international organization to function in the postwar period, administering relief for devastated areas of Poland, Greece, Italy and other southeastern European countries. Plans were in progress to extend U.N.R.R.A. funds to alleviate conditions in China, Korea, Formosa, Austria and battle-torn areas of Russia.

Widespread operations were begun to rehabilitate industrial processes, stabilize currencies and revive world trade. The Bretton Woods Monetary pact went into effect in December, signed by all of the larger powers except Russia. By the end of the year the United States had made preliminary arrangements for substantial loans to Great Britain, France and a number of other countries needing financial priming to rebuild their economies. Great Britain and the United States agreed to consider revisions in their trade policies in preparation for a world trade conference to be called in 1946.

Meanwhile, political upheavals were taking place in Europe and Asia. The trend of European elections during the year was toward socialism and nationalization of industry. In the far east, China was attempting to end civil conflict and Japan, under Allied control, was in the process of abolishing its state religion, educational system and traditional belief in the divinity of the emperor and Japan's ruling destiny. The first steps in rebuilding peacetime living conditions were being taken all over the world. (See also BERLIN CONFERENCE; INTER-AMERICAN CONFERENCE ON PROBLEMS OF WAR AND PEACE; UNITED NATIONS CONFERENCE ON INTERNATIONAL ORGANIZATION; UNITED NATIONS MONETARY AND FINANCIAL PROGRAM; YALTA CONFERENCE.)

**BIBLIOGRAPHY.**—*Foreign Policy Reports* (July 15, 1945), Foreign Policy Association, Inc.; U.S. Department of State, *Bulletins*, Aug. through Dec. 1945; *The New York Times* and *New York Herald Tribune*; *Facts on File* (1945), Person's Index of World Events. (L. FD.)

**Reconversion:** see BUSINESS REVIEW; LAW; WAR PRODUCTION, U.S.

**Red Cross.** **United States.**—In 1945 the American Red Cross reached the peak of war activities and at this strategic point could view its accumulated strength in volunteer service, in trained personnel and in financial support, with all of which it had met its wartime obligations and maintained its normal domestic work. It could divert this strength to immediate postwar needs and to peacetime expansion.

During the war the American Red Cross used more than \$250,000,000 and 80% of its personnel in its service to the armed forces. On June 30, 1945, there were 9,400 workers overseas taking Red Cross services wherever U.S. servicemen were on duty. Three months later 9,177 were continuing those services to the armies of occupation. On June 30 there were 820 clubs and rest homes and 500 clubmobiles and other mobile units overseas, and on Nov. 1, 648 clubs and rest homes and 223 mobile units. Of these, 107 clubs were in the Pacific and 8 in Japan. On June 30 there were 9,300 workers on the home front, which number was increased to 10,194 within three months to meet needs arising from demobilization. Of the 138 headquarters buildings constructed by the Red Cross in the United States during the war, only 24 had been closed by the end of November. Through the Camp and Hospital council, a volunteer group organized in 1941, communities sent 25,000,000 articles to army and navy installations, a program later extended to veterans' hospitals. During the war Red Cross camp, hospital and liaison workers aided 12,000,000 servicemen or their families overseas or in the United States, and 8,223,000 were assisted by Red Cross home service workers who also handled 6,298,000 communications for servicemen, ex-servicemen and civilians. Loans and grants to servicemen and ex-servicemen totalled \$60,000,000.

The Red Cross certified 104,400 nurses to the military during the war.

The American Red Cross prepared 27,000,000 food packages for prisoners of war and handled 110,000 communications for them. Aid to prisoners of war was made possible through the International Red Cross committee in Geneva, acting under provisions established by the Geneva convention of 1929.

Foreign war relief sent abroad from the beginning of the war to June 30, 1945, totalled more than \$148,000,000. The relief supplies were made up of Red Cross supplies and those bought with funds allocated by congress and resources from other agencies and governments. Red Cross volunteer workers produced more than 31,000,000 garments for foreign war relief in the war period.

The Red Cross blood donor service, inaugurated in Feb. 1941, at the request of the army and navy, completed its mission Sept. 1945, during which time it had procured more than 13,000,000 pints of blood from volunteer blood donors. In 1945 the American Red Cross extended its blood donor recruitment activities by authorizing its chapters to assist in civilian programs under certain conditions.

During the year ending June 30, 1945, Red Cross workers assisted 400,000 former servicemen applying for government benefits. This field of service was increasing. In one typical month, Oct. 1945, trained workers of the Red Cross claims service handled 86,894 cases in the Veterans' administration, which was an increase of 143% over those of Oct. 1944. Another service to veterans, which had been continuous from 1917 and which promised to increase, was the Red Cross home service. During the war home service workers in the chapters assisted 898,000 ex-servicemen and their families, and in the year ending June 30, 1945, assisted 364,448.

The contribution of work (893,808,352 hours during the war

period) of the 3,000,000 women enrolled in Red Cross volunteer special services involved preparation through special training courses. Volunteer workers of the American Red Cross represented one of the organization's greatest sources of wartime help, and one of its strongest assets for postwar programs. Certificates given 1941-45 included: 14,438 in home service, increasingly needed in service to veterans; 55,556 for hospital and recreation corps, increasingly needed in hospitals in the United States; 194,994 to nurse's aides, indispensable during the war and of continuing importance in military and civilian hospitals, as were the 9,003 dietitian's aides whose corps was organized in 1943. These with the 151,027 trained for canteen work, 42,695 for motor corps and 89,672 as staff assistants formed an important part of the Red Cross educational activities.

Of great value during the shortage of nurses and doctors were the 1,421,163 persons who completed courses in home nursing, furthering the Red Cross objective of a Red Cross home nursing certificate in every home. Nutrition courses were completed by 693,557 persons.

Special effort toward conservation of human life was the addition during the war of 32,944 persons who successfully completed courses in accident prevention, 7,507,958 in first aid and 1,227,293 in water safety. In 1945 a convalescent swimming program for war casualties applicable to a wide range of physical and mental disabilities was initiated and was expected to have long-range peacetime use.

The Junior Red Cross, with a 1944-45 membership of 19,905,400, produced 35,000,000 comfort and recreational articles for the armed forces during the war, and for foreign war relief up to July 1, 1945, expended from its National Children's fund \$665,000 which was used mainly for medical and school supplies. It also sent more than 1,000,000 gift boxes to contemporaries overseas.

In the year ending June 30, 1945, the Red Cross gave relief in 260 disasters in the United States, giving assistance to 242,000 persons.

The president of the United States is president of the American Red Cross. The active head, Basil O'Connor, is chairman of the central committee, composed of 18 members, 6 appointed by the president to represent the United States government, 6 elected by the Red Cross board of incorporators, and 6 by the delegates of chapters. (H. B.M.)

**The World.**—The first meeting after 1938 of the board of governors of the League of Red Cross societies—the federation of the 63 national Red Cross and Red Crescent societies—was held in Paris in Nov. 1945. Representatives of 41 societies were present. Basil O'Connor, chairman of the American Red Cross, was elected chairman of the league, filling the vacancy caused by the death in 1944 of Norman H. Davis.

The Red Cross societies and their international organizations concentrated on the alleviation of war-caused suffering during 1945 in the operation of services for the sick and wounded, for prisoners of war and for the civilian populations in war-devastated areas. Services to the armed forces included the assignment of medical and hospital personnel to aid the medical departments of the various belligerents, the operation of rest centres and canteens for the wounded and able-bodied, recreation programs in camps, hospitals and leave centres and communication facilities between the members of the forces and their families.

After the armistice in Europe and the far east special attention was given to services for returning prisoners of war and other repatriates, to aid to the destitute and sick of the civilian population, and to the uniting of war-separated families. The rejuvenated societies in the liberated European countries expanded their relief programs with the help of supplies and personnel principally from the American, British and Canadian Red



A 4-YEAR-OLD orphan girl in Manila, P.I., with one of the 1,000 gift packages sent by the U.S. Junior Red Cross during 1945

Cross societies. The Union of Red Cross and Red Crescent Societies of the U.S.S.R. expanded its public health activities especially in the devastated areas of western Russia. The societies of the Baltic states were incorporated into the Russian national organization.

Following the collapse of Germany the German Red Cross society was declared nonexistent by the occupying authorities, but many of the local units of the organization were permitted to continue to operate. The Japanese Red Cross continued as a national organization after the surrender of Japan, but with a restricted program.

The International Red Cross committee under the presidency of Professor Max Huber of Switzerland began the task of re-adjusting its vast wartime organization, although the committee's delegations continued to be active in behalf of prisoners still awaiting repatriation. (See also PRISONERS OF WAR AND DISPLACED PERSONS.)

Late in 1945 the Nobel Peace prize for 1944 was awarded to the International Red Cross committee in recognition of its services to prisoners of war. (P. E. R.)

**Re-employment of War Veterans:** see SELECTIVE SERVICE, U.S.

**Reforestation:** see FORESTS.

**Reformed Church:** see PRESBYTERIAN CHURCH.

**Refugees.** As the Allied armies moved swiftly eastward in the winter and spring of 1945 to meet the soviet armies in Germany, civilians displaced by the war in liberated areas of Europe returned to their homes in devastated cities and to farms in rural areas pitted by the craters of bombs and honeycombed by unexploded mines which were still to take their toll of lives as an aftermath of war. The advance of the armies in the west and the east released hundreds of thousands





DISPLACED GERMANS, fleeing before Russian advances in Czechoslovakia, travelled in long caravan trains toward Silesia during 1945

of United Nations slave labourers, recruited in the earlier years of the war by Germany to satisfy its ever-increasing need for manpower. Victims of German brutality in nazi concentration camps were also released, starved, ill-clothed and showing visible signs of the tortures to which they were subjected. The malnutrition of thousands was so far advanced that medical aid could not save them after liberation. The millions of displaced persons released from German control as the nazi armies disintegrated became a serious problem for the military, preoccupied with the problems of rapid advance and the total liquidation of the nazi forces. Lines of communication were clogged and shelter, provisions and means of transport to the rear were unavailable. The displaced trekked homeward living on the land.

Estimates of the numbers displaced from their homes at the end of the war in Europe are only approximate. In 1944 Germany had 8,500,000 United Nations forced labourers within the areas that were incorporated into the German reich. These were exclusive of the prisoners of war whose status was maintained as such during the war. Many prisoners of war were forced to join the ranks of labourers contrary to the provisions of the Geneva convention. German figures gave the number of labourers employed in occupied countries as an additional 4,000,000. This figure was never verified by other sources.

The displacements of the German population increased substantially in 1945; earlier displacements had resulted from the bombing of German cities and the dispersal of German industries. In the last months of the war there was a general movement of Germans westward from Poland and East Prussia which extended as far as Denmark and southwestward toward Switzerland and Austria. Relief workers estimated the total displacement of Germans and United Nations nationals in Ger-

many at the end of the war as between 21,000,000-30,000,000.

In the far east the displacement of civilian populations was comparable in numbers with that in Europe. Although no reliable estimate of the westward movement of those uprooted by the war in China became available, a total in excess of 20,000,000 was considered conservative. The China Overseas commission charged with the return of Chinese to prewar overseas domiciles reported in Dec. 1945 that 184,000 overseas Chinese had registered with the commission, of whom 120,000 were located in the coastal region of China south of Shanghai awaiting repatriation. The commission also reported a monthly flow of 1,000 Chinese from Japan mostly to northern China and Shanghai and that 31,000 had arrived in China by Dec. 1945.

The displacement of all nationalities in Japan was estimated at approximately 12,000,000. In addition to the Japanese displaced within the country by the war this figure included more than 2,000,000 Korean labourers and their families, 38,000 Formosan Chinese labourers and unrecorded numbers of Chinese labourers. Included also were Japanese nationals whose return to the homeland from Manchuria, China, Formosa and the Japanese Mandated Islands was already started before the end of the war.

There was extensive movement of Japanese civilians abroad prior to and during the war. Some 2,000,000 were in China at the end of the war, slightly larger numbers in Manchuria, more than 800,000 in Korea, 200,000 in Australia and New Guinea, and more than 500,000 in southeast Asia. The total of Japanese abroad was estimated to exceed 6,500,000 although not all of these could fairly be considered as war displaced. However, the outcome of the war raised difficult problems of their return to Japan. Exclusive of military forces more than 300,000 Japanese had been returned to Japan at the end of the year mostly from Korea, the Philippines and China.

The outstanding development during the year was the rapid



repatriation from central Europe of more than 5,500,000 United Nations displaced persons by the military forces occupying Germany. Considering the almost complete destruction of railroads and transport equipment that took place in Europe this accomplishment by the fall of 1945 was without parallel in the movement of populations. These large numbers were moved by truck, by plane and on foot. The desire of the displaced persons to reach home was matched by the military necessity to accomplish repatriation in order to restore peace and order in Germany at the earliest possible time. More than 2,000,000 soviet nationals were moved eastward and approximately 2,000,000 French nationals returned to France. Slightly under 500,000 Belgians and a similar number of Netherlands nationals were returned to their countries by late summer. Approximately 600,000 Italians were returned to Italy in the fall months of the year during which other hundreds of thousands of Balkan nationals were repatriated.

The approach of cold weather in the fall of 1945 retarded the pace of repatriation from central Europe. Approximately 800,000 Polish nationals remained in displaced persons centres in Germany during the winter. Other groups numbering 200,000–300,000, including Baltic nationals and Yugoslavs, resisted repatriation and posed a problem of settlement elsewhere.

Included in this group were some 100,000 Jewish survivors of the concentration camps of Germany and eastern Europe for whom immigration to Palestine was advanced as a matter of immediate urgency. This number was increased toward the end of the year by a movement of Jewish refugees from Poland into Germany. The United States and British governments established the Anglo-American Committee of Inquiry in Dec. 1945 to study and make recommendations on the settlement of Jewish refugees in Palestine, and the possibilities of settlement for such refugees in countries outside Europe.

The United Nations Relief and Rehabilitation administration first assumed the administration of refugee camps in the middle east from which Yugoslavs and Greeks were repatriated to their home countries. During the year the military turned over to U.N.R.R.A. the operation of displaced persons centres in Italy, Germany and Austria and representatives of the organization were sent to the far east to explore the needs of persons displaced beyond the borders of their own countries in that area.

At the third meeting of the council of U.N.R.R.A. in London in Aug. 1945 it was envisaged that U.N.R.R.A. relief operations in Europe would be concluded by the end of 1946. The Intergovernmental Committee on Refugees which had assumed responsibility for the relief of refugees in western European and neutral countries, in which U.N.R.R.A. was not operating, was preparing to deal with the long-term problem of nonrepatriable refugees in Europe and the far east. On the initiative of the British government the problem of refugees was placed on the agenda of the assembly of the United Nations convening in Jan. 1946. This action gave testimony to the importance of the problem of refugees resulting from World War II, although the size and character of the problem as compared with that resulting from World War I remained to be clarified in many aspects. (See also CHILD WELFARE; JEWISH RELIGIOUS LIFE; PRISONERS OF WAR AND DISPLACED PERSONS; WORLD WAR II.)

**BIBLIOGRAPHY.**—Sir John Hope Simpson, *The Refugee Problem* (London, 1939) and *Refugees, A Review of the Situation Since September 1938* (London, 1939), issued under the auspices of The Royal Institute of International Affairs; "Refugees," *The Annals of The American Academy of Political and Social Science* (May 1939); Louise W. Holborn, "The Legal Status of Political Refugees, 1920-1938," *American Journal of International Law*, vol. XXXII, pp. 680-703 (1938); *Survey Graphic* supplement Nov. 1940, March 1941, Sept. 1941, and other articles; Eugene M. Kulischer, *The Displacement of Population in Europe, 1943* (International Labour Office, Montreal); Jane Perry Clark Carey, "Displaced Populations in Europe in 1944 with Particular Reference to Germany," *Department of State Bulletin*, vol. XII, no. 300 (March 25, 1945); and "Displaced Populations in Japan at the End of the War,"

*Department of State Bull.*, vol. XIII, no. 328 (Oct. 7, 1945).  
(G. L. W.)

**Rehabilitation of the Wounded:** see PHYSICAL MEDICINE AND OCCUPATIONAL THERAPY FOR THE WOUNDED.

**Relay Racing:** see TRACK AND FIELD SPORTS.

**Relief.** Relief, as a national problem, remained at a minimal level of importance during the continuance of World War II in 1945. Able-bodied men and women in all English-speaking countries found ample opportunity to work, so the category of general relief remained practically constant. The special categories, old age, dependent children and blind, showed the effect of this stabilizing influence even more strikingly as the slightly downward trend of 1944 continued through to Sept. 1945. With the end of the war, however, the trend was reversed and while not particularly marked in the statistics of relief, by the end of October signs were not wanting that in the United States and Canada, applications for assistance would rise dramatically before the winter of 1945–46 was over. A spot survey taken in Nov. 1945 of about 20 communities in the U.S. showed aged workers were losing their jobs to workers from war plants and to returned veterans; Negroes, who were drawn into industries during the period of manpower shortage, were being dismissed and non-Negroes employed in their stead. Applications for unemployment compensation promptly reflected the cutbacks in war work, jumping from an average of less than 400,000 a week up to Aug. 15 to 1,700,000 in October.

Two factors in the U.S. were cited as aggravating the condition of the unemployed, able-bodied man. Congress' refusal to underwrite unemployment compensation for a minimum of 26 weeks at \$25 minimum benefit per week left the unemployed worker at the mercy of state laws, some of which were quite liberal, but others were restrictive. The other factor was the weakness of the federal policy in welfare both in Canada and the U.S., the federal laws making no provision of relief for the able-bodied unemployed. And in most states and provinces, especially those dominated by a legislature drawn largely from rural areas in which unemployment of the able-bodied was practically unknown, no provision of relief was made for this group.

The Wagner-Murray-Dingle bill that was intended to remedy this defect in federal provision in the U.S. made no progress whatever in congress during the year, and a new and much more conservative measure, the Green bill introduced in 1945 was also stalled. The provision requiring residence in a state of from one to five years before becoming eligible for relief would be eliminated by the passage of either bill.

During 1945 Canada put into effect its plan of children's allowance for families of low income. Grants are made on the double basis of income and number and ages of children per family; families whose income is \$1,200 a year or less receive full benefits, and families with an income between \$1,200 and \$3,000 receive grants on a sliding scale. The rate per child is fixed at \$5 per child per month for children under five, increasing by \$1 per month each three years of age to \$8 per month per child for age 13 or more. However, after the fourth child, the rate is reduced by \$1 a month for the fifth, \$2 a month for the sixth and seventh and \$3 a month for the eighth and additional children. Thus a family of three children, aged 4, 9, 12 would receive \$18 a month, whereas a family of eight children, aged 2, 4, 6, 7, 8, 10, 11, 12 would receive but \$40 a month. It was estimated that the plan cost the dominion about \$200,000,000 in 1945, some of which would be offset by the increased purchasing power of the lower income group. Canada thus joined all the European countries, New Zealand and Australia in giving recognition to the nonconformity between wages in low income families and a minimum standard of living. A

new department, health and welfare, was created at the time the act was passed, and the administration of family allowances placed in charge of a deputy minister of welfare. Actual operation was decentralized by setting up an office in each of the nine provincial capitals. In this way the co-operation of provincial departments of welfare and private child welfare agencies was secured.

Contributions to war chests in Canada and the U.S. averaged only about 95% of 1944, whereas the American Red Cross which asked for the same amount as in 1944, namely \$200,000,000, received \$231,600,000 as against \$216,434,000 in 1944, or an increase of about 7.5%.

The new labour government of England, busied with pressing problems in international relations, had in 1945 proposed no new plans in the social services. (See also CHILD WELFARE; MUNICIPAL GOVERNMENT; SOCIAL SECURITY.) (F. J. B.)

**Relief, War:** see WAR RELIEF, U.S.

**Relief and Rehabilitation Administration, United Nations:** see UNITED NATIONS RELIEF AND REHABILITATION ADMINISTRATION.

**Religion.** The year 1945 was a transitional period for religion. The churches were endeavouring to carry over the unprecedented energies and special devotions of the World War II period into the more normal work of the church as well as to capitalize on the exceptionally generous financial support which the war period had developed.

Virtually all major U.S. denominations attempted the raising of vast funds for rehabilitation and relief. Much of the money was to go to the promotion of the normal work of the church at a higher level. But many millions were to be devoted to the restoration and repair of church mission properties damaged by war, both in Europe and the Orient; and other millions to the relief of suffering people in war-devastated countries.

The most inclusive efforts, like that of the Methodist Church, undertook to raise to a higher level "all phases of the church's life." A \$25,000,000 Methodist fund for that purpose was over-subscribed by \$2,000,000.

An enormous demand for new church construction accumulated during the war years and a large number of new church buildings was expected as soon as materials would be available. On the other hand, a very wide sense prevailed that what was most needed was a recovery of the inner life of the church.

A MAKESHIFT ALTAR of fuel drums served these coast guardsmen and soldiers during a Catholic mass on le Jima in 1945



Besides their vast money-raising campaigns nearly all major denominations were putting great stress on evangelism. In order that these renewed evangelistic methods should not be transitory, the Methodist Church was promoting a permanent "new life" movement in an attempt to overmatch the institutional adjustments of the church by an enlargement and deepening of its spiritual power.

The war produced an extreme shortage of ministers. A new commission of the Federal Council of Churches was set up to recruit and prepare for the ministry the 3,800 men in the army services whose names had been secured from chaplains and others.

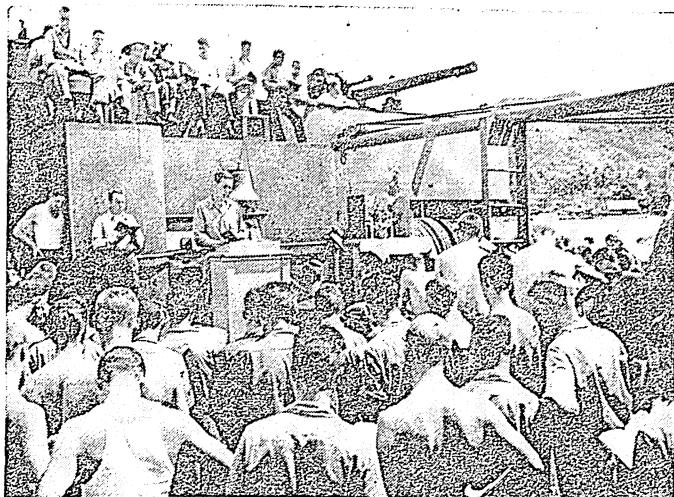
With the end of wartime pressure a considerable renewal of the extensive pacifist tendency in the churches was voiced. The most representative agencies, including the Federal Council of Churches, the National Council of Church Women, and the Methodist Commission on World Peace went on record in opposition to proposed legislation for peacetime conscription.

Undoubtedly the most significant specific influence of religion upon world affairs was the part which was played in the making of the revised charter of the United Nations organization. A representative conference held in Cleveland in February recommended that the churches support the Dumbarton Oaks proposals and urged nine improvements, several of which were directly incorporated in the charter of the United Nations, particularly as a result of the influence of John Foster Dulles, chairman of the Federal Council commission, and special advisor to the U.S. state department in the San Francisco conference.

The movements toward co-operation and unity in the field of religion in 1945 are treated in another article (CHRISTIAN UNITY). On the side of conflict and tensions, theological divergencies of previous years continued with special modifications reflecting war conditions. The deepest divergencies related to the proper relations of the church to the world. The experiences of the war and especially the imperative necessity of resistance to oppression and tyranny by churches under persecution were on the side of an "activist" attitude which assumed a large measure of responsibility by the church for human life and the organization of society. At the close of World War II a contrary attitude was reasserting itself in numerous quarters to the effect that politics and social reform were not the business of the church and should be left to the state and the voluntary action of citizens. Theological thinking was somewhat shocked but at the same time influenced in a measure by a form of apocalypticism in vogue in Europe which held that the world's disasters were an evidence of special divine judgment and that the designs of man were essentially beyond his control through any moral effort and that the end of the human order may be imminent. Against such a background the discovery of the atomic bomb was interpreted destructively as a symbol of global catastrophe and a period of ever increasing misery and evil for the human race.

The spread through war migration of populations of fundamentalistic tendencies greatly accentuated the activities of the fundamentalistic churches in areas in which they had not previously been strong, and started new competition between them and the more moderate churches for the leadership of U.S. youth. A spectacular and successful nation-wide campaign called "Youth for Christ" brought 65,000 young people to Soldier field, Chicago, on Memorial day and was followed by similar gatherings in 300 cities.

Protestant-Catholic tensions also flared into verbal conflict, apparently with new frequency. They concerned chiefly the Protestant missions in allegedly Catholic countries, especially Latin America, and the political and social influence of the two



EASTER SERVICES at sea for members of the U.S. armed forces in 1945. The men had somewhere secured Easter lilies which can be seen upon the portable altar

groups in the U.S.

The radio and other vehicles of public communication during the year voiced numerous expressions of religious faith by laymen, including public officials and leaders of thought. A mood of humility and expectancy toward religion as a solution of the world's problems and even of personal affirmation and commitment to religion was repeatedly affirmed. Such nonecclesiastical versions of religion furnish an essential part of the story of religion during 1945.

Among specific events was the announcement of the appointment by the Pope of four additional U.S. cardinals, and the greatly decreased influence of the Italian element in the College of Cardinals was of capital interest.

Compilations of church membership statistics by the *Year Book of American Churches* showed larger total membership in the U.S. in 1945 than ever before, and an increased rate of recent growth. (See also CHRISTIAN UNITY; CHURCH MEMBERSHIP; also under separate denominations.) (H. P. D.)

**Religious Denominations:** see CHURCH MEMBERSHIP.

**Relocation, Japanese:** see WAR RELOCATION AUTHORITY.

**Representatives, House of:** see CONGRESS, UNITED STATES; ELECTIONS.

**Republican Party.** The Republican party in the United States used the off-year of 1945 to strengthen its national organization and to formulate the basic principles upon which it was to try to regain control of congress in 1946 and of the White House in 1948.

At a meeting in Indianapolis, Ind., on Jan. 22, 1945, the Republican national committee voted "to place the national Republican organization on a full-time, all-year-round basis and to institute an intensive campaign, in co-operation with the Senate and Congressional Campaign Committees, to win Republican control of Senate and House in 1946."

The committee also adopted a recommendation that "the Party, in addition to exercising its duty of criticising and analyzing the actions of the Administration, should offer to the country at the commencement of the 1946 campaign, its own affirmative and constructive program to build a happy and more prosperous America."

National Chairman Herbert E. Brownell, Jr., immediately named a planning committee to execute this program, and its proposal for reorganizing national headquarters at Washington, D.C., was adopted by the executive committee of the Republican national committee, as well as by house-senate leaders at a

meeting in Washington on March 26-27, 1945. Most of the changes were put into effect by midsummer.

The planning committee's report called for the establishment of 11 departments at national headquarters, including several new activities, and for expansion of existing offices.

John A. Danaher, former U.S. senator from Connecticut, was named congressional aide, a new post, to serve as liaison between Republican members of congress and the Republican national committee and its state branches.

Hugh R. Wilson, former ambassador to Germany and assistant secretary of state, was selected as advisor on foreign affairs. He was the party's official spectator at the San Francisco conference which framed the United Nations charter. William C. Murphy, Jr., for 20 years Washington newspaper correspondent and former president of the National Press club, was given the post of publicity director.

Other departments established or expanded in 1945 included radio, research, labour, veterans, women's, young Republican, finance, speakers. By the end of the year, the minority headquarters and field forces were engaged in a greater variety of political activity than was customary in an off-year.

Meanwhile, house-senate leaders named a policy committee to frame a platform of aims and principles to serve as a guide for party workers and candidates. The house and senate chairmen, respectively, were Rep. Charles A. Halleck of Indiana and Sen. Robert A. Taft of Ohio.

Although their platform was held by some party chieftains to be "too vague" or "too conservative," it was endorsed by the Republican national committee at Chicago, Ill., on Dec. 8, 1945, with the proviso that it be "further developed and augmented by the ideas, thoughts and aspirations of the Republican Party throughout the United States."

The preamble reflects the general tone of the document:

Republican members of Congress, supplementing the 1944 Republican platform, present this statement of our aims and purposes:

Today's major domestic issue is between radicalism, regimentation, all-powerful bureaucracy, class exploitation, deficit spending and machine politics, as against our belief in American freedom for the individual under just laws fairly administered for all, preservation of local home rule, efficiency and pay-as-you-go economy in government, and the protection of the American way of life against either fascist or communist trends.

We believe that genuine social and economic progress can be achieved only on those American constitutional principles and it is our purpose to give our citizens this clean-cut choice.

In foreign affairs we shall continue to strive to avoid partisanship. But we shall also seek to avoid secrecy, inefficiency and drift. . . . We consider that the maintenance of a strong, solvent, free America is the basis of our greatest contribution to world order.

Chairman Brownell reported at the December meeting that he had travelled 42,000 mi. in 1945, delivering speeches and conferring with groups in the field. He said that for the 1946 congressional campaign, he had concentrated on 134 so-called marginal house districts in 28 states, where the Republican candidate received from 40% to 55% of the vote in the regular 1944 contests. The G.O.P. holds 51 of these debatable seats. Outside the "Solid South," he said, there would be 30 senate places contested for by the Republicans in the fall of 1946.

Sen. Wallace H. White, Jr., of Maine was elevated from the post of acting floor chief to that of minority leader of the senate. Sen. Arthur H. Vandenberg of Michigan remained as head of the Republican conference, and Sen. Taft as chairman of the Steering committee. Sen. Kenneth Wherry of Nebraska was named assistant floor leader.

Rep. Joseph W. Martin, Jr., of Massachusetts continued as minority leader of the house, and Rep. Leslie C. Arends of Illinois was appointed assistant. He succeeded Harry F. Englebright of California. Mr. Halleck remained as chairman of the Congressional Campaign committee, and Sen. John G. Townsend, Jr., of Delaware as head of the Senatorial Campaign committee. (See also UNITED STATES.) (R. Tu.)



**Research Libraries, Association of:** *see* SOCIETIES AND ASSOCIATIONS.

**Resins:** *see* PAINTS AND VARNISHES; PLASTICS INDUSTRY.

**Retail Sales:** *see* BUSINESS REVIEW.

**Réunion:** *see* FRENCH COLONIAL EMPIRE.

**Reuther, Walter Philip** (1907- ), U.S. labour leader, was born Sept. 1 in Wheeling, W.Va., the son of a trade unionist. He studied at Wayne university, Detroit, Mich., for three years, and then with his brother, Victor, toured (1933-35) France, Germany, Italy, the soviet union, China and Japan to study labour conditions. On his return home Reuther worked in small tool and die shops, joined the United Automobile Workers and organized and became president of U.A.W. Local 174, which embraced employees of a number of small plants. He first gained prominence for his organization of the successful sit-down strikes in the Detroit automobile and related industries (1936-37). He then became director of the U.A.W.'s General Motors department (1939) and was named one of the union's two vice-presidents (1942). Reuther, who had kept strikes and stoppages at the G.M. plants to a minimum during World War II, launched a campaign after Japan's surrender to obtain higher wage levels. He demanded (Sept. 14) a 30% raise for the U.A.W. in General Motors plants, contending that the corporation could grant this raise, even reduce motor car prices substantially and still make larger profits. The corporation's rejection of these demands was described by Reuther (Oct. 22) as tantamount to a "sit-down strike" against the government policy of increasing wages, and on Nov. 21 about 180,000 U.A.W. union members in General Motors plants throughout the United States went on strike. Reuther's proposal that General Motors open its books to determine the company's ability to pay the requested 30% increase was taken up by Pres. Truman's fact-finding board. The company rejected this proposal, explaining, Dec. 28, that compliance would lead to "the death of the American system of competitive enterprise." The same day Reuther averred that General Motors had turned down an effort "at a fair and equitable settlement" and said his union would be prepared "to stay on the picket line for the duration of this home front war."

**RFC:** *see* RECONSTRUCTION FINANCE CORPORATION.

**Rheumatism:** *see* ARTHRITIS.

**Rhineland.** A province of the German land of Prussia. Area 9,462 sq.mi., pop. 8,453,063 (1933). Together with the neighbouring province of Westphalia (area 7,804 sq.mi. with a pop. of 5,205,705) the Rhineland forms the most important industrial section of Germany and the indispensable economic basis of German military power. Some of the largest cities in the Rhineland are: Cologne (768,426 in 1939), Essen (659,871), Duesseldorf (539,905), Dortmund (537,000), Duisburg (431,256), Wuppertal (398,099), Gelsenkirchen (313,003), Bochum (303,288).

The chief part of the Westphalian basin and the hub of the German iron and steel industry is the valley of the Ruhr, a right bank tributary of the Rhine.

The Rhineland and Westphalia became part of Prussia in 1815. After World War I, to insure fulfilment of the peace treaty, Allied troops occupied the left bank and the bridgeheads of the Rhine. The occupied territory was to be evacuated in three stages in accordance with the fulfilment of the treaty; the right of reoccupation was reserved in the event of default. Originally the occupation was supposed to end in 1935; in reality the third and final zone of occupation was evacuated on

June 30, 1930. German default in reparation payments led to an occupation by the French and Belgians of the Ruhr in 1923. In World War II the Rhineland and Westphalia were heavily bombed. In 1945 their territory fell mostly into the British zone of occupation.

To avoid the renewed danger of German aggression the French government in 1945 insisted repeatedly, to the governments of the United States, Britain and Russia, upon the creation of a special regime for the Rhineland and Westphalia. By such a regime not only the security and peace of western Europe was to be assured but also the industrial resources of the territory could become important factors in the economic reconstruction and integration of western Europe. The French considered definite arrangements for the western borders of Germany the more urgent because the eastern borders of Germany had been settled at the Berlin conference. (H. Ko.)

**Rhode Island.** A north Atlantic state of the United States, in New England; one of the 13 original states; popularly known as "Little Rhody." Area, 1,214 sq.mi. (smallest of the United States), including 156 sq.mi. of water; pop. (1940) 713,346. The urban population was 653,383 (91.6%). On July 1, 1944, the bureau of the census estimated the civilian population of the state at 778,972. Capital, Providence (253,504). Other cities include Pawtucket (75,797); Woonsocket (49,303); Cranston (47,085); Newport (30,532); Warwick (28,757); Central Falls (25,248).

**History.**—At the regular 1945 session of the legislature, leading measures passed included the following: an act giving seniority employment benefits to honourably discharged veterans of World War II; act providing for the establishment of veterans' retraining and re-employment committees and for the establishment of veterans' information service centres; act providing for the creation of a commission on co-ordination and execution of postwar programs and defining its powers and duties; act to provide for incorporation of nonprofit medical service corporations and defining their powers; act providing for mandatory retirement of members of the state police force after 20 years' service; act imposing an additional and emergency tax on the gross earnings of electrical corporations; act raising the tax on parimutuel wagers from 3½% of total amount of money wagered at racing events to 4%; act providing for rebates of taxes paid on gasoline used by commercial fishermen, farmers and industry for nonhighway purposes; acts authorizing the city of Providence to set up a finance department, to refund \$5,000,000 of debt in the next five years and to issue \$1,250,000 in bonds for modernization of the fire department; act granting annual appropriation of \$19,360,843.35 for support of the state government for fiscal year beginning July 1, 1945; act making available an additional \$1,000,000 for the relief of cities and towns in the state; act authorizing the city of Newport to issue bonds in amount of \$533,000 for hurricane rehabilitation purposes and for the purchase of equipment for the health, police, fire and public works departments; act granting a deficiency appropriation of \$613,500 for the support of state agencies for the remainder of the current fiscal year ending June 30, 1945.

The chief executive officers of the state elected in Nov. 1944 for 1945-46 were J. Howard McGrath, governor; John O. Pastore, lieutenant governor; Armand H. Cote, secretary of state; John H. Nolan, attorney general; Russell H. Handy, general treasurer. J. Howard McGrath, governor, resigned Oct. 6, 1945, to accept appointment as solicitor general of the United States and John O. Pastore became governor of the state.

**Education.**—During 1944-45 there were in the public elementary schools 57,185 pupils and 2,000 teachers; in junior high schools 19,292 pupils and 900 teachers; in senior high

schools (three years) 14,041 pupils and 693 teachers; in senior high schools (four years and vocational) 4,529 pupils and 210 teachers. Pupils attending private schools were: elementary 24,213; junior high 4,763; senior high (three years) 548; senior high (four years) 5,943. Total number of teachers in private day schools was 1,310. The director of education in 1945 was James F. Rockett.



JOHN O. PASTORE, Democrat, was sworn in as governor of Rhode Island in Oct. 1945 to succeed J. Howard McGrath, who had resigned to become solicitor general of the U.S.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—The total number of persons

receiving relief in all categories (excluding incapacitated fathers) in Nov. 1945 was 18,882 or about 2.63% of the state's 1940 population. The total amounts paid out during the year Dec. 1, 1944–Nov. 30, 1945, were as follows: general public assistance \$915,211; soldiers' relief \$79,122; old-age assistance \$2,929,195; aid to dependent children \$1,016,757; aid to the blind \$37,741. In unemployment compensation, the net amount of benefits paid during 1945 was \$5,172,087.04 to 36,080 different individuals. The amount paid into the fund during 1945 was \$14,201,657.09. There were 736 inmates in correctional institutions on Nov. 30, 1945, and 4,893 patients in charitable institutions and institutions for defectives, the number in the latter being 3,825.

**Communications.**—The total mileage of highways on Dec. 1, 1945 (excluding city streets) was 2,680.86, of which the state highway system comprised 810.93 mi. At the close of the year 1944 railroads were operating 185.8 mi. of road and electric railways 82 mi. Water-borne commerce of the state for 1944 was 2,948,334 tons, of which 112,012 tons were foreign commerce (imports 105,684 tons; exports 6,328 tons) and 2,836,322 tons were coastwise (receipts 2,584,311 tons; shipments 252,011 tons). Airways totalled 120 mi.; there were one airport and three landing fields. In Dec. 1944 there were 158,201 telephones in service and in Dec. 1945, 164,707 in service.

**Banking and Finance.**—There were 35 banking institutions in 1945. Resources of 24 banks under state supervision totalled \$747,680,210.22, and of 11 banks under federal supervision, \$292,242,176.70. Savings deposits (exclusive of club accounts) in savings banks and trust companies (the 24 state banks) amounted to \$457,225,787.70 on June 30, 1945. In addition, six loan and investment companies had resources of \$3,102,166.54; eight building and loan associations \$62,655,464.99; 26 credit unions \$8,991,885.79.

At the close of the fiscal year, June 30, 1945, total state receipts were \$21,916,048.73; expenditures and encumbrances \$21,624,140.67; surplus from operation \$4,038,446.79. The state gross debt was \$25,327,000.00; net debt \$21,357,321.42.

**Agriculture.**—The total estimated value of agricultural production was \$18,700,000 in 1945 and actual value was \$18,613,000 in 1944. Total acreage of principal crops harvested was 51,000 in 1945. Cash estimated income from crops in 1945 was \$5,200,000, and actual income was \$5,308,000 in 1944; from livestock and livestock products \$11,300,000 in 1945 and \$11,110,000 in 1944; from government payments \$900,000 in 1945

and \$901,000 in 1944; total cash income \$17,400,000 in 1945 and \$17,313,000 in 1944.

Table I.—Leading Agricultural Products of Rhode Island, 1945 and 1944

Crop	1945	1944
Corn, grain and silage and forage (grain equivalent) bu. . .	378,000	288,000
Hay (fame), tons . . . . .	48,000	37,000
Alfalfa, tons . . . . .	2,000	2,000
Potatoes, bu. . . . .	1,276,000	1,235,000
Oats, bu. . . . .	32,000	30,000
Apples (commercial), bu. . . . .	85,000	268,000
Peaches, bu. . . . .	9,000	20,000
Pears, bu. . . . .	3,000	7,000
Grapes, tons . . . . .	50	200

Table II.—Livestock and Livestock Products of Rhode Island, 1945 and 1944

Item	1945	1944
Cows and heifers, 2 years and over . . . . .	23,000	23,000
All cattle and calves . . . . .	30,000	30,000
Hens, 3 months and over . . . . .	546,000	594,000
Sheep and lambs . . . . .	2,000	2,000
Hogs . . . . .	8,000	10,000
Milk produced, lb. . . . .	128,000,000	129,000,000
Eggs produced, doz. . . . .	6,300,000	6,600,000
Chickens raised, no. . . . .	1,004,000	1,002,000
Turkeys raised, no. . . . .	35,000	30,000

**Manufacturing.**—The total estimated value of manufactures was \$516,390,541 for 1939 and \$517,196,193 for 1937. Employment in 1939 totalled 106,269 wage earners and 12,005 salaried personnel.

The number of establishments was 1,460. Wage earners received \$105,406,950 and salaried personnel \$27,940,576. (Figures for 1945 were not obtainable from the bureau of the census.)

Report of the state department of labour for Nov. 1945 showed 102,335 wage earners and weekly pay roll of \$3,676,015 for all manufacturing industries in Rhode Island.

**Mineral Production.**—The value of mineral production in Rhode Island is small, exceeding only that of Delaware and the District of Columbia. Value in 1944 was \$612,000 and in 1943 \$808,000. Stone (\$213,351 in 1944\* and \$410,478 in 1943 and \$351,664 in 1942) and sand and gravel (\$287,112 in 1944 and \$327,750 in 1943) are the principal products. Production of stone reached 19,790 tons in 1944\* and 171,230 tons in 1943 and 191,420 tons in 1942; sand and gravel 352,905 tons in 1944 and 356,043 tons in 1943. (Figures for 1945 were not available.)

(M. C. ML.)

\*Excl. basalt and unclassified stone.

**Rhodesia.** The territory extending from the Transvaal border northward to the boundaries of the Belgian Congo and of Tanganyika Territory. It is bounded on the east by Portuguese East Africa, Nyasaland and the Tanganyika Territory, and on the west by Belgian Congo, Portuguese West Africa and Bechuanaland. Area 440,656 sq.mi.; comprises two territories of the British empire; viz., Southern Rhodesia and Northern Rhodesia. Southern Rhodesia is a self-governing member of the British commonwealth, but supervision over native rights is reserved to the imperial government. Northern Rhodesia remains a dependency of the crown. Certain essential statistics are given in the table on page 642. (See also BRITISH EMPIRE.)

**History.**—The first meeting of the Central African council was held on April 24, 1945, at Salisbury, the second in October. The organization now had standing committees on civil aviation, health, economic problems and African housing. To these the October conference added, among other things, committees on natural resources and trypanosomiasis, with a special committee on migrant labour, and, if approved, an air authority and joint research organizations. A motion for amalgamation in Northern Rhodesia was defeated by 13 votes to 9, but elicited a government guarantee of scope for European enterprise which was upheld by the secretary of state in a cable published in

Rhodesia					
Territory and Area in sq. mi.	Principal Products (in short tons)	Imports and Exports*	Road and Rail	Revenue and Expenditure*	Education: Elementary and Secondary
NORTHERN RHODESIA 290,323	zinc (1942) 14,024 vanadium pentoxide (1942) 750.2 Cobalt alloy (1942) 2,473 Copper, blister (1942) 221,660, \$30,000,000 Copper, electrolytic (1942) 49,596, \$5,790,000	(1942) imp. \$22,498,900 exp. \$51,372,000	(1942) rds. (trunk) 3,158 mi. (minor) 6,226 mi. rly. 629.5 mi.	(1943) rev. \$13,194,200 exp. \$10,345,000	(1938) Eurpn. schls. 18, schls. 1,320; African schls. 431, schls. 35,570
SOUTHERN RHODESIA 150,333	maize (1943) 187,385 gold (1943) \$22,220,000 gold (1944) \$20,050,000 coal 2,062,472	(1940) imp. \$38,450,000 exp. \$61,000,000	(1941) Main rds. 1,621 mi. rly. 1,361 mi.	(est. 1945-46) rev. \$42,200,000 exp. total \$47,850,000 exp. from loan funds \$11,460,000	Native (1942) schls. 1,470; schls. 115,465 (1941) Asiatic and Negro schls. 12; schls. 1,834; European schls. 78; schls. 11,106

\*Exchange rate: £1 = 398 cents U.S. in 1945.

September.

In a report on secondary industry in Northern Rhodesia, Dr. W. J. Busschau held out no hope of new development, beyond the possible construction of a wheat mill, a central foundry, a factory for fish dehydration, leather works, some clothing works and a fibre plant. In fact, he considered tourists as a more hopeful economic proposition. The new development adviser, G. F. Clay, recommended the development of native agriculture, at a cost of £500,000 a year, constructed around five focal centres with a well-equipped and qualified technical staff. He also envisaged a marketing and development company on public utility lines. The paramount chief of the Barotse, Yeta III, abdicated at the age of 76 and was succeeded by Imwiko, a son of his half-brother, Lewanika.

In Southern Rhodesia plans were made for the rehabilitation of white ex-soldiers, for 450 of whom £1,500,000 were voted to provide farms on seven-year leaseholds. A new Fairbridge settlement scheme for British children was also set on foot at an old R.A.F. camp at Induna. An Industrial Development corporation was inaugurated with a capital of £1,000,000, and plans for a mass emigration of 500,000 Lancashire cotton workers were seriously considered, partly in connection with new textile factories started at Gwelo. In July there was a report from the native production and trade commission, which recommended various experimental projects in native reserves, such as collective farms and co-operatives, with a central marketing board for all native products.

(H. V. L. S.)

**Ribbentrop, Joachim von** (1893- ), German statesman, was born April 30 at Wesel on the Rhine and was educated at the gymnasium at Metz. In 1910 he went to Canada as an independent merchant. At the outbreak of World War I he returned to Germany, enlisted in a Hussar regiment, advanced to lieutenant colonel and by the end of the war was attached to the war ministry. After the war he returned to private business as a wine merchant. He first became identified with the Nazi party as a worker in 1930. In 1935 Ribbentrop was appointed ambassador-at-large, and from 1936 to 1938 he was ambassador to Great Britain. He became foreign minister, Feb. 4, 1938, and from then on played a prominent role in the diplomatic manoeuvring that co-ordinated with German military operations.

In 1939 he made the deal with Russia that kept peace until Germany was ready to invade. In 1940 he negotiated the three-power pact with Italy and Japan. In the final days of the Hitler regime, Grand Admiral Karl Doenitz ousted Ribbentrop as foreign minister, May 2, 1945.

Captured by British troops in a Hamburg rooming house on June 14, 1945, Ribbentrop was indicted as a war criminal and was one of the principal defendants at the Nuernberg trial that opened Nov. 20.

**Rice.** Another record crop of rice was produced in 1945 in the United States following the record of 1944. The crop was estimated by the U.S. department of agriculture at 70,160,000 bu. compared with 70,237,000 bu. harvested in 1944 and a prewar average of 52,346,000 bu. 1934-43. The acreage was increased about 2.3% in 1945 above 1944 and nearly 50% more than prewar. Yields in 1945 were slightly

more than in 1944 and about the same as prewar. Harvest weather was generally favourable except in Arkansas where rains caused some losses and in Texas where the hurricane passed. The yields in California were reported at 60 bu. per acre, Arkansas 52 bu.; Texas 45 bu.; and Louisiana 39.5 bu. The demand for rice for military and civilian food in the orient was so great that shipments to these areas were taken from the U.S. supply. Civilian consumption in the U.S. was expected to continue about the average of 6.7 lb. per capita of 1944, compared with 5.7 lb. per capita in prewar.

Stocks of rough rice in the U.S. on Jan. 1, 1945, were nearly 31,000,000 bu., but declined to 13,800,000 bu. by April 1, which was the largest supply on that date after 1941. About half of this supply was in California and the rest in the southern rice area.

The world's rice crop was estimated at 6,500,000,000 bu. compared with 6,800,000,000 bu. in 1944 and 7,400,000,000 bu. average 1935-40. North America was the only area showing an increase above the previous year. The smallest crop in Asia and Free China accounted for most of the decline. The Japanese crop was only about 70% of prewar. A small surplus was available in Korea. In Indo-China, Malaya and the South Pacific, war conditions disturbed production seriously but the acreage was well maintained. The crop in India was about the same as in 1944. Africa had a crop about the same as in 1944 but the Australian crop was the smallest after 1932, amounting to only 1,547,000 bu. compared with 3,747,000 in 1944. Most of the crop was available for export as domestic civilian consumption was prohibited after Aug. 1942 in order to make the

U.S. Production of Rice by States, 1945 and 1944

State	1945 bu.	1944 bu.	State	1945 bu.	1944 bu.
Louisiana . . .	23,028,000	21,318,000	Arkansas . . .	14,612,000	14,595,000
Texas . . .	18,000,000	17,248,000	California . . .	14,520,000	15,000,000

cereal available for export. In Chile a record acreage was reported with a crop of 7,862,000 bu. Record exports were available in 1945. The Brazilian rice crop was more than 93,000,000 bu. but the surplus for export was smaller because of a small crop in the main rice surplus areas and also because domestic prices were higher than prices offered by the U.S. and Great Britain for export.

(J. C. Ms.)

**Rio Muni:** see SPANISH COLONIAL EMPIRE.

**Rivers and Harbours.** The corps of engineers, U.S. army, created by an act of congress approved March 16, 1802, was first called upon to function in the conservation and development of streams for navigation under authority of an act of congress approved April 30, 1824. From that time on the corps of engineers continuously carried out, in accordance with the authorizations of congress, various works on the navigable waters of the country and their



tributaries. In addition to improving rivers and harbours for navigation, it was called upon to plan and prosecute the development of streams in the interest of flood control, hydroelectric power, pollution control, conservation and related purposes. The corps' civil works in the field are effected through some 40 districts grouped into 12 divisions conforming roughly to watersheds. The territory in which these works are performed embraces Alaska, Hawaii, Puerto Rico and the Virgin Islands as well as the continental United States.

In conformity with the national policy limiting wartime construction in order to conserve manpower, equipment and materials, the new work program for rivers and harbours after 1941 was restricted to improvements having direct importance to the war effort. During the fiscal year ended June 30, 1945, improvement and maintenance work were performed on 16 regular navigation projects, and maintenance work was carried out on 250 projects, including the numerous coastal ports, the harbours and connecting channels on the Great Lakes and the extensive Intracoastal Waterway and Mississippi river network, together with the operation and care of the canalized Ohio river system, Illinois waterway and upper Mississippi river. The federal expenditures for new work and maintenance operations on navigation projects during the fiscal year ending June 30, 1945, were \$57,145,900.96.

The principal items of new work performed during the fiscal year other than on canals and inland waterways, included the completion of dredging the Liberty island and Red Hook flats anchorages, New York harbour, to project depths of 20, 30 and 40 ft. over an area of about 600 ac. and enlargement of channel facilities of New York and New Jersey channels in Arthur Kill at the bend opposite Sewaren, New Jersey. Ledge rock was removed to a depth of 41 ft. in the west half of the channel on the Marcus Hook, Chester, Eddystone and Tinicum ranges in the Delaware river, and dredging and rock excavation was accomplished in the Withlacoochee river, Fla., to provide a navigation channel ten feet deep from the mouth to Port Inglis, Fla. Dredging was undertaken to provide a settling basin at the mouth of the Los Angeles river diversion channel at Los Angeles and Long Beach harbours, Calif.

In addition to the new work outlined in the preceding paragraph, maintenance operations were performed at important river, harbour and other waterway projects previously completed along the Atlantic, Gulf and Pacific coasts, in the interior and on the Great Lakes. Work was also performed on 14 projects of a river and harbour nature required in connection with the war effort by the navy department and other government agencies.

The 35,000 kw. generating unit at the Fort Peck dam in Montana was in operation during the major portion of the year, the amount of power generated during the year being 84,334,630 kw.hr. Water stored in the reservoir created by the Fort Peck dam was released to augment the natural stream flow during low water periods to provide for navigation. The ten generating units at the Bonneville Navigation dam on the Columbia river, Washington and Oregon, produced during the year 3,405,231,000 kw.hr.

The River and Harbor act approved March 2, 1945 (public law 14, 79th congress), authorized 292 new navigation projects or modifications of existing projects at an estimated total cost of \$382,000,000. (See also AQUEDUCTS; CANALS AND INLAND WATERWAYS; DAMS; FLOODS AND FLOOD CONTROL.)

(R. A. WR.)

**Other Countries.**—In view of the continuation of hostilities into 1945 it was scarcely to be expected that much could be achieved in Europe during 1945 in the way of port development and expansion. Indeed, the wholesale devastation of quayside structures and equipment and the blocking of navigable fairways by the scuttling of craft by the enemy when retiring

from coastal vantage points in addition to those sunk by mines and gunfire, caused the entire efforts of all maritime engineers and services to be directed towards the restoration of existing accommodations and facilities for shipping. Much ingenuity was displayed in dealing with difficult problems of reinstatement and, in particular, mention may be made of certain special devices adopted for the rapid sealing of locks and dock entrances wrecked by demolition charges. The basis of the scheme, officially known as "Shark," was the construction of a fleet of floating caissons in units which could be transported from Great Britain to the continent of Europe and sunk in any desired position. No fewer than 300 of these units were provided, involving the use of 10,000 tons of structural steel and 3,000 tons of timber. Each caisson was 40 ft. long, 7 ft. wide and 30 ft. in height. By bolting a number of the units together, the greater part of a damaged dock entrance could be closed, while gaps between the caisson ends and the dock entrance walls were filled by means of heavy timber flaps reinforced with steel and hinged on to the outer units, the pressure of the impounded water serving to retain the flaps in position against the walls.

As regards docks and harbours in Great Britain, there had been considerable activity in providing additional accommodation for shipping—for military, as distinct from commercial, purposes. Most of this had been in preparation for the great invasion on D-day, but only in 1945 were particulars released for publication. Much of the accommodation was intended to be temporary to meet the needs of the moment without thought of providing permanent installations for future needs. Though perhaps not so spectacular as the great military harbours created on the beach of Avranches in Normandy, commonly designated "Mulberry," some of these port installations were notable in size and importance. Of two emergency home ports located on the southwest coast of Scotland so as to be as remote as possible from aerial attack, one was at Gareloch head off the Clyde estuary and the other at Cairn Ryan on Loch Ryan, Wigtownshire. The sites were chosen so as to obtain sufficient draught of water without recourse to dredging. Six berths for large vessels, each 500 ft. long, were provided at the former site and five similar berths at the latter site, all with a depth of 33 ft. of water. The berths were equipped with quay cranes and ample railway sidings and connections.

An instance of war port accommodation abroad was the new port of Ras Tanura in Saudi Arabia. Situated on a long, narrow sandy peninsula about 5 mi. in length, on the mainland of Arabia, about 40 mi. northwest of Bahrain, it was used by the Arabian-American Oil company who landed there considerably more than 100,000 tons of cargo, mainly from the U.S.A., at a pier capable of accommodating three barges simultaneously, working between ships at an anchorage 2 mi. out and the shore. A new pier which was completed in 1945 could receive four ships alongside in 36 ft. of water and was equipped with three fixed cranes of 125 tons lifting capacity in addition to a number of mobile cranes.

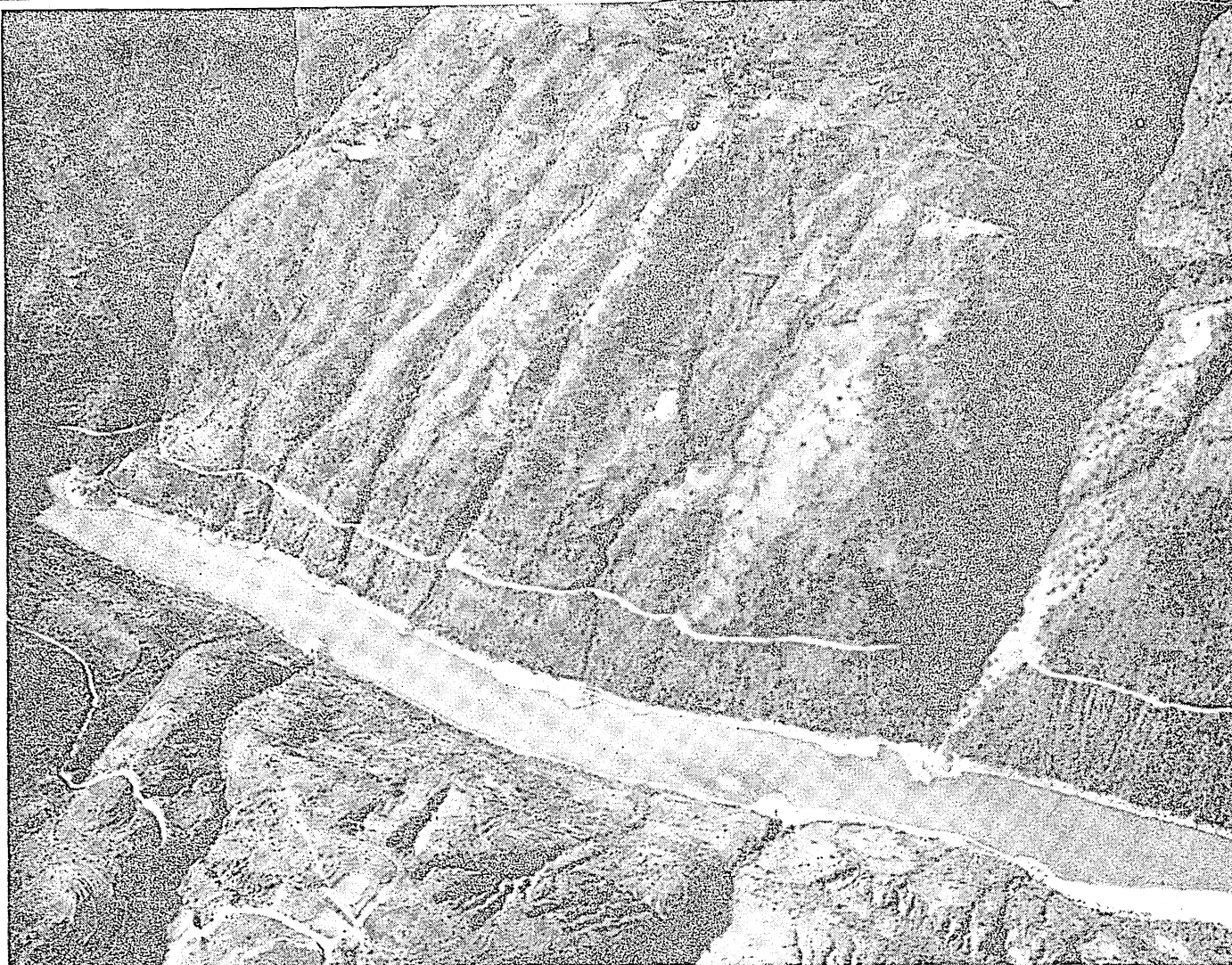
Of more general interest were the announcements of the opening of two great graving docks in the southern hemisphere. The graving dock at Sydney (1,177 ft. long with 147½ ft. entrance width and having 47 ft. of water over sill at high water), was opened on March 24 by the duke of Gloucester, the governor general of Australia, and named the Captain Cook dock by the duchess of Gloucester. The slightly larger graving dock at Capetown, South Africa (1,248 ft. long with 148 ft. entrance width and 46 ft. of water over sill at high water) was opened on Sept. 18 by R. J. de Wit, acting administrator officer of the Union of South Africa, and named the Sturrock dock after the minister of transport, F. C. Sturrock, to whose initiative and energetic action the dock was largely due.

(B. Cu.)

**Roads and Highways.** The year 1945 was one of great accomplishment by highway builders for purposes of war, but it also produced a vast wreckage of highways in those countries most in need of highway transport. Deterioration and destruction of highways that progressed throughout the war in many parts of the world reached a peak as the war approached its climax and damage was caused in five countries that was expected to take years to repair. On the other side of the ledger were the active preparations for large postwar highway programs in every country with sufficient economic strength to support highway work.

Construction engineers and workers, a large portion of them from the highway field, made possible many of the powerful blows delivered by Allied armies. Machines developed for highway work, and men trained on highway construction, built roads, bases and airfields on the islands across the Pacific to Okinawa, bridged the Rhine and hundreds of other streams in Europe and advanced with the fighting forces to repair the roads. The Japanese were outclassed in fighting weapons but there was even greater disparity in the means of creating air bases and supply routes for the fighting forces. This superiority was a most important factor in establishing, maintaining and expanding a foothold at every landing in the Pacific.

In the fighting to cross the Rhine and on the advance into Germany the number of engineer troops required in some sectors to bridge the streams, repair roads and construct bypasses around obstacles was almost as great as the number of fighting



SECTION of the new Stilwell road, connecting India and China, appears like a ribbon above the river below. The road, built at a cost of \$148,910,000, was declared surplus property by the U.S. army on Nov. 6, 1945.

men.

Once across the Rhine the advance was not a simple matter of speeding over the famous *autobahnen*. Bridges across streams were demolished and overhead crossings had been blasted to fall on the highway. At places three or four structures were replaced or removed for every mile of advance.

Gen. Eugene Reybold, chief of engineers of the U.S. army, credited the road building industry with having constructed in the United States during the war, 20,000 mi. of road on army reservations, 5,000 mi. of access roads, 2,000 mi. of strategic roads and more than 1,000 army airfields.

**Unusual Road Construction.**—With the exception of the Ledo road, later called the Stilwell road, completed in Jan. 1945, there were few large highway projects during the year that attracted wide public attention but there were some of interest because of the novel character of the construction.

The 478-mi. road from Ledo in northeast India, twisting through mountains, swamps and jungles to a junction with the Burma road near the Chinese border 566 mi. from Kunming, was built by military forces and natives speaking over 200 different dialects. Rain, mud, malaria and tropical heat made the job extremely difficult. With the completion of the road, convoys hauling supplies began moving to China for the first time after the Japanese closed the Burma road in 1942.

A novel floating concrete roadway across the wide Derwent river in Tasmania, a part of the commonwealth of Australia, was completed in 1944 and reported in the technical literature of 1945. Most pontoon or floating bridges are anchored at a number of points so as to resist movement by wind and current. This bridge is built without such numerous intermediate anchor-

ages. It forms a sweeping curve and resists the downstream flow by arch action. The bridge rises and falls through a tidal range of 8 ft.

For 25 years highway officials had trouble in keeping open to traffic a section of road across a swamp near Elizabeth City, N.C. Earth and cinder fill and concrete slabs placed on a layer of logs sank into the swamp. A timber causeway served for a time but was not adequate for the heavy war traffic to the Norfolk area. In 1945 a new road was being constructed by dredging out the swamp muck and backfilling by pumping sand into the big trench left by the dredge.

The Bailey bridge, developed in England for army use in quickly replacing destroyed bridges, was demonstrated to have important peacetime use. Near Gladewater, Tex., a bridge carrying important war traffic was partly washed out by flood. On April 18, 175 trucks transported Bailey trusses and equipment to the site. The following day temporary spans of 120 and 150 ft. were erected and the bridge was again open to traffic.

**United States.**—Highway construction sank to a new low level because of the war. The number of men employed on construction by the state highway departments was only one-sixth of the number in 1941. Maintenance forces had shrunk to 70% of the 1941 figure. Highways completed with federal funds were all war projects and amounted to 4,011 mi. The federal government expended more than \$5,000,000 in building roads needed in making atomic bombs. The need for highway transport in war industries, daily travel of war workers, food distribution and other essential uses was so great that 16,500,000,000 gal. of gasoline was consumed on highways. Travel by vehicles on rural highways was estimated at 122,000,000,000 mi. Nearly one-fourth of this travel was by trucks.

The most important development of the year was the plan-



ning of a large postwar highway program. Near the close of the preceding year federal legislation authorized \$500,000,000 for each of the first three postwar fiscal years. For each year there was authorized \$225,000,000 for the federal-aid highway system, \$150,000,000 for expenditure on a system of principal secondary or feeder roads and \$125,000,000 for sections of the federal-aid system in urban areas. The funds were to be matched by the states and expended under state highway department supervision.

**Canada and Alaska.**—The Alaska highway had been maintained in good condition and was open to authorized travel continuously after completion in 1943. Public travel had not been permitted. Improvements were made on the Richardson highway from Fairbanks to Valdez.

For the postwar period, Canada planned the highest types of modern highway for its more densely populated areas and extension of two-lane surfaced roads throughout its provinces. Work was begun on difficult mountain construction that was to connect the Peace River valley and the south end of the Alaska highway with Prince George and the Pacific coast area. Surveys were made for extension of the road network northward through a wilderness area from Grimshaw to the mouth of Hay river on Great Slave lake.

**Pan-American Highway.**—Work on the 3,300-mi. section of this highway from the Texas border to Panamá, which is known also as the Inter-American highway, continued during 1945 but only at a moderate pace. At the end of the year 2,487 mi. had a surface suitable for automobile travel at all seasons of the year and 280 mi. was passable in dry weather. Impassable gaps in Mexico, Honduras, Costa Rica and Panamá totalled 567 mi. The gap in Honduras was only eight miles and a bypass was in use. The most notable work of the year was done in Costa Rica in constructing a road across the Talamanca range at an elevation of 11,000 ft. Mexico actively pushed surveys and construction to close the gap in southern Mexico. Highway travel from the U.S. was possible to about 50 mi. south of Oaxaca, a distance of 1,140 mi. from the Texas border.

Local improvements were made on the route in South America but there were no notable improvements during the year. Several gaps had to be closed before the highway as a whole would be suitable for tourist travel. Near the end of 1945 a contract was awarded by Ecuador for construction of 100 mi. of the route from Quito to the border of Peru at a cost of \$2,000,000. This construction, through the Andes mountains at elevations up to 10,000 ft., was expected to take about two years.

**United Kingdom.**—Repair of extensive war damage to highways was under way. During the war an extensive program of express highway construction both for the London area and interconnecting the larger cities was discussed and general plans were presented. Preoccupation with the general elections and the many readjustments necessary with the end of fighting in Europe prevented definite formulation of postwar highway plans. At the end of 1945 a strong demand for immediate action was being made. There was urgent need for both highways and housing and it was recognized that neither class of facility could be planned independent of the other.

**Africa and Asia.**—There was almost no road construction, other than military work during World War II. In 1945, India was planning an extensive highway program as a means of improving economic conditions. A number of Chinese engineers were trained in the U.S. to direct future work in China. These were indications of programs that had not yet taken definite form.

During the year information was disclosed on an important use of highways in central Africa in the two preceding years. By the end of 1941, the Mediterranean was virtually closed as a supply route to the British army in Egypt. Supplies were transported with difficulty via the long route around Africa and through the Suez canal. Japanese submarines made the trip hazardous and a shorter route was desired. Investigation was made of various routes across Africa. British chiefs of staff selected and developed a route up the Congo river to Aketi, thence 800 mi. by highway, with a narrow gauge rail line as an alternate for the first 400 mi., to Juba on the Nile. From there, supplies were transported either by highway or river to Khartoum and then over normal lines of transport. Hundreds of miles of highway were improved and trucking facilities established in the heart of Africa for this most important military operation.

**War Damage to Highways.**—Destruction of highways, particularly bridges, reached a peak in 1945. Damage was done that would take years to repair. From the beginning of World War II the highways of Europe were damaged by war traffic with only crude repairs to serve military vehicles. In 1944 and until May 1945, as the Germans were driven from large areas in Russia, Italy, France, Belgium and Holland, they destroyed practically all bridges behind them. Every bridge and culvert between Rome and Naples, about 1,200 in all, was blown up. Some 6,500 bridges in France were destroyed. The numerous magnificent structures across the Rhine were all destroyed with the exception of the bridge at Nijmegen. All but four of the 45 bridges across the Seine between Paris and Le Havre were severed.

Nowhere did destruction by the Germans exceed that of their own *autobahnen*, particularly in the Ruhr region. Because of the Ruhr network of canals, railroads and highways from three to five structures could be seen from almost any point on the *autobahnen*. These modern structures

were uselessly destroyed after it was evident that Germany had lost the war.

The Allied armies erected many temporary structures soon after bridges were destroyed and others were later erected by prisoners and civilian forces. With few exceptions these were temporary makeshifts. Often they blocked navigation on rivers and canals. Making permanent replacements was expected to take years. Europe was never in greater need of all forms of transportation. There was critical need for coal throughout all countries. Near the end of 1945 coal was piled up along the Rhine with most of the normal rail and water lines blocked. Some coal was being transported by highway and a special effort was made to open the highways for transport of food and fuel. (See also MOTOR TRANSPORTATION.)

(T. H. MacD.)

**Rockefeller Foundation:** see SOCIETIES AND ASSOCIATIONS.

**Rockets:** see POWER ENGINEERING.

**Rodriguez, Jose Maria Caro** (1866— ), cardinal archbishop of Santiago, was born at Cauhil in the diocese of Rancagua, Chile, June 23. He was educated at the Santiago seminary, Pio Latino college and the Gregorian university and was ordained at Rome in 1890.

Social action based on the teachings of Pope Leo XIII was begun by Archbishop Caro when he was vicar apostolic of Iquique, the mining section of Chile, and continued by him as bishop of La Serena (1927) and archbishop of Santiago (1939). For 20 years preceding his consecration he divided his time and activity between the seminary and the press.

As ordinary of the capital he maintained friendly relations with the government and furthered its social plans but kept aloof from political entanglements. He represented the Chilean hierarchy at the International Eucharistic congress at Chicago and was host to prelates and other dignitaries from all over the Americas at the Chilean National Eucharistic congress in 1941.

He was nominated to the Sacred College of Cardinals according to an announcement of Dec. 23, 1945, and was created and proclaimed cardinal at consistory Feb. 18, 1946.

**Roentgen Ray:** see RADIOLOGY.

**Rokossovsky, Konstantin** (1905?— ), Russian army officer, first saw action against the Germans during World War I. In World War II, during the battle for Moscow, 1941, Rokossovsky commanded one of the seven Russian armies defending the capital and acquitted himself with merit. One of the "younger generals," Rokossovsky won his greatest renown at the battle of Stalin-grad, 1942-43, when he directed the six soviet armies of the Don front that first trapped and then annihilated the 22 divisions of the German 6th army. During the great Russian offensive of 1943, Rokossovsky headed an army on the central front. In 1944 he played a prominent role in the liberation of White Russia, the ousting of German forces from eastern Poland and in the fierce battle for Warsaw. In the big drive into Germany that started in mid-January 1945, he led the 2nd White Russian army that broke through German defenses south of Lomza and destroyed German resistance in Stettin, West Pomerania and Mecklenburg provinces. For his share in the multiple Russian offensive, he was awarded the order of victory.

**Roman Catholic Church.** The pope, Pius XII, is recognized as supreme ruler and pastor of the Roman Catholic Church. The pope creates cardinals, and appoints archbishops, bishops, vicars and prefects apostolic who exercise ecclesiastical jurisdiction throughout the world. With its full complement, the college of cardinals consists of 70 members. The Sacred college ordinarily consists of 6 cardinal bishops, 50 cardinal priests who are always bishops, 14 cardinal deacons. At the beginning of 1945 the number of cardinals was 41 but was reduced to 38 by the deaths of Cardinal Joseph MacRory, archbishop of Armagh and primate of



Ireland, Cardinal Adolph Bertram, archbishop of Breslau, Germany, and Cardinal Justin Seredi, archbishop of Strigonia and primate of Hungary. The latter two were noted for opposition to the nazis and refusal to yield to their threats.

On December 23 the pope announced a consistory, the first after 1937 in which cardinals were created, and designated 32 prelates who would receive the red hat. This was the largest number of cardinals created in the modern era. In 1801 Pius VII had appointed 27 at one time. Of the 32 new cardinals 4 were Italians and 28 non-Italians. Italian cardinals were in a minority for the first time after the Schism of the West. The pope justified this move on the basis of the church's universality and supernational character. All continents and 19 countries were represented in the Sacred college. From the western hemisphere there were 14, of whom 5 were from the U.S. and 2 from Canada. Archbishops Francis J. Spellman of New York, Samuel A. Stritch of Chicago, Edward Mooney of Detroit, John J. Glennon of St. Louis and James C. McGuigan of Toronto were the new North American cardinals. In England, Archbishop Bernard W. Griffin of London became the youngest cardinal, at the age of 46.

The Catholic population of the world in 1945 was estimated at between 398,000,000 and 400,000,000, but no accurate figures could be given because of war conditions, though the larger estimate appeared to be more likely. The number of patriarchates was 14, of which 7 were merely titular. The number of residential sees in the Catholic Church in 1945 was 1,334, including archbishoprics and bishoprics. Vicariates and other jurisdictions numbered some 520. Ecclesiastical jurisdictions in the Americas were: United States 122; Brazil 101; Canada 50.

The number of Catholics on the American continents was variously estimated at from 112,000,000 to 141,600,000. Catholics in the U.S. and territories numbered 23,963,671. There were one cardinal, 22 archbishops, 137 bishops and vicars apostolic. The clergy numbered 38,451, both diocesan and members of religious orders. There were 14,302 parishes; 6,917 missions and stations; 53 diocesan seminaries; 224 colleges and universities. Total number in Catholic colleges and schools was 3,305,804. General and special Catholic hospitals were 786. Converts to the church numbered 84,908.

Chaplains in the U.S. forces numbered in excess of 4,200, including auxiliary chaplains. Of the 172 U.S. chaplains who died in World War II 67 were Catholic priests.

Catholics in England and Wales numbered 2,393,983; those of Scotland 600,000. There were 6 archdioceses and 18 dioceses; 7,106 priests. Canada and Newfoundland had 13 archdioceses, 33 dioceses and 4,800,000 Catholics.

**The Church and World War II.**—Total damages to the Catholic churches of Europe was estimated at \$6,000,000,000, exclusive of schools and other religious buildings. Some 12,000 Catholic churches in the reich were destroyed or severely damaged. In Italy 65 churches of artistic interest were in ruins and in London 55 Catholic churches were wrecked by flying bombs. The two Catholic universities to suffer most during the war were those of Nijmegen, Netherlands and Louvain, Belgium. During 1945 the debris was cleared at Monte Cassino in Italy and plans were laid for rebuilding the abbey.

Cardinal Hlond, returning to Poland after a visit to the Vatican revealed that under the nazi occupation 3 bishops and 2,000 priests had died. The Cardinal had been released from German imprisonment at Paderborn on April 1, 1945, by the U.S. 9th army. The Polish bishops, in a joint pastoral, exhorted the faithful to ensure the rebuilding of their country on Christian principles.

In Germany documents revealed that the nazis had plans laid for total destruction of the church once the war was won.

The German bishops, in a joint pastoral, exhorted the faithful to bear their trials in a Christian spirit and blamed the nazi philosophy and education for the crimes committed by Germans at home and abroad. On Dec. 13, 1945, Archbishop Conrad Groeber of Freiburg, Germany, said catastrophe would have befallen Europe had the nazis won. Cardinal Faulhaber led the Corpus Christi procession through bomb-shattered Munich. Curfew easement permitted the first Christmas midnight mass in Berlin after 1939. On the occasion of the annual meeting of the bishops at Fulda, Germany, the bishops would not permit their pastoral to be read so long as several passages remained blue-pencilled by a U.S. army censor. Theresa Neumann, famous German stigmatic, survived the war and was uninjured. The historic cathedral of Cologne came through the war with only minor damage.

In Yugoslavia it became known that during World War II two-thirds of the bishops had either been killed or imprisoned. During Nov. 1945 the remaining bishops issued a sharp statement concerning the restrictions placed upon the church. Commenting editorially, *Osservatore Romano* said the three obstacles in the way of social and religious peace in Yugoslavia were: opposition of the Orthodox Churches to a concordat with the Holy See; political and cultural divergences between Catholic Croats and Slovenes and the Serbs; the favouring of communism by Marshal Tito. The pope appointed Most Rev. Joseph P. Hurley, bishop of St. Augustine, Fla., as regent *ad interim* of the apostolic nunciature in Belgrade.

From the Ukraine came reports in December that only the Orthodox Church was permitted to function. In the Ruthenian territory the diocese of Mukochevo was liquidated by the Russians and the Catholics invited to break with Rome.

When President Roosevelt died many Catholics throughout the world expressed their sorrow. Cardinal Suchard said France mourned his death; in Australia the apostolic delegate presided at a special mass; in Rome thousands attended a memorial mass in the American church.

In a joint statement the British hierarchy proposed to the United Nations eight points essential to peace. The centenary of Cardinal Newman's conversion was solemnly celebrated, with 500 delegates from 16 countries present.

The French archbishops made an appeal for national union in a spirit of reconciliation. The pope, in February, named Saint Therese of Lisieux the secondary patron of France.

Some 100,000 Catholics of Mexico and other American countries gathered at Guadalupe to participate in the golden jubilee celebration of the crowning of the Blessed Virgin of Guadalupe.

In Rome on Dec. 13, 1945, the pope signed decrees approving the beatification of Ven. Maria Teresa de Soubiran and Ven. Maria Teresa Eustochio Veresi, foundresses of institutes of religious women. On July 6 the Vatican excommunicated Most Rev. Don Carlos Duarte da Costa, bishop of Maura in São Paulo state, Brazil, for preaching revolutionary practices. In November classes were resumed in the major theological seminaries of Rome; some of the seminaries still remained closed, including the American and English colleges. The pontifical academy of St. Thomas Aquinas announced the addition of a juridical-economic department to its existing faculties of philosophy and theology. Mgr. J. Gerard Kelly of Chicago, Ill., was appointed rector of the North American college in Rome.

**Missions.**—In the Philippines total war losses to Catholic properties amounted to \$125,000,000, according to a report submitted to the U.S. senate by Sen. Tydings of Maryland. Carlos P. Romulo, resident commissioner, revealed the Manila cathedral had been blown up by the Japanese while filled with men.

Archbishop Martin Lucas was appointed apostolic delegate to South Africa and Southern Rhodesia, a territory embracing 19

vicariates and 3 prefectures, with a total of 660,000 Catholics, of whom 600,000 were coloured. In Basutoland the first Catholic university, named after Pope Pius XII, was opened during 1945.

In China Generalissimo Chiang Kai-shek welcomed back Bishop O'Gara. Religious restrictions were lifted from missionary activity in Japan. In Indonesia a number of missionaries were slain in the native conflict.

**United States.**—In 1945 the pope declared that the Concordia See would henceforth be the diocese of Salina. Most Rev. Stanislaus Bona was named bishop of Green Bay, Wis.; Most Rev. Ralph L. Hayes as bishop of Davenport, Ia.; Mgr. Edward J. Hunkeler as bishop of Grand Island, Neb.; Most Rev. Henry J. O'Brien as bishop of Hartford, Conn.; Most Rev. John F. O'Hara as bishop of Buffalo, N.Y.; Rev. Vincent Waters as bishop of Raleigh, N.C. Maj. Gen. William B. Arnold was named bishop of the military ordinariate; Mgr. John K. Mussio as first bishop of the new diocese of Steubenville, O.; Most Rev. James H. Ryan as first archbishop of the archdiocese of Omaha, Neb.; Rev. Apollinaris Baumgartner, O.F.M.Cap., as Vicar Apostolic of Guam.

Most Rev. John J. Glennon, archbishop of St. Louis, Mo.; Most Rev. Edward Mooney, archbishop of Detroit, Mich.; Most Rev. Samuel A. Stritch, archbishop of Chicago, Ill. and Most Rev. Francis J. Spellman, archbishop of New York and military vicar were created cardinals by Pius XII. In August Archbishop Spellman began a tour of inspection of his military vicariate in the Pacific area.

The Laetare medal conferred annually by Notre Dame university, Notre Dame, Ind., went to G. Howland Shaw, known for work in the field of juvenile delinquency. John A. Coleman, of New York Catholic charities, was recipient of the Catholic Action medal. The James J. Hoey medal was awarded by the Catholic Inter-racial council to Paul Williams, of the Catholic Committee of the South, and to Ralph Barth. Rev. John Quasten was appointed new dean of the faculty of sacred theology at the Catholic University of America. Louis F. Budenz, managing editor of the *Daily Worker*, communist organ of New York city, returned to the church and joined the faculty of Notre Dame university.

On V-E day the Apostolic delegate issued a statement expressing gratitude to God and officiated at services in the nation's capital. In St. Louis, Mo., in October, 22,000 attended the centenary celebration of the Saint Vincent de Paul society. Notre Dame university was recipient of a gift of \$1,000,000 to be used for the promotion of chemical and scientific study. (See also CATHOLIC ORGANIZATIONS FOR YOUTH; CATHOLIC RURAL LIFE CONFERENCE, NATIONAL; CATHOLIC WELFARE CONFERENCE, NATIONAL; CHURCH MEMBERSHIP; PIUS XII; SOCIETIES AND ASSOCIATIONS; VATICAN CITY STATE.) (J. LAF.)

**Roosevelt, Franklin Delano** (1882-1945) devoted the last few months of his life to preparing for a victory over the axis and a difficult post-war era which he did not live to experience. When he died suddenly on April 12, 1945, at his Warm Springs cottage in Georgia, the armed forces he had mobilized as commander in chief were beating at the gates of Berlin and bombarding the shores of Japan's home islands.

His death caused universal shock. Despite obvious evidence of his physical strain through 1944, the state of his health had been a carefully guarded secret. In late Feb. 1945, Vice-Adm.

THE RIGHT HAND of St. Stephen, Hungary's most sacred relic, was entrusted to a U.S. army chaplain in 1945 for return to Budapest from Austria, where it was taken during World War II





Ross T. McIntyre, White House physician, gave public assurances that his condition was "excellent." But when he continued to lose weight early in March, Dr. McIntyre prescribed a rest in the south. On March 30 he left for the infantile paralysis centre which he founded.

At one o'clock of the fatal day he was sitting before the fireplace of the "Little White House" while a New York artist sketched him. Suddenly he exclaimed to Commander Howard G. Bruen, a naval physician: "I have a terrific headache!" The stricken president was carried into his bedroom, where he died at 3:55 P.M., Georgia time, of a massive cerebral haemorrhage without regaining consciousness. The White House announced his death at 5:48 P.M., eastern war time, and at 7:09 P.M. Vice-President Harry S. Truman was sworn in as president in the cabinet room.

Quiet, sorrowing crowds lined the railroad tracks as the funeral train brought the body to Washington, where simple ceremonies were held in the east room at 4 P.M., April 14. For three days the nation and the world paid him a tribute which no other U.S. president, in life or in death, had received. He was given a military burial on Sunday morning, April 15, in a hedge-enclosed rose garden on the ancestral estate at Hyde Park, N.Y.

Almost as if he had a premonition that the end was near, even the energetic Roosevelt had rarely laboured so ceaselessly as he did during those last few months. It seemed as if he were consciously striving to write a last will and testament for what he knew might be a free but chaotic universe.

In an 8,000-word message to congress on Jan. 8, 1945, he tried to forecast the immediate future:

"This new year of 1945 can be the greatest year of achievement in human history. 1945 can see the final ending of the nazi-fascist reign of terror in Europe. 1945 can see the closing-in of the forces of retribution about the center of the malignant power of imperialistic Japan. Most important of all—1945 can and must see the substantial beginning of the organization of world peace."

The year 1945 did, though he did not see these things.

In the field of foreign affairs he called on the nation to dedicate itself whole-heartedly to "winning the war." He promised self-determination for the liberated peoples, although, he added wistfully, "it is difficult to guess what kind of self-government people will want." On the domestic side he asked enactment of a National Service act "for the total mobilization of our human resources for the prosecution of the war." He urged a system of military training. He pledged himself to demand new humanitarian reforms at home after victory.

He noted that several laws for promoting domestic rehabilitation had already been passed: the Surplus Property, Contract Settlement, Servicemen's Readjustment and the War Mobilization and Reconversion acts. To aid world recovery, he urged action on proposals to expand the Export-Import bank, to create the International Bank for Recovery and Development and the International Monetary fund.

Roosevelt was inaugurated for the fourth time on Jan. 20, 1945, on the south portico of the White House. It was one of the shortest and simplest ceremonies of its kind, with only 8,000 witnesses.

In the first week of February Roosevelt journeyed to Yalta on the shore of the Black sea for a military and diplomatic conference with Prime Minister Churchill and Premier Stalin. The three statesmen discussed past battlefield successes, and agreed upon a crushing attack on Germany, the only surviving foe in Europe. They also arranged for zonal occupation of a defeated reich by the United States, Britain, Russia and France. They made preliminary plans for establishment of new

governments in liberated countries and issued a formal call for an assembly of Allied representatives at San Francisco on April 25, 1945, to form the United Nations organization and write a world peace charter.

The "Big Three" also sought to soften German resistance. They repudiated any purpose to destroy the German people, only the nazis and militarists. They promised to liberalize the newly formed governments of Poland and Yugoslavia in accord with the popular will and the principles of the Atlantic charter.

On March 1 Pres. Roosevelt reported to congress on the Yalta mission. He said that Yalta represented a "successful effort by the three leading nations to find a common ground for peace." (See also UNITED STATES.) (R. TU.)

**Roques, Emile** (1880— ), Cardinal archbishop of Rennes was born at Graulhet, France, on Dec. 8. He studied at Albi Grand seminary. Ordained at 24, he took further studies at Toulouse and Dusseldorf, and taught and served as superior at Catres seminary. Invested as bishop of Montauban in 1929 and as archbishop of Aix in 1934, he was named archbishop of Rennes and primate of Brittany a few days before the invasion of Brittany by the German army in 1940.

A master of the German language, he vigorously protested the arrest of the directors of the Christian Agricultural youth and the deportation of workers by the occupation authorities.

He was named to the College of Cardinals in an announcement of Dec. 23, 1945, and was created and proclaimed a cardinal at consistory on Feb. 18, 1946.

**Rose, Maurice** (1899–1945), U.S. army officer, was born Nov. 26, in Middletown, Conn. At the age of 17 he joined the Colorado National Guard. He saw active duty with the A.E.F. during World War I, and was twice decorated. Following his discharge from the army in 1919, he was commissioned a second lieutenant in the regular army and by 1940 he had risen to the rank of lieutenant colonel. After the start of World War II, he was named chief of staff of the 2nd armoured division, and in Dec. 1942 was sent overseas where he participated in the North African campaign, at the end of which he was acting as chief of staff of the 1st armoured division. Gen. Rose returned to the 2nd armoured division, took over a combat command, and led the lightning dash across Sicily that cut the island in two. During the Normandy invasion he was again with the same division, which spearheaded the U.S. 1st army's breakthrough at St. Lo. He was subsequently given command of the 3rd armoured division, believed to have been the first to enter Belgium and Germany. In March 1945, he was awarded the D.S.M. and was cited for "displaying inspiring leadership, tactical skill and great valour." On the day of his death he was directing the fight to take an important road junction. His jeep ran into a group of German tanks which had infiltrated American lines and Gen. Rose was prepared to surrender. As he lowered his hands to unfasten his holster, evidently misinterpreting a German order, he was shot and killed by an enemy tankman near Paderborn, Germany, March 30.

**Rosenwald Fund, The Julius:** see SOCIETIES AND ASSOCIATIONS.

**Rotary International:** see SOCIETIES AND ASSOCIATIONS.

**Rothenstein, Sir William** (1872–1945), British artist, was born Jan. 29 at Bradford, Yorkshire. For early career, see *Encyclopædia Britannica*. One of England's leading artists and a distinguished writer,



Sir William was famed for his sketches and portraits of international celebrities over a span of five decades. His unique series of portraits mirrored the history of Europe from the Victorian era to World War II. Many world notables sat for Sir William, including Paul Verlaine, Algernon Charles Swinburne, Emile Zola, Oscar Wilde, Anatole France, Henry James, Walter Pater, George Bernard Shaw, Rudyard Kipling, T. E. Lawrence and the duke of Windsor. While the greater part of his fame rests upon his portraiture, Sir William was equally versatile in lithographs, etchings, still lifes and landscapes. His works are represented in the principal galleries of Great Britain, the Musée du Jeu de Paume, Paris and the Metropolitan museum in New York. In World War I he was official artist of the British and Canadian forces serving in France, and during World War II, despite his advanced age, he flew frequently in combat aircraft to complete portraits of servicemen. A skilful writer and astute observer, Sir William wrote a number of works; the best known are his memoirs, published in England in three volumes under the title *Men and Memories*. Volume 1, covering the period 1872 to 1900, was published in 1931. The second volume which covered the era between 1900 and 1922 was released in 1932 and the third volume, entitled *Since Fifty: Men and Memories*, covering the 1922-38 epoch, was published in 1939. Sir William died at his home in Stroud, Gloucestershire, Feb. 14.

**Rowing.** Intercollegiate rowing in the United States during 1945 was confined entirely to the east coast. Columbia, Cornell, Harvard, Massachusetts Institute of Technology and the U.S. Naval academy produced crews and rowed an abbreviated schedule of races. Harvard again rowed informally, confining themselves to competition at home on the Charles river.

The season opened on April 28, at Cambridge, Mass., where the U.S. Naval academy varsity and junior varsity crews won both races over the one-and-three-fourths-mile Charles river course in rough water and against a stiff head wind. In the varsity race Harvard was second and M.I.T. a close third. Winning time was 10 min. 7 sec. The junior varsity race ended in the same order, Navy winning in 10 min. 32 sec.

A week later, May 5, over the same course, the M.I.T., Harvard and Cornell crews met. Conditions were fair, with choppy water and a stiff quartering breeze. M.I.T. won the varsity race with Cornell second, three-fourths of a length back, and Harvard third. The winning time was 9 min. 17½ sec. Cornell won the junior varsity event in 9 min. 33 sec. with M.I.T. second and Harvard third. As an added attraction the M.I.T. and Harvard third varsity crews rowed a preliminary race over the Henley distance of one-and-five-sixteenths miles, which M.I.T. won.

On May 12, Columbia and the U.S. Naval academy raced over the one-and-three-fourths-mile Severn river course at Annapolis, Md. The start was delayed until almost dark because of very rough water and a strong head wind. The Naval academy junior varsity defeated Columbia's junior varsity by one-and-one-half lengths in 11 min. 51 sec., and the good Columbia varsity won over the Naval academy crew by two lengths in 11 min. 15 sec.

On May 19, Columbia, Cornell, M.I.T. and the Naval academy were scheduled for a two-mile regatta over the Cayuga lake course at Ithaca, N.Y., but because of a strong wind and extremely rough water it was impossible for the crews to get up to the start. Rather than call it off it was decided to row the race in one-mile heats, two crews to a heat, on the more protected Cayuga inlet. In the drawings for preliminary heats M.I.T. and Cornell were paired and Navy and Columbia were paired, both in the varsity and junior varsity events. Cornell defeated M.I.T. in both classes, winning the junior varsity race by one length in 5 min. 15 sec. and coming from behind in the varsity race to win by inches in 5 min. 14 sec. In the other heats the Naval academy junior varsity again won from Columbia and a greatly improved Navy varsity defeated Columbia by a very narrow margin in 4 min. 45 sec. Because of the strong,

slightly quartering wind at the start, it was very difficult for referee Edward H. TenEyck to get the crews lined up and in this particular heat the crews were well over the starting marks when they were sent away. In the finals the good Naval academy crews defeated Cornell, winning the junior varsity event by one-half length in 5 min. 15 sec. and the varsity race by three-fourths of a length in 5 min. 7 sec. In an added event the Naval academy plebes easily defeated the Cornell and M.I.T. freshman crews in that order, winning in 5 min. 12.6 sec.

This marked the end of competition for the Naval academy crews as final examinations commenced the following week. The others continued on, M.I.T. going to New York on June 2 for a dual regatta with Columbia over the one-and-three-fourths-mile Harlem river course. Under excellent rowing conditions the Columbia crews won both events, the junior varsity by three-fourths of a length in 8 min. 19 sec. and the varsity by three lengths in 8 min. 9 sec.

The season came to a close on June 9, with Columbia and Cornell meeting in another dual regatta over the same course at New York. In water ranging from choppy to quite rough, Cornell won both races, the junior varsity by 12 ft. in 8 min. 21 sec. and the varsity by one-half length in 8 min. 19 sec.

Princeton, after an absence from the water of two years, resumed practice during the summer under the coaching of Gordon Sikes. The Princeton and Columbia summer crews engaged in two informal regattas, the first on Aug. 25 at Princeton, N.J., where the Columbia varsity defeated the Princeton junior varsity and varsity, in that order, over the Henley distance on Lake Carnegie in 7 min. ¼ sec. The same crews met in a return engagement on Sept. 8 in New York over a one-and-one-half-mile course on the Harlem river. The result was the same, Columbia's varsity winning in 6 min. 55 sec., one-half length ahead of the Princeton junior varsity with the Princeton varsity third by another one-half length.

Again, as in the previous three years, the Poughkeepsie regatta, Dad Vail regatta and all regularly scheduled cup races were not held.

A return to rowing in 1946 was indicated at Pennsylvania where coach Russell S. Callow, following a leave of absence during the war, returned and worked with a squad of men through the fall. (R. H. Sb.)

**Royal, Forrest** (1893-1945), U.S. naval officer, was born Feb. 10, in New York. He was graduated from the Naval academy in 1915 with an ensign's commission and later did postgraduate work in ordnance at the Annapolis Post Graduate school. He received a M.S. degree from the Massachusetts Institute of Technology in 1924. A one-time aide to Adm. William H. Standley (then commander of the battle force, U.S. fleet) he was assigned to a U.S. naval mission to Brazil, 1939-41. Upon his return to Washington, he was given command of the cruiser "Milwaukee." In 1942, he was attached to headquarters of the commander-in-chief of the U.S. fleet. He later became U.S. secretary to the combined chiefs of staff and the joint chiefs of staff. In June 1944, he was transferred to command of the amphibious Group Six and directed the amphibious assaults on Leyte, Lingayen and Mindanao. He was promoted by President Roosevelt from a captain to a rear admiral in 1944 and was awarded the D.S.M. for his services in the Philippines campaign. Adm. Royal commanded the 7th amphibious force which landed troops at Tarakan Island, May 1, 1945, and led amphibious operations in the Brunei bay area the following month. His death from natural causes, on June 18, in the Pacific theatre of war, was announced by Secretary of the Navy Forrestal.

**Ruanda and Urundi:** see BELGIAN COLONIAL EMPIRE; MANDATES.

**Rubber.** For the first time after 1941 rubber could be regarded as an available commodity on world markets during 1945, rather than an alarmingly scarce raw material. The imperative need for military equipment set the pace for the rubber industry throughout most of the year. Supplies of synthetic rubbers were, in general, sufficient for both military and civilian needs. By the first quarter of 1945 shortages either had developed or were threatened in the supplies of natural rubber, carbon black, rayon cord and a great many of the other raw materials required to make rubber articles needed by the United Nations. The transportation of great armies on a vast scale accounted for the bulk of the military demand which took precedence over civilian requirements. The War Production board appointed a director of rubber programs to integrate the

industry, to facilitate the building of new factories for the production of tires, carbon black, guayule rubber, rayon cord and other critical items, to anticipate the industry's manpower needs and to collaborate with both military and civilian authorities to ensure the manufacture of rubber goods on an unprecedented scale. Shortly after V-E day the trend toward expansion was sharply reversed and most of the projected factories were cancelled. After V-J day, emphasis was placed upon the reconversion of the industry from war to peace. Significant progress was made during the World War II period in the replacement of natural rubber by synthetic rubber, from 99% natural rubber used in 1941 to a low of 11% in Oct. 1945. This replacement, made with scarcely any reduction in output of manufactured products, had little effect on the life and performance of rubber articles. In Dec. 1945, the first shipments of crude rubber after 1942 from the far east were received in the United States and the end of tire rationing was announced. Interesting comparisons of the preparation and use of synthetic rubbers in the United Nations and in Germany were available in 1945. These show that specific products made from GR-S were superior to the corresponding articles made in Germany from Buna S.

**Supplies of Rubber.**—The rubber stockpile of the United Nations was administered by Rubber Reserve company, Washington, D.C. Their comprehensive review, "Report of the Rubber Program 1940-1945," is the basis for the following information. Of 1,117,000 tons (in this article the unit of measurement is the *short ton*) of natural rubber purchased during 1940 to 1945, 85,500 tons were involved in cancellations and only 28,000 tons in losses by enemy action. The natural rubber stockpile as of July 1, 1945, was 91,000 tons plus 2,000 tons of rubber as latex. (Note that the minimum requirement set by the Baruch committee in 1942 was 112,000 tons.)

Natural Crude Rubber Supply

	Total U.S. crude rubber imports (short tons)	Total U.S. crude rubber consumption (short tons)	Total U.S. crude rubber stocks (short tons)
1939 . . . . .	545,000	664,000	141,000
1940 . . . . .	910,000	726,000	324,000
1941 . . . . .	1,148,000	868,000	596,000
1942 . . . . .	303,000	422,000	474,000
1943 . . . . .	38,700	355,000	157,000
1944 . . . . .	110,000	161,000	105,000

The consumption of natural and synthetic rubbers in 1944 was nearly 800,000 tons, 80% of which was synthetic. The estimated consumption for 1945 was more than 1,000,000 tons, 85% of which was synthetic rubber. In 1945 the estimated production in tons of synthetic rubber in government-owned plants was GR-S (butadiene-styrene co-polymer) 990,000, GR-I (butyl) 57,000, GR-M (neoprene) 57,000. Actual production probably ran lower than these estimates as a result of cancellations of orders following V-J day. The percentages of GR-S derived from alcohol and petroleum respectively bear a determining relation to the cost.

	1943	1944	First seven months 1945
GR-S from alcohol . . . . .	77%	64%	49%
GR-S from petroleum . . . . .	23	36	51
	1943	1944	First five months 1945
Average cost GR-S . . . . .	\$0.355 lb.	\$0.307 lb.	\$0.272 lb.

The withdrawal from production of all alcohol plants for butadiene manufacture except for their use in contingencies was announced in December, thus lowering the annual capacity for GR-S production by 250,000 tons. The remaining GR-S production was based upon butadiene from the lower cost petroleum sources. In one case, out-of-pocket costs as low as \$0.128

per pound for GR-S were realized. During 1945 synthetic rubber plants owned by the government operated at between 50,000 and 88,000 tons per month. The high rates of production prevailed during the first half of the year. The U.S. share in the development of synthetic rubbers was signalized in a series of awards made during 1945 by scientific and technical organizations. These included the Midwest award to L. P. Kyrides in part for his early development of U.S. synthetic rubber, the Perkin medal to E. K. Bolton for Du Pont's early researches on neoprene, the first Backeland award to E. R. Gilliland for his part in the government's synthetic rubber program, and the \$1,000 prize of the American Chemical society to F. T. Wall for basic studies on the structure of co-polymers.

**Natural Rubber.**—Information available from the far east, source of nearly all the world's plantation rubbers as late as Dec. 1945 was very fragmentary. Malayan reports indicated extensive injury to the personnel formerly used in tapping rubber trees. These workmen were sent to Indo-China by the Japanese to build military railroads, and perished there by the thousands. Less than 65,000 tons of crude rubber were reported on hand in Malaya. Although little damage to plantations was cited, slow resumption of production due to shortages of labour, supervisors and equipment seemed probable. In Sumatra and Java, which at one time jointly supplied half of the world's plantation rubbers, trees were said to have been uprooted in several instances to provide land for foodstuffs or for aircraft landing fields. In these islands the prospects of extensive rubber tapping in 1946 were very slight, especially because of postwar political upheavals. Indo-China reported a large inventory of crude rubber (170,000 tons). Some natural rubber was expected to be produced in the Philippines and in Borneo, but the resumption of full production from all parts of the far east was not expected for at least another year, probably longer. Combined natural rubber inventories of more than 300,000 tons were possibly available in Malaya, French Indo-China, Siam and Borneo. Indicative of wide interest in natural rubber was the research work in progress at various locations. The French Rubber institute, with laboratories in France, Indo-China and the Ivory Coast, was studying the production and evaluation of natural rubbers, and was training rubber technologists. The Agricultural Institute of the North at Belem, Brazil, with the support of the government, initiated studies on rubber. The British Rubber Growers association maintained extensive laboratories near London, England, for the study of fundamental rubber problems. One specific and worthy objective of their work was to find compositions in which natural rubber excels synthetic rubber. Extensive researches by the U.S. department of agriculture and other agencies in the Americas, Russia, Sweden and Great Britain, on unusual sources of rubber (e.g., *kok-saghyz*, *Cryptostegia* and guayule) failed to show these rubbers competitive with plantation rubber or GR-S.

**The Rubber Study Group.**—The state department arranged a meeting in Jan. 1945 in the United States of the Rubber Study group with delegates from the Netherlands, the United Kingdom and the United States. This group meets periodically to discuss matters pertaining to natural and synthetic rubber, and the share which each is destined to play in supplying the world's raw material needs. Another meeting was held Nov. 20, 1945, in London, to which France also sent delegates. No official report was published. It is interesting to note that a reduction in the export price of GR-S from the former level of \$0.315 to \$0.185 was announced in Sept. 1945. This action foreshadowed the inevitable price competition between natural and synthetic rubbers.

**Tires and Tubes.**—Early in 1945 extensive shortages of natural rubber, carbon black, rayon and butyl rubber confronted

the War Production board. The appointment of J. L. Collyer, president of the B. F. Goodrich company, as special director of rubber programs was followed by rapid action in relieving these shortages, thus ensuring prompt deliveries of critical military equipment. The maintenance of controls over necessary war matériel facilitated reconversion to civilian needs in early autumn, and permitted the lifting of gasoline rationing. Late in the year it was announced that tire rationing was to be abolished, effective Jan. 1, 1946. The year 1945 thus brought to an end the era of critical tire shortages which had lasted for four years. For the production of inner tubes the supplies of butyl rubber, 22,000 tons in 1944, were substantially increased to exceed 60,000 tons in 1945. The quality of inner tubes made from butyl rubber in certain respects was even better than that of tubes from natural rubber; notably, tear resistance, ease of repair and rate of air leakage. The rubber bureau of the WPB reported that Buna S tires made in Germany were probably not as good as U.S. GR-S tires with the same natural rubber content. Even though the Germans had been forced to favour their tires by extensive reduction of operating speeds, ply separation still was a constantly recurring defect. The Russians, as well as the Germans, might have been bothered with tire quality for their reports revealed constant difficulties with ply separation. Although these reports favoured the use of Russian synthetic SK to lessen ply separation, another report cited the benefit to be had from vast foreign experience (probably U.S.). Reports from Great Britain indicated that tire producers there would welcome a change from GR-S to the more elastic natural rubber for tires as soon as it was available.

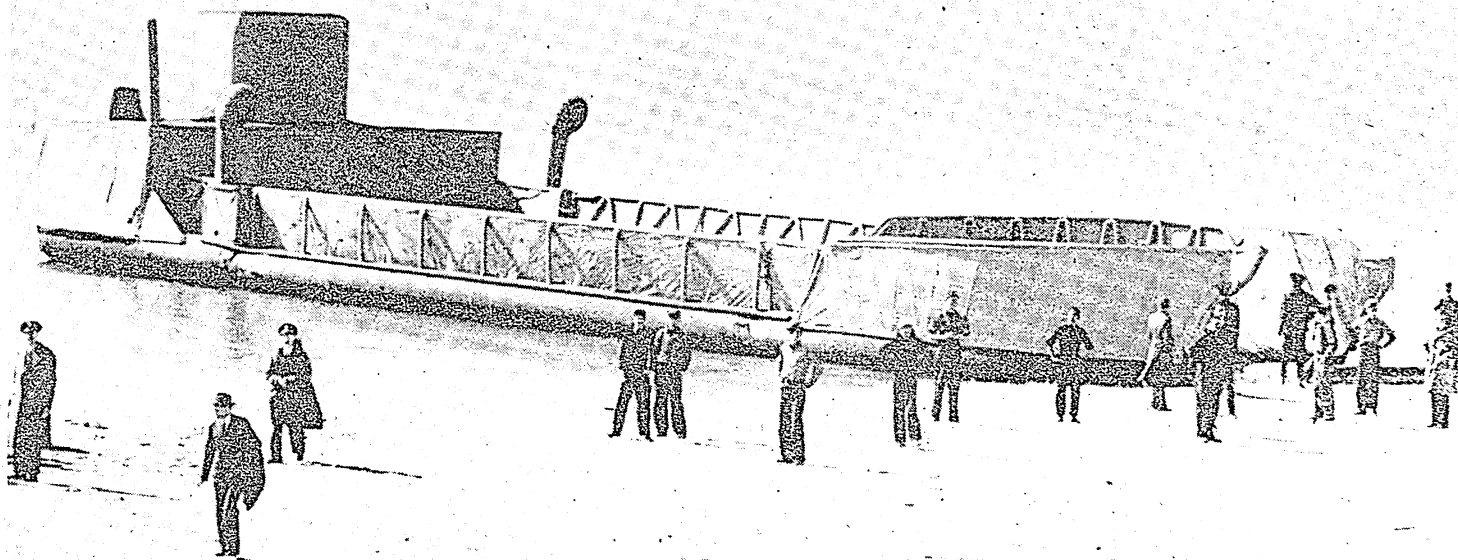
**Other Rubber Products.**—Before the war tires and tubes

made in the United States consumed 70% to 72% of the natural rubber supply. During World War II this requirement had risen to 90%, thus leaving only 10% of the available natural rubber for other products. This adjustment forced the abandonment of many lines of civilian manufacture, such as golf ball thread, which would be resumed with the relaxation of government regulations. The great bulk of industrial rubber articles, hose, belting, coated fabrics, gasket and sealing rubbers, rubber-lined tanks, footwear, drug sundries and household rubber articles had to be made mainly from synthetic rubber and reclaim. The civilian requirements for all necessary rubber products were thus satisfied. From Great Britain it was also reported that while natural rubber is superior in tires, the so-called mechanical rubber goods could be made from synthetic rubber satisfactorily. In the United States alone the consumption of natural rubber, synthetic rubber and reclaim for 1945 exceeded 1,150,000 tons.

**Plastics.**—World-wide interest was shown by rubber manufacturers in the synthesis and use of plastics. In the United States leading rubber companies during 1945 opened new factories for the production of vinyl polymers and enlarged research facilities for the study of plastics. New co-polymers, made from styrene (cerex) and from vinyl chloride (geon) were announced. From Great Britain reports indicated that plastics can be used to supplant rubber as insulation, as coatings for fabric, and for paper and as calendered sheeting. German scientists were notably successful in perfecting synthetic plastics which displaced rubber or synthetic rubber in established uses, such as sponges and foams, coatings for leather, rubber, wood and paper, and as adhesives for foil structures, for rubber to metal and for rubber to tire cord.

**Trends Confronting the Rubber Industry.**—Until 1942 the rubber industry had been occupied mainly with the problems of mass production of rubber articles. During World War II many manufacturers of rubber goods were hired by Rubber Reserve company to make synthetic rubber in government-owned plants, which required the mastery of chemical and engineering facilities on a very extensive scale. The extent to which the government would continue to operate synthetic rubber plants and the extent to which private industry would take over in the event that government did not continue to operate them were questions vitally affecting the future of the rubber industry. The resumption of rubber goods manufacture for civilians during 1946 had to be undertaken on a very large scale. It was estimated that at least 66,000,000 passenger tires would be

RUBBER AND CANVAS L.C.T., assembled and inflated on an English beach. It was revealed on Dec. 5, 1945, that entire fleets of dummy invasion craft carrying dummy tanks, artillery and other equipment, were used along the English Channel to confuse enemy observers before the invasion of Normandy





produced as compared with the high of 50,000,000 fabricated in both 1940 and in 1941. In addition to domestic shortages, the rehabilitation of captured war torn areas required large tonnages of conveyor belt, hose and other mechanical equipment. Rubber factories in Europe seemed to have survived the war with comparatively slight damage. Those in France and Belgium were actively engaged in producing tires and tire repair material for the United Nations by the first quarter of 1945. GR-S, carbon black and other raw materials were sent to these factories from the United States and the plants were operated effectively under the military government. Factories in Great Britain, like those in the United States, were occupied mainly in making necessary military articles. In Germany where rubber factories were not primary targets, operations were being resumed. The largest tire plant near Hanover, which was never bombed, and a tire plant at Hamburg were running in the autumn on as nearly full scale as their supplies permitted. The synthetic rubber factories in the British and French occupation zone of western Germany which had been bombed were capable of operations on a restricted scale by late October. They were limited by supply of materials rather than by destruction of the plants. The rubber industry of the world was expected to be confronted with an active market for a few years which would require nearly 1,700,000 tons of raw rubber each year. By taking advantage of new uses for rubber, and by creating demands for rubber goods in countries outside North America, rubber requirements could be nearly doubled without threat to the potential supply which comprised 1,700,000 tons of natural and 1,500,000 tons of synthetic rubber. (See also BURNES REVIEW; PETROLEUM.)

FILMS—*Catalysis* (Encyclopædia Britannica Films Inc.).

(H. L. TL.)

**Ruffini, Ernesto** (1888– ), Archbishop of Palermo, was born at Nantua, France. He studied at Rome, specializing in scripture. He was professor at the Pontifical Propaganda university in Rome where he taught many U.S. priests and bishops. He entered the Sacred Congregation of Seminaries and Universities, and following the death of the prefect, Cardinal Gaetano Bisletti, was retained as secretary. Working directly under His Eminence Pope Pius XI, he prepared the *Constitution Deus Scientiarum Dominus*, inaugurating sweeping scholastic reforms in seminaries and universities. He personally supervised implementation of the constitution for Roman Theological, Canonical and Scriptural universities.

Named archbishop of Palermo in Oct. 1945, to succeed His Eminence Luigi Cardinal Lavitrano, he was serving as prefect of the Sacred Congregation of the Affairs of Religious when he was named in an announcement of Dec. 23, 1945, to the Sacred College of Cardinals. He was created and proclaimed a cardinal at consistory on Feb. 18, 1946.

**Rugby:** see FOOTBALL.

**Ruhr:** see RHINELAND.

**Rulers:** see PRESIDENTS, SOVEREIGNS AND RULERS.

**Rumania.** A kingdom in southeastern Europe. After 1939 its frontiers underwent many changes. Bessarabia and northern Bukovina were lost to the soviet union; northern Transylvania to Hungary; southern Dobruja to Bulgaria. On Jan. 1, 1940, Rumania had an area of 113,919 sq.mi. and a population of 19,900,000. On Jan. 1, 1941, Rumania's territory was c. 74,000 sq.mi. and its population was c. 16,000,000. In 1945 the whole territory of Transylvania was restored to Rumania. Capital, Bucharest. Principal cities: Bucharest (648,162); Jassy (104,471); Galatz (102,232); Timisoara (89,872). Religion: mostly Greek Orthodox. King: Michael I (Mihai). Prime minister (1945) Peter Groza.

**History.**—At the beginning of 1945 Rumania found itself under a coalition government headed by General Nicolai Radescu as prime minister and minister of the interior. General Radescu had been a staunch adversary of the Germans and of the war against Russia. The governmental coalition, the National Democratic Front, under the leadership of the vice-premier, Peter Groza, found itself, however, in disagreement with the premier. Large scale demonstrations, supposedly organized by the Communist party which played the decisive part in the National Democratic Front, manifested against Radescu. The hands of the king were forced by the arrival in Bucharest of the Russian vice-commissar of foreign affairs, Andrew Vishinsky, who on

March 3 prevailed upon the king to dismiss Radescu and to appoint a new cabinet under Peter Groza. Radescu, fearing for his personal safety, took refuge in the British legation.

The new government represented officially a coalition. The premier, Peter Groza, was the founder and leader of the Plowman's Front which had split off from the National Democratic Peasant party. Vice-premier and minister of foreign affairs was George Tatarescu, formerly a henchman of ex-King Carol II during his attempts at a royal dictatorship. The key ministries were in the hands of communists: the ministry of the interior which commands the *siguranza*, the dreaded secret police, under Theodor Georgescu; the ministry of justice under Lucretiu Patrascanu; and the ministry of propaganda and the press under Petru Constantinescu. The greatest influence was exercised by Miss Anna Pauker, a veteran communist leader. The two most important Rumanian parties, the National Democratic Peasant party under Julius Maniu, the veteran democratic leader of the Rumanian people, and the (conservative) Liberal party under Dinu Bratianu, were not represented in the government. Much of the communist propaganda was directed against Maniu.

The new government was strengthened by the restoration of that part of Transylvania which Rumania had ceded to Hungary in 1940. This question of Transylvania was settled by Russia without awaiting the peace conference or any consultation with the Allies. In Transylvania Hungarian inhabitants received wide minority rights.

Measures in favour of the poorer peasantry were undertaken as part of a land reform program. Nevertheless Rumania was faced at the end of 1945 with a breakdown in its agriculture and near famine conditions, in spite of the fact that Rumania is a highly fertile country which in normal years exports grains. Rumania's industries, especially its important oil wells, were incorporated into the Russian economy.

The growing dissatisfaction in the country, with the absence of democratic liberties and with the existing regime, led the king to appeal in August 1945 to the United States, Russia and Great Britain for the democratization of the regime. But Prime Minister Groza refused to resign. His visit to Moscow in September strengthened his position. At the beginning of November popular demonstrations on the occasion of the king's birthday were suppressed. The Liberal party protested in a statement against the abrogation of civic liberties. Even the Social Democrats who formed part of the coalition threatened with opposition. Their two cabinet members, Labour Minister Lotar Radaceanu and Education Minister Stefan Voitec, pleaded with the communists for the formation of a single worker's party. The overwhelming majority of the Social Democrats and their leader Constantine Titel Petrescu, rejected such a close collaboration and decided to maintain their identity.

**Agriculture, Minerals and Trade.**—Rumania is predominantly an agricultural country. The few industries which exist, like flour milling, brewing and distilling, are directly connected with agriculture. The chief crops of the country are maize, wheat, barley, rye and oats. The principal minerals are petroleum and natural gas, iron and copper ores, salt and lignite. The output of natural gas in 1937 amounted to 62,175,022,462 cu.ft.; the output of crude oil in 1938 amounted to 7,286,000 short tons, while it decreased in spite of all German efforts to 5,511,000 tons in 1942. In 1940 only 1,532,000 tons of petroleum were exported, as against 3,075,000 tons in 1939.

The monetary unit is the lei, nominally 10 milligrams gold (.900 fine). It had a value in 1940 of about 0.69 cents U.S. In 1938 the total imports amounted to 18,767,000 lei, the exports to 21,532,000 lei. The chief importing countries were Germany, Czechoslovakia, Great Britain, France and Italy; while the

chief exports went to Germany, Great Britain, Czechoslovakia, Italy and France. The estimated ordinary revenue for 1942-43 amounted to 71,200,000,000 lei; the expenditures to 72,500,000,000 lei. The public debt on April 1, 1939, was 104,127,428,054 lei. (See also WORLD WAR II.) (H. Ko.)

**Rundstedt, Karl Rudolf Gerd von** (1875- ), German army officer, was born Dec. 12 at Aschersleben. He served in Alsace and Poland during World War I. Von Rundstedt achieved military renown in the Polish and French campaigns early in World War II and was created a marshal of the reich, July 19, 1940. He participated in the Russian campaign, 1941, but after his defeat at Rostov, he was shifted to France in 1942. After the scuttling of the French fleet at Toulon, Nov. 27, 1942, Hitler made von Rundstedt military ruler of France. Von Rundstedt was the wehrmacht's supreme commander on the western front when the Allies invaded France, June 6, 1944. He was replaced a month later, but was returned to this post in Sept. 1944, according to German broadcasts. His surprise counteroffensive launched in mid-December 1944 against Allied lines in the Belgium-Luxembourg sector, tore a 60-mi. hole in Allied lines before it was stopped. Although this attack was regarded as a brilliantly planned operation, Rundstedt's forces were spent after the first three weeks of battle. On March 22, 1945, information reaching the Allied 21st army group said Rundstedt had been replaced by Kesselring. Captured May 1, by U.S. troops, Rundstedt later declared that the systematic aerial destruction of German communications was one of the principal reasons for Germany's defeat.

**Running:** see TRACK AND FIELD SPORTS.

**Rupertus, William Henry** (1889-1945), U.S. marine corps officer, was born Nov. 14 in Washington, D.C. A member of the national guard in Washington, he attended the Coast Guard academy at New London, Conn., 1910-13, and then entered the marine corps as a second lieutenant. He served as commander of a marine detachment on board a U.S. battleship attached to the British grand fleet in World War I, and later was assigned to duty in Haiti and Peiping. At the outbreak of World War II, he was assistant commander of the 1st marine division, one of the first units to be sent to the South Pacific. He was advanced to the rank of brigadier general in 1942 at the onset of the Solomons invasion, and to that of major general the following year. He was decorated with the navy cross by Fleet Admiral Chester W. Nimitz for his outstanding service in the Solomons campaign, and in May 1944 was given the D.S.M. by General MacArthur for "skilful and courageous leadership" in the New Britain campaign. After the Peleliu campaign in the autumn of 1944, Gen. Rupertus was returned to the marine corps base at Quantico, Va., where he became commandant of the corps school. He died suddenly, apparently of a heart attack, while in Washington, March 25.

**Rural Electrification.** The electrification of rural areas in the United States, which progressed at an accelerated rate after the establishment of the Rural Electrification administration in 1935, resumed its upward trend during 1945 following the relaxation of wartime regulations over the use of materials in May 1945 and the cessation of World War II. During the early part of the year, as well as during 1944, operators of rural electric distribution systems, particularly rural electric co-operatives, were active in the preparation of plans to extend electric service

on an area-wide basis. The relaxation of regulations in May 1945 permitted them to begin the execution of these plans in order to meet the increasing demands of farmers for electric service. At the end of the year it was estimated that approximately 2,900,000 farms were receiving central station service, or about 48% of the total number of farms reported by the 1945 agricultural census.

The growth of rural electrification is shown by the approximate number and percentage of electrified farms, as follows: Dec. 1934, 744,000, 10.9%; June 1936, 840,000, 12.3%; June 1938, 1,300,000, 19.1%; June 1940, 1,870,000, 27.1%; June 1941, 2,126,000, 34.9%; June 1942, 2,337,000, 38.3%; June 1943, 2,454,000, 40.3%; June 1944, 2,573,000, 42.2%; June 1945, 2,726,000, 44.7%. These percentages are based on the total number of farms reported by the census in 1935 and 1940. A considerable part of the accelerated progress after 1935 was accounted for by rural electric, nonprofit co-operatives. Nearly 95% of the loans of the Rural Electrification administration were made to these co-operative enterprises which were owned by the consumer members and governed by boards of directors selected by the members.

By the end of 1945, Rural Electrification administration had allotted approximately \$669,000,000 to finance on a self-liquidating basis the construction of rural distribution lines and other electric facilities. At the close of the year, 842 systems had in operation about 454,000 mi. of line serving more than 1,391,000 consumers in comparison with 410,000 mi. serving 1,217,000 consumers at the end of 1944. Approximately 80% of the consumers were farms; the balance consisted of nonfarm residences, industrial and commercial enterprises, and community institutions. During 1945 borrowers of funds from the Rural Electrification administration increased their financial stability, as was indicated by payments in advance of due date of about \$20,000,000, cumulative to the year end, on their debts to the government in contrast to about \$374,000 overdue more than 30 days.

Perhaps the outstanding development in rural electrification during 1945 was the preparation, and in many instances the completion, of plans to extend electric service into rural communities on an area coverage basis. Rural electric co-operatives in many states completed plans for bringing service to substantially every unserved farm and other rural residence in their areas, and after the end of the war began active construction of lines. Through these comprehensive plans for area coverage the co-operatives reported that they would be able to serve on an economical basis "thin" territory and isolated communities that otherwise could not be reached except at exorbitant cost.

Because of its contribution to farm production and farm living, increased application of electric power to farm and rural community activities continued to receive much attention of research agencies and others in the development of new and improved electrical farm equipment. Among those items receiving greatest interest were electrical applications for mow-curing of hay and farm refrigeration equipment, particularly freezers and food storage chests for the farm home. The increased use of electricity in rural areas as consumers become acquainted with its many benefits was shown by consumption figures released during 1945 by the Rural Electrification administration. It was reported that on REA-financed systems under 3 years old the average monthly residential consumption was 59 kw.hr. while on systems over 6 years old the monthly consumption was 97 kw.hr. (R. T. B.)

**Rural Rehabilitation Loans:** see FARM SECURITY ADMINISTRATION.

**Russell Sage Foundation:** see SOCIETIES AND ASSOCIATIONS.  
**Russia:** see UNION OF SOVIET SOCIALIST REPUBLICS.

## Russian Literature.

The transition from war to peace had not yet made itself felt in soviet Russian literature at the close of 1945. The Union of Soviet Writers held its first peacetime session at which the war achievements and the prospects for the future were evaluated. As if answering some implicit criticisms and fears, the chairman, Nikolay Tikhonov, said that there was no need to fear for soviet literature and its future; but at the same time he criticized some aspects of war literature. Meanwhile the war itself continued to be one of the dominant themes. Among the best works of the year was Konstantin Simonov's novel *Dni i nochi* (*Days and Nights*), a simple and yet stirring story of the critical months in the battle for Stalingrad, written from the point of view of its defenders holding out in the remnants of the city. Unlike much wartime literature, it is free from all bombast and gives a very good picture of the real battle of Stalingrad. Simonov's play *Tak i budet* (*And So It Shall Be*), dealing with the end of the war, was criticized for its sentimental optimism.

The growing interest in Russia's past, which was one of the features of the existing patriotic phase, was responsible for Alexei Tolstoy's last work—two plays under the common title *Ivan Grozny* (*Ivan the Terrible*). The author described this as "a dramatic tale in two parts." It is in fact a series of rather disjointed dramatic *tableaux* held together by a common underlying idea and showing some colourful episodes in the life of Ivan the Terrible and the Russian state. Its main defect is an ill-concealed tendency to project the present into the past. Tolstoy died on Feb. 23, 1945, at the age of 62, and his death was lamented by many as the greatest loss for Russian literature after Maxim Gorky.

In poetry the outstanding event was a small book of original poems by Boris Pasternak, *Zemnoy prostor* (*The Earthly Expanse*), his first for many years. Its chief characteristic is unexpected simplicity coupled with the freshness and originality which one has come to associate with Pasternak.

Russian literature in exile was carried on mainly in the U.S. A new novel by M. Aldanov, *Istoki* (*The Sources*), was in course of publication in the *New Review*. Its theme is the not so distant "antecedents" of the Russian revolution. Among Russian books published in the U.S. was M. Zetlin's *Pyatery i drugie* (*The Five and Others*), a novelized account of some of the leading Russian composers and their friends against the background of the period, and V. Zenzinov's *Vstrecha s Rossiyey* (*An Encounter with Russia*), a valuable documentary work based on authentic letters found on Russian prisoners and dead during the Soviet-Finnish War. Attempts were being made to revive Russian literary life in Paris, but up to Oct. 1945, nothing had appeared beyond a slender almanac containing a fragment by Ivan Bunin and some stories and poems by younger writers. (G. St.)

**Russian S.F.S.R.:** see UNION OF SOVIET SOCIALIST REPUBLICS.  
**Ruthenia:** see CARPATHO-UKRAINE.

**Rye.** The 1945 rye crop in the United States was estimated at 27,823,000 bu. compared with 25,872,000 bu. produced in 1944, and a prewar average of 41,434,000 bu. in 1934-43. The acreage for harvest was 2,096,000 ac., or 7% less than the 2,254,000 ac. harvested in 1944, and the average of 3,379,000 ac. 1934-43. The yield was above the average being 13.3 bu. per acre compared with 11.9 bu. in 1934-43. The shift from rye- to wheat-growing continued the trend that began ten years before. The season was generally favourable for the

U.S. Production of Rye in Leading States, 1945 and 1944

State	1945 bu.	1944 bu.	State	1945 bu.	1944 bu.
South Dakota . . .	4,495,000	4,508,000	Kansas . . . . .	788,000	987,000
Nebraska . . . . .	4,472,000	3,444,000	Colorado . . . . .	780,000	527,000
North Dakota . . .	2,418,000	1,920,000	Pennsylvania . . .	713,000	735,000
Minnesota . . . . .	1,815,000	1,221,000	Missouri . . . . .	660,000	600,000
Wisconsin . . . . .	1,261,000	1,000,000	Illinois . . . . .	588,000	724,000
Indiana . . . . .	1,112,000	1,080,000	Ohio . . . . .	558,000	608,000
Oklahoma . . . . .	1,064,000	1,520,000	Kentucky . . . . .	550,000	616,000
Michigan . . . . .	900,000	949,000	Virginia . . . . .	462,000	635,000

crop except in Texas and New Mexico where droughts reduced yields. (J. C. Ms.)

**Saar.** The Saar is an industrial and mining district on the border of France and Germany. Area: 738 sq.mi., of which 574 sq.mi. were part of the Prussian Rhine province and 164 sq.mi. part of the Bavarian Palatinate. Pop. 770,000. According to the Treaty of Versailles Germany ceded to France the 31 coal mines in the territory as compensation for the destruction of the coal mines in northern France. The territory was administered by the League of Nations from 1920 until 1935 when, according to the provisions of the Treaty of Versailles, a plebiscite was held which decided with an overwhelming majority for the return of the territory to Germany. The large majority of the voters were working-class people of the Roman Catholic faith; the German government which they desired to join was the National Socialist administration of Chancellor Hitler. France received 900,000,000 francs compensation for the relinquishment of the mines.

In 1945 the Saar territory was under French occupation. The French government pressed for a delineation of Germany's western frontiers and were opposed to a return of the Saar under a central German administration. (H. Ko.)

**Sabotage:** see FEDERAL BUREAU OF INVESTIGATION.

**Safety:** see ACCIDENTS.

**St. Christopher:** see WEST INDIES, BRITISH.

**St. Croix:** see VIRGIN ISLANDS.

**St. Helena and Ascension Islands:** see BRITISH WEST AFRICA.

**St. John:** see VIRGIN ISLANDS.

**St. Kitts-Nevis:** see WEST INDIES, BRITISH.

**St. Louis.** Eighth largest city of the United States, St. Louis, Mo., had a population of 816,048 by the federal census of 1940, with an additional 541,567 persons living within the greater metropolitan area. Mayor (Jan. 1, 1946): Aloys P. Kaufmann (Rep.)

A landslide municipal election on April 3, 1945, elected every Republican candidate for city office except one, and carried Mayor Aloys P. Kaufmann to a second term by a record majority of 108,654 votes to 54,512 votes.

In violation of the rules, 860 of the 2,300 eligible members of the police department organized a union. The board of police commissioners tried and dismissed the two leaders, and as 1945 ended a court test of the union's legality was in prospect.

The city was starting work slowly on a \$43,427,000 postwar public improvement program voted in 1944. Condemnation proceedings began to acquire a 4,000-ac. tract for a new airport and ground was purchased to increase existing Lambert-St. Louis municipal airport from 1,060 to 1,400 ac.

A midyear survey showed contracts awarded St. Louis area firms from the start of the national defense program totalled \$2,500,000,000. During the first 11 months of 1945, 52 new industries were started and 142 expanded, representing a capital investment of \$24,770,446.

After administering the archdiocese of St. Louis for 42 years, Archbishop John J. Glennon was appointed to the College of



Cardinals by Pope Pius XII on Dec. 23, 1945.

The municipal government maintained its enviable financial position, beginning the 1945-46 fiscal year (April 9, 1945) with a \$3,145,275.29 surplus. Bonded debt was \$49,296,000; valuation of real and personal property, \$1,093,968,700; tax rate (city, state and school), \$2.75 on \$100 valuation. During the 1944-45 fiscal year the city treasury received \$46,585,427.21, paid out \$41,611,727.26. Budget appropriation for 1945-46 was \$36,006,172.98. (E. L. R.)

**St. Lucia:** see WEST INDIES, BRITISH.

**St. Pierre and Miquelon:** see FRENCH COLONIAL EMPIRE.

**St. Thomas:** see VIRGIN ISLANDS.

**St. Vincent:** see WEST INDIES, BRITISH.

**Salazar, Antonio de Oliveira** (1889- ), Portuguese statesman, was born at Santa Comba Dão (Coimbra) on April 28, 1889. In 1916 he became professor of economics at Coimbra university. Shortly after the revolution of May 1926 the Portuguese president, General António Oscar de Fragosa Carmona, invited him to join the government as finance minister; he accepted the post, but, finding himself unduly restricted, resigned within a week. Less than two years later, after stipulating that complete freedom within his department should be given him, he resumed office on April 27, 1928. In 1930 Dr. Salazar founded the civil organization known as the National union. On July 5, 1932, he became president of the council of ministers; in the following year the new corporative constitution of the Portuguese republic was submitted to the country in a plebiscite and a national assembly elected. In 1936 Dr. Salazar assumed the portfolios of war and foreign affairs. In Sept. 1944, in drastically remodelling his government, he handed over the war portfolio to a former under-secretary in the department, but retained the portfolio of foreign affairs.

On May 18, 1945, Dr. Salazar made a notable speech to the national assembly justifying Portuguese neutrality in World War II *vis à vis* the Anglo-Portuguese alliance. "It is at times," he observed, "a great favour to be quiet, provided one is vigilant and faithful; and it cannot be disputed that it served a positive interest of the Allied nations for us not to have become involved in the conflict." He went on to stress the desire of the government to collaborate in the postwar world, and forecast possible modifications of the constitution and the national assembly. He strongly affirmed the truly democratic character of his form of government, "if democracy, in addition to its political significance, may have a social significance and foundation."

In Oct., 1945, Dr. Salazar permitted the creation of political parties other than his own, that of National Union, and announced general elections for Nov. 18. (See PORTUGAL.)

(E. A. P.)

**Sales, Retail and Wholesale:** see BUSINESS REVIEW.

**Saliege, Jules-Geraud** (1870- ), cardinal archbishop of Toulouse, was born at Mauriac, France, on Feb. 24. He was ordained in 1895. He taught mathematics and theology, and received an army citation as chaplain in World War I. Consecrated bishop in 1926, he was named archbishop of Toulouse in 1928.

His episcopate was distinguished by a profound social action among apostolate and the working classes. During World War II, in the midst of a German-ordered mass manhunt for Jews, he issued a pastoral read in all churches in the archdiocese denouncing racial persecution. Arrested by the Germans, he was released because of advanced age and ill-health and was permitted to remain in his archbishopric.

Named to the Sacred College of Cardinals according to an announcement of Dec. 23, 1945, he was created and proclaimed cardinal on Feb. 18, 1946.

**Salt.** Despite cutbacks in the war program, the output of salt in the United States rose from 15,214,152 short tons in 1943 to 15,717,171 tons in 1944, including 3,448,238 tons of rock salt, 3,942,621 tons of evaporated salt, and 8,326,312 tons of salt in brine. Even with this quantity available, demand constantly crowded supply. War demand increased many uses and created some new ones. The 1944 output was 57% greater than that of 1939, and many postwar readjustments were in prospect as the industry returned to normal civilian supply.

In Canada, 1944 production also reached a new high, at 695,217 short tons, as compared with 687,686 tons in 1943, but dropped back to 678,000 tons in 1945. (G. A. Ro.)

**Salten, Felix** (1869-1945), German writer, was born Sept. 6 in Budapest, of Jewish parents. He was drama critic of the Viennese paper, *Neue Freie Presse*, and he wrote the German version of *Abie's Irish Rose*, produced in Vienna in 1927 by Max Reinhardt. German critics found the translation an excellent one in which very little of the original humour was lost. A prolific writer, Salten produced numerous novels, essays and plays. His first great success *Bambi* was translated into English, 1932, and became a classic of animal life. The work was further popularized by Walt Disney's motion picture of the same name. Salten fled from Austria during the Hitler invasion and went to live in Switzerland. Other of his works are *Die Kleine Veronica* (1903); *Neue Menschen auf Alter Erde* (1925); *The Hound of Florence* and *Fifteen Rabbits* (1930); *Samson and Delilah* (1931); *City Jungle* (1932); *Florian, the Emperor's Stallion* (1934); *Perri* (1938); *Bambi's Children* (1939); *Renni, the Rescuer* (1940) and *Good Comrades* (1942). He died in Zurich, Oct. 8.

**Salvador, El.** A republic on the west coast of Central America, the only one without a Caribbean littoral. It is the smallest Central American state but the most densely populated (area, 13,176 sq.mi.; pop. 1,880,000 by 1943 off. est.). The capital is San Salvador (1943 est. pop. 107,813); other cities are Ahuachapán (13,636), Cojutepeque (15,095), Nueva San Salvador (formerly Santa Tecla) (24,016), San Miguel (18,945), San Vicente (13,330), Santa Ana (46,806), Sonsonate (17,320). Language, Spanish; religion, Roman Catholic. Presidents in 1945: General Osmín Aguirre y Salinas (provisional) and General Salvador Castañeda Castro.

**History.**—A presidential election was scheduled for three days starting Jan. 14, 1945, with several candidates in the field on Jan. 1. All withdrew before the election date, however, with the exception of General Salvador Castañeda Castro who was classed as the administration candidate. The election was held in spite of the withdrawal of opposing candidates, with Castañeda Castro reportedly receiving 312,754 votes. On Feb. 19 the Aguirre administration was recognized by several nations including the United States; representatives of El Salvador were not admitted to the Chapultepec conference, however, until Castañeda Castro assumed office on March 1.

A general amnesty was decreed shortly after the inauguration of the new president. A national assembly started preliminary meetings Feb. 1 and a regular session on Feb. 15; it later took up consideration of constitutional revision. In the last week in November an amended version of the constitution of 1886 became the national charter, replacing the constitution of 1939. Among amendments was one prohibiting re-election of the chief executive at the end of his four-year term.

A cabinet reorganization involving four portfolios took place on Oct. 8. Plots to unseat the government were reported on several occasions during the year, and one revolt, which included an attempt to bomb police barracks from an aeroplane, was suppressed in June. A state of siege was declared (June 11) and several leaders were arrested and some persons exiled.

The government announced on May 21 that relations with the soviet union would be established, although no envoy would be sent at the time for reasons of economy. The United Nations charter was ratified July 12. President Castañeda Castro held meetings during the summer with President Arévalo of Guatemala, with the objective of eliminating barriers between the two nations as a first step toward eventual union of the several Central American nations. A protocol signed later in the year according to press reports eliminated certain restrictions on commerce and provided for co-operation in cultural fields.

Little information on economic developments in El Salvador in 1945 were made public.

**Education.**—Primary schools (1941) numbered 1,330, with an enrolment of 89,792; intermediate schools numbered 58, with an enrolment of 3,309. The national university had 506 students. The 1944 budget allowed 2,397,552 colones for education (1943: 2,246,000 colones).

**Finance.**—The monetary unit is the colón, valued in 1945 at 40 cents U.S. The 1945 budget estimated revenue at 31,665,262 colones, and expenditures at 31,561,336 colones. Bank notes in circulation on Oct. 31, 1945, were estimated at 43,769,000 colones.

**Trade and Resources.**—Imports for the first 10 months of 1945 were valued at 9,172,000 colones (for the same period in 1944: 7,885,000 colones); exports were valued at 1,743,000 colones (for the same period in 1944: 4,224,000 colones). Coffee exports for the quota year ending Sept. 30, 1945, amounted to 997,589 bags of 60 kg. each (1943-44: 1,043,864 bags). Gold production for 11 months of 1944 amounted to 23,110 troy oz.; silver output to 276,284 troy oz.

**Communication.**—Railways were estimated at 375 mi., with two roads in operation. All-season highways totalled 1,378 mi. in length, with an additional 2,300 mi. of unimproved roads. Air service was supplied by T.A.C.A. and Pan American Airways.

**BIBLIOGRAPHY.**—Dana G. Munro, *The Five Republics of Central America* (1918); Chester Lloyd Jones, *The Caribbean Since 1900* (1936); *Foreign Commerce Weekly* (Washington).

**FILMS.**—*Central America* (Encyclopædia Britannica Films Inc.). (D. Ro.)

**Salvation Army.** The Salvation Army carried religious and social services to approximately 225,000,000 servicemen and women on 26 fighting fronts during World War II. War urgency needs were met by 3,000 Red Shield clubs, often improvised huts established on beachheads, in jungles and in desert outposts. In the U.S., Salvation Army clubs and those operated through the U.S.O. provided personal and accommodation services including mending, wrapping and mailing packages, checking valuables, emergency transportation, financial and legal aid, sleeping accommodations, voice recordings and home hospitality. Salvationists visited approximately 595,000 wounded and sick servicemen in hospitals.

By late 1945, 1,000 mobile canteens had travelled a distance equivalent to four times around the world. Many mobiles were equipped with library, radio set, film projector, record player, and could serve 4,600 men on one trip. Twenty-three Salvation Army mobile units were attached to the invasion army in France. An auxiliary service to the global land Red Shield canteens was provided in Australia by a motor launch which met sea and land convoys and visited remote outposts on island rivers.

Among later war-related developments were included: a home

in France for children whose parents could not be found; a refugee boys' home and "Warphanage" in China; soldiers' and sailors' rest homes in South America and the middle east; homes for evacuees, demolition crews and moving units in England after bombings; grocery stores in Canada for stranded families in war boom towns; dining rooms serving meals to war workers' children; restaurants in Belgium for refugees; hostess houses throughout the U.S. for families and friends of enlisted men.

Evangelical work on the fighting fronts was adapted to circumstances and location. Religious guidance and consolation were given all individuals requesting them, regardless of creed, race or colour.

The regular network of rehabilitation services continued in 1945 to minister in practical ways to emergency needs of humans.

The year 1945 was marked in the U.S. by a national spiritual campaign; intensification of youth activities; increased war service emphasizing aid to veterans in adjusting to civilian life. The co-ordination of the work was directed by Commissioner Donald McMillan, national secretary, national headquarters, New York city. (See also CHURCH MEMBERSHIP.)

(D. Mn.)

**Samoa, American.** A group of islands in the South Pacific, a U.S. possession by virtue of a tripartite treaty with Germany and Great Britain regulating the disposition of the Samoan archipelago, concluded in Nov. 1899. Area, 76 sq.mi. Pop. (1940) 12,908. The capital is Pago Pago, on the island of Tutuila. There are six inhabited islands, Tutuila, Aunuu, Ofu, Olosega, Tau and Swains. There is also an uninhabited coral atoll, Rose Island, located 70 mi. east of its nearest neighbour.

American Samoa is governed by a naval officer, commissioned as governor by the president. There is a native governor in each of the three administrative divisions; these native governors appoint the county chiefs, who select the village chiefs. The natives are of Polynesian stock and more than doubled in numbers during the period of U.S. rule. There were 36 public schools with an enrolment of about 3,000, and 6 private mission schools in 1943.

The chief product of American Samoa is copra, of which about 1,100 tons are exported annually. Taro, breadfruit, yams, pineapples, oranges and bananas are produced commercially. The government handles the crop for the natives. The budget for 1939 called for an expenditure of \$127,317; the estimated income was \$106,231.

Construction of a naval air base at Pago Pago began in 1940. Information about American Samoa was restricted because of the need for military secrecy, but it is known that, especially during the first phase of the war in the Pacific, it was a valuable communications link, located as it was almost midway between Hawaii and Australia.

(W. H. Ch.)

**Samoa, Western:** see MANDATES; PACIFIC ISLANDS, MANDATED.

**Sand and Gravel.** The continued decline in building activity in 1944 reduced the demand for sand and gravel in the United States to the prewar level. The output of sand dropped from 82,053,000 short tons in 1943 to 68,978,000 tons in 1944, and of gravel from 152,011,000 tons in 1943 to 125,805,000 tons in 1944. While construction uses for sand declined, most types of industrial use increased.

The production of sand and gravel in Canada decreased from 25,744,469 short tons in 1943 to 24,941,950 tons in 1944.

(G. A. Ro.)

**Sandstone:** see STONE.

## San Francisco.

San Francisco, Calif., had a resident population of 827,400 on Aug. 1, 1945, according to the special U.S. census and ranked about 10th among United States cities, whereas in 1940 it was 12th with a population of 634,536. Although the population increase during the period amounted to 192,864 or 30.4%, the total number of dwelling units of 235,329 increased but 7.3%, producing an extremely tight housing situation with little immediate relief in sight. Mayor in 1945: Roger D. Latham.

Persons employed in San Francisco as World War II ended in 1945 were estimated at 400,000 compared with 380,000 in 1944 and 271,000 in 1940. As the year ended there were several thousand unfilled employment opportunities in San Francisco in special fields for skilled workers and clerical workers with specialized training. However, the unemployment claims were about double the opportunities.

Substantial developments in the bay area during 1945 resulted in the attainment of new highs in several fields of activity in San Francisco including financial transactions, postal receipts, retail sales, airport traffic, real estate sales and utilities. San Francisco bank debits for 1945 were approximately \$21,200,000,000 or about \$1,500,000,000 more than 1944, while bank clearings for 1945 amounted to \$15,744,000,000 compared with \$14,835,000,000 in 1944, or an increase of 6%. Retail sales in San Francisco for 1945 were estimated at \$840,000,000 or about \$76,000,000 more than 1944. Wholesale sales rose to an estimated total of \$3,043,000,000 or \$60,000,000 more than 1944. Real estate sales in San Francisco toward the end of 1945 established a new all-time monthly high breaking a 20-year record made in March 1925.

Cumulative reports for the first 11 months of 1945 revealed increases over the same period of 1944 in building permits of 135% in number and 130% in value, the real estate sales value 39%, department store sales 13%, financial transactions 7.6%, airport plane traffic 168%, passengers 75%, air mail loaded 118%, electrical energy sales 9%, industrial and commercial gas sales 12%. At the same time commercial failures shrank to an all-time low.

San Francisco's funded debt on June 30, 1945, was \$113,285,300, leaving an actual margin for future bond issues of \$101,226,297. Estimated revenues receivable during the 1945-46 fiscal year amounted to \$107,169,882 of which \$44,078,401 was from taxes. The total assessed valuation for the 1945-46 fiscal year was \$1,216,677,471; tax rate, \$4.83 per \$100 assessed valuation. Tax delinquency for the fiscal year ended June 30, 1945, was at an all-time low of 0.66% and the lowest in the U.S. among large cities. (R. B. Kr.)

**San Francisco Conference:** see UNITED NATIONS CONFERENCE ON INTERNATIONAL ORGANIZATION.

## San Marino.

An independent republic in northern Italy, 14 mi. southwest of Rimini by road. Area: 38 sq.mi.; pop. (Sept. 1939) 14,547. Chief town: San Marino. Executive power is exercised by regents two of whom are appointed every six months from the popularly elected grand council. Wine, cattle and building stone from the Mount Titano quarries are the chief exports.

Elections were held in March 1945 and out of a total of 60 seats, 18 went to the Communists, 18 to the Socialists and 4 to the Republican Democrats. The remaining 20 went to the Right Wing.

**Santo Domingo:** see DOMINICAN REPUBLIC.

**São Tomé:** see PORTUGUESE COLONIAL EMPIRE.

## Sapieha, Adam Stefan

(1867- ), cardinal archbishop of Cracow, Poland, was born at Krasieczyn, son of an ancient aristocratic family, on May 14. He made theological studies at Innsbruck and in Rome, and was ordained in 1893. Named bishop in 1911, he was elevated to archbishop in 1925 when Cracow became an archdiocese. He was president of Lwów Theological seminary from 1897, advisor to Vatican on Polish affairs from 1905, and president of "The Rock," Christian social organization, from 1904. In 1928 he reimbursed and reopened the Polish Church and Hospitium of St. Stanislaus in Rome, founded in 1578 by Cardinal Hosius.

He defiantly, in public, denounced nazism, fascism and communism. He refused to admit to the Cracow cathedral King Carol of Rumania while on an official visit because of the king's open concubinate. During World War II the archbishop's residence was termed a "fortress" by the populace because the nazis dared not invade it. In 1940 the archbishop locked the doors of the Wawel cathedral and personally retained the keys.

Nominated to the College of Cardinals according to an announcement of Dec. 23, 1945, he was created and proclaimed a cardinal at consistory on Feb. 18, 1946.

**Sarawak:** see BORNEO.

## Saskatchewan.

The central of the three prairie provinces of Canada, Saskatchewan was created a province in 1905, by the act of the Canadian parliament. The area is 251,700 sq.mi.; the population (1941 census) 895,992. The chief cities of Saskatchewan are as follows: Regina, the provincial capital (58,245); Saskatoon (43,027); Moose Jaw (20,753); Prince Albert (12,508); Weyburn (6,179). Local administration is in the hands of a provincial parliament composed of a lieutenant governor, an executive council, and a legislative assembly of 52 members. Saskatchewan is represented at Ottawa by 21 members of the house of commons and six senators.

**History.**—During 1945, the Co-operative Commonwealth Federation government continued in office. T. C. Douglas was provincial premier. On Nov. 21, the by-election in Wadena returned a C.C.F. member. As, however, the party held the seat previously, this did not alter the representation in the assembly: C.C.F. 47; Liberals 5; Active Service members 3. At the dominion elections on June 11, Saskatchewan returned the following members to Ottawa: C.C.F. 18; Liberals 2; Progressive Conservatives 1.

**Education.**—For the school session, 1941-42, the enrolment in all educational institutions was 223,097; total revenue for the provincially controlled schools in 1943 was \$13,673,798. The University of Saskatchewan, with its seat at Saskatoon, is the provincial university. Registration in the autumn of 1945 was 2,780.

**Agriculture.**—In 1944, the estimated gross value of agricultural production was \$624,608,000; farm income, \$503,300,000. In 1945, the wheat crop was estimated to be 158,000,000 bu. The value of field crops was \$295,223,000 (1944, \$448,894,000). For the first 50 weeks of 1945 the inspected slaughtering of livestock were as follows: cattle 161,276; calves 23,339; hogs 669,436; sheep 48,344. Indicative of the changing character of agriculture was the construction of a \$200,000 linseed oil plant in Saskatoon, the first unit of the \$2,250,000 industrial program of the Saskatchewan wheat pool. (J. I. C.)

**Saudi Arabia:** see ARABIA.

**Savings and Loan Insurance Corporation, Federal:** see HOUSING.



**Savings Banks:** *see* BANKING.

**Schwellenbach, Lewis Baxter** (1894– ), U.S. jurist and cabinet member, was born Sept. 20 in Superior, Wis. He was graduated from the University of Washington, Seattle, Wash., in 1917 with an LL.B. degree and served with the U.S. army as a private during World War I. After the war, he returned to Washington where he was admitted to the bar in 1919. He became active in Democratic state politics, and in 1934 was elected to the U.S. senate. During his tenure, Sen. Schwellenbach supported the administration in both its domestic and foreign policies. He voted for the wage-hour law and the Wagner acts, and was also a member of the La Follette civil liberties committee. He resigned from the senate in Dec. 1940 to become federal judge of Washington state, eastern district. President Truman named him secretary of labour, May 23, 1945, and his appointment was approved by both the A.F. of L. and the C.I.O. He assumed office on June 30. He endorsed, Sept. 25, the theory of raising the minimum wage law to 65 cents an hour, asserting that the resulting wage increases would not register an appreciable effect on the costs of production, and urged the senate to provide legislation to this end. Schwellenbach also declared himself, Oct. 29, in favour of equal pay for women and advocated legislation banning pay differentials because of sex. He was occupied with numerous labour problems in the latter half of 1945, including the oil and automobile industry strikes and a threatened steel walkout.

## Scientific Research and Development,

**Office of.** The Office of Scientific Research and Development (OSRD) was created in the Office for Emergency Management (*q.v.*) by executive order 8807 of June 28, 1941. Dr. Vannévar Bush of the Carnegie institution of Washington was appointed director. Within the OSRD were set up the National Defense Research committee (NDRC) and the Committee on Medical Research (CMR), the former to assist the director of the OSRD in the mobilization of the scientific personnel and resources of the U.S. on instruments of warfare, and the latter to advise and assist with special reference to the medical personnel and resources of the U.S. An Office of Field Services (OFS) was established within OSRD to facilitate the introduction of OSRD-developed equipment into actual military operations. The NDRC operated as a committee of the Council of National Defense from June 27, 1940, until June 28, 1941, during which time it entered into a number of contracts which were assumed by the OSRD.

During the period from July 1940, to the cessation of hostilities with Japan, OSRD entered into contracts totalling more than \$500,000,000 principally for the development of new weapons for the armed services. After the cessation of hostilities most of these contracts were terminated; and by the end of 1945 only a few remained active for a limited amount of basic research. Among the most spectacular developments released in 1945 in which OSRD played a leading part were the atomic bomb and the proximity fuse. In a report to the house of representatives, the committee on appropriations wrote of OSRD on Oct. 17, 1945: "The contribution that it has made to the winning of the war is inestimable. Without such contribution, it is safe to say that victory still would await achievement."

(I. St.)

**Scotland:** *see* GREAT BRITAIN AND NORTHERN IRELAND, UNITED KINGDOM OF.

**Scrap:** *see* SECONDARY METALS.

**Sculpture.** Sculpture, like the other arts, during the year 1945, continued to reflect the unsettled state brought upon it by World War II, with its inevitable curtailments of production and promotion facilities. During the final swing toward victory, however, an effort was made toward restoring clarity and direction through forward-looking planning on the part of groups as well as individuals. Distinguished work was done by conservatives in the trend of the great traditions of early sculpture, notably by sculptors working in the field of monuments and memorials. Through the fortunate continuance of these projects artists were engaged to commemorate figures of national importance, and to employ sculpture as the focal point of planned public areas in cities. Sculptors such as Sir William Reid Dick, who was engaged on an equestrian statue in 1945, and Paul Manship, who was active in producing reliefs of new importance, gave impetus through their work to the survival of public sculptural works.

This field, however, was not without criticism in relation to the discussion of future war memorials, with the hope, as was expressed in various quarters, that careful consideration be given them by specialists and high standards maintained. One block of sentiment was heard to advocate practical educational and utilitarian memorials, in which sculpture played a part, in preference to statues of an indiscriminate and traditionally sentimental character.

Sculpture in the forms most generally exhibited continued to manifest the contrasts developed throughout late years. A large body of sentiment favoured work done in a style which, though influenced by historical traditions, was yet developing along lines of lively vitality. Large displays of sculpture thus continued in 1945 to be predominantly naturalistic in their interpretations of sculptural ideas. In another and diverse style the revolt against tradition was advanced by an increasing number of talents, led by outstanding and very popular artists such as Jacques Lipchitz, Henry Moore, José de Creeft and Ossip Zadkine. These artists explored the possibilities of expressing themselves and the age by drastic simplification of forms or by abstract shapes, often imaginative or surrealistic in their symbolisms, which bore little or no relationship to nature. Moore, in England, was still one of the chief exponents of work with this outlook, although an important 1945 work of his showed an interesting departure on more traditional lines. Whereas Lipchitz, one of the U.S. refugees from France, proved a favourite of the *avant-garde* by his resourceful and vigorous mythological works based on South American primitive folklore.

Preoccupation with simplicity, volume, mass and a restricted formalization of the human figure—all strong manifestations of the interest of youth before World War II, fell off in consequence no doubt of the depletion of the ranks of young sculptors who were drawn into the armed services. Whether this trend would revive in its former state when many returned to their former occupations appeared to be a subject for the future to determine. Meanwhile, popular with an increasing number of sculptors was the matter of materials which were susceptible to new sculptural effects. Not only did artists carve directly in stone or wood with increased appreciation of a greater variety of mediums, but others adopted sheet iron and steel to manipulate imaginatively with few preliminary models or none.

Sculpture requires practical encouragement, and in the last year of the war patronage was far from substantial. Artists assumed the responsibility, however, of making presentations of their work which in many cases were generously appreciated. Transportation problems, labour and other important factors tended to restrict the holding of special, large-scale sculpture shows. With reconversion, materials and instruments of the profession were expected to increase the facilities to a large extent



JACOB EPSTEIN, photographed in 1945 with an almost completed sculpture of Ernest Bevin, then newly appointed British foreign secretary

denied to sculptors in 1945.

Another promise entertained during 1945 which bid fair to be achieved was the tendency to draw sculptors into collaboration with architects. Plans for memorials, in some areas, followed the custom of arranging competitions for teams of artists and architects, with the commendable purpose of unifying their activities. In other quarters there was the tendency to commission sculptors and craftsmen of repute to design and execute memorials in materials and in quality more fitting for cemeteries than the familiar markers which had so long disfigured them. (See also ART EXHIBITIONS.) (C. BU.)

**Seabees.** Following authorization of the first regiment on Dec. 28, 1941, the naval construction battalions, popularly known as the "Seabees," participated in every major amphibious operation of World War II, including the occupation of Japan and of Japanese-controlled areas in China.

At the end of the war, 83% of the 240,000 Seabees on active duty were serving overseas. Under the direction of the bureau of yards and docks and the immediate supervision of officers of the civil engineer corps of the navy, they built, operated and maintained more than 400 naval bases in outlying areas.

In 1942, the construction efficiency of the Seabees was estimated to be in the ratio of five to one as compared with that of Japanese construction troops. By 1945, the construction potential of the average Seabee battalion had been increased by 300%.

Seabees were among the first naval personnel to occupy Japan, detachments landing at Yokosuka naval base, Tokyo bay, prior to the formal surrender. Other units landed at Nagasaki and in Shanghai, China. In atom-bombed Nagasaki, the Seabees built new roads, a radio station, docking facilities, warehouses and oil storage and distribution stations. In Shanghai they provided base facilities for U.S. naval aviation.

The last major Seabee project of the war was the base at Okinawa. This was planned as the greatest single wartime construction undertaking in military history. Installations scheduled for Okinawa included 22 airfields and 1,100 miles of road.

Comparable construction was not possible at Iwo Jima, because of the small land area. The major assignment there was the construction of three airfields. The largest of these, called Central airfield, has one of the longest runways in the Pacific—9,800 ft. Serving as an emergency landing point for bombers unable to return to the Marianas after sweeps over Japan, Central airfield during the closing months of the war was used by more than 5,000 B-29s.

In the Philippines, Seabee construction projects mounted into the hundreds. Warehouses, hospitals, personnel structures, airfields, roads, harbours and fleet facilities were provided.

Marianas bases—Guam, Tinian and Saipan—taken in 1944 were completed by mid-1945. A major fleet anchorage was developed at Apra harbour. Vast networks of airfields were placed in operation on all three islands, and supply and staging area facilities expanded.

Seabee "special" battalions, trained in stevedoring operations, handled cargo at all of the advanced bases. Other Seabee bat-





DIVING SEABEES off Iwo Jima, going down in their water-proof skin-tight suits to hook up an underwater aviation gasoline pipeline to a coast guard manned tanker, so that it could refuel the Iwo airfield, captured in Feb. 1945

tations operated pontoon causeways and floating pontoon gear. A few were organized expressly for truck operation. Smaller detachments specialized in camouflage, automotive repair, operation of spare parts depots, demolition work, petroleum supply and fog generation. The use of artificial fog as a protective screen saved thousands of lives and many ships at Okinawa.

Seabee maintenance units, a quarter of a battalion in size, took over the operation and supervision of public works and utilities at advanced bases after major construction had been completed, freeing full battalions for other assignments.

When bases were no longer needed, maintenance units were assigned the job of closing them down. Eventual "roll-up" of many bases was anticipated even before landing operations were launched. Equipment and installations were planned so that they were 90% salvageable for future use. (B. ML.)

**Seabrook, William Buehler** (1886–1945), U.S. author and explorer, was born Feb. 22 in Westminster, Md., the son of a Lutheran minister. He was a student at Roanoke college, Salem, Va., and later received the Ph.B. and A.M. degrees from Newberry college, Newberry, S.C., in 1905 and 1906 respectively. He worked for a time on a Georgia newspaper and then went to Europe where he did free-lance writing while studying philosophy at the University of Geneva, Switzerland. He returned to the United States, remaining in Atlanta from 1909 to 1915. In the latter year, he went overseas to join the French army. Gassed at Verdun, he was invalided out of the service with a *croix de guerre*. After the war, Seabrook matured as a writer of distinction. He had that rare gift of creating exceptional excitement and interest in his writing. In 1924 he went to Arabia, lived among the nomadic desert tribes and wrote his observations and experiences in *Adventures in Arabia* (1927). His second book, *The Magic Island*, describing his experiences among Haiti's voodoo worshippers, was a Literary guild choice in 1929. In *Jungle Ways* (1931), Seabrook related how he ate a cannibal meal of human flesh in the Liberian jungles. Then he wrote *Air Adventure* (1933) and *The White Monk of Timbuctoo* (1934). In 1934, Seabrook had himself committed to an institution in a New York suburb where he took a cure for alcoholism. He gave an account of his experiences in *Asylum* (1935), a best-seller. Among his other works are *These Foreigners* (1938), a drama-

tized survey of the American melting pot; *Witchcraft* (1940) and *No Hiding Place* (1942), an autobiography. He died Sept. 20 at his farm home near Rhinebeck, N.Y., from an overdose of sleeping tablets, according to the local medical examiner.

**SEC:** see SECURITIES AND EXCHANGE COMMISSION.

**Secondary Education:** see EDUCATION.

**Secondary Metals.** Data on the recovery of secondary metals in the United States is shown in the table; it should be pointed out, however, that the total recoveries shown do not represent metal brought back from the pool of metal in use, as large amounts of fabrication scrap are included, much of which is new metal that has never been in use.

#### Secondary Nonferrous Metals Recovered in the United States

	1940	1941	1942	1943	1944
<b>Copper—Thousands of short tons</b>					
As metal . . . . .	170.8	135.9	114.6	137.9	102.1
In alloys . . . . .	351.8	580.7	795.6	935.1	835.4
In chemical compounds . . . . .	9.4	9.8	17.5	13.0	13.4
Total . . . . .	532.0	726.4	927.8	1,086.0	950.9
Percentage* . . . . .	53–63	2–57	2–46	2–39	2–48
<b>Lead—Thousands of short tons</b>					
As metal . . . . .	59.6	75.3	68.6	58.3	55.0
In alloys . . . . .	200.8	322.1	254.4	283.8	276.4
Total . . . . .	260.3	397.4	323.0	342.1	331.4
Percentage* . . . . .	33–87	2–96	2–79	2–83	2–88
<b>Zinc—Thousands of short tons</b>					
As metal . . . . .	69.0	89.7	81.4	78.9	79.5
In alloys . . . . .	112.3	143.2	215.7	257.9	229.2
In chemical compounds . . . . .	40.8	48.5	33.4	31.6	36.8
Total . . . . .	222.0	281.4	330.5	368.5	345.5
Percentage* . . . . .	31–29	2–39	2–24	2–23	2–33
<b>Tin—Thousands of short tons</b>					
As metal . . . . .	5.1	5.9	5.8	5.2	4.2
In alloys . . . . .	26.5	35.0	31.8	32.3	28.0
In chemical compounds . . . . .	0.7	1.1	0.3	0.3	0.4
Total . . . . .	32.2	42.0	37.9	37.8	32.6
Percentage* . . . . .	44–62	2–70	?	?	2–66
<b>Aluminum—Thousands of short tons</b>					
As metal . . . . .	5.6	8.3	14.1	5.9	2.3
In alloys . . . . .	74.7	97.6	182.7	306.8	321.7
Total . . . . .	80.4	106.9	196.8	312.7	324.0
Percentage* . . . . .	41–57	2–41	2–21	2–11	2–7
<b>Magnesium—Thousands of short tons</b>					
Total (in alloys) . . . . .	?	1.7	6.2	11.4	14.2
Percentage* . . . . .	?	2–1	2–1	2–1	2–1
<b>Nickel—Thousands of short tons</b>					
Total . . . . .	5.2	5.3	4.1	6.9	4.3
Percentage* . . . . .	6–46	2–40	2–42	2–27	2–51
<b>Antimony—Thousands of short tons</b>					
Total . . . . .	11.4	21.6	18.2	15.5	15.9
Percentage* . . . . .	60–98	2–99+	2–99+	2–99+	2–99+
<b>Platinum—Thousands of troy ounces</b>					
Total . . . . .	47.7	37.5	56.2	68.6	94.8
O.P.M.†—Thousands of troy ounces . . . . .	18.8	14.1	20.5	33.0	37.1
Gold—Thousands of troy ounces . . . . .	7,964	8,850	8,136	3,006	7,337
Silver—Thousands of troy ounces . . . . .	22,564	20,361	30,021	44,113	56,189

\*Ratio of secondary recovery to consumption of new metal; where a second figure appears, this is the percentage of the total secondary metal recovered from old materials the remainder having come from the reworking of new plant scrap.

†Other platinum group metals.

The passing of the peak of World War II demand for metals is clearly reflected in the reduced recoveries of secondary metals, and the increased percentages of recovery made from old scrap. Recoveries from new plant scrap declined appreciably.

During the first nine months of 1945 dealers' receipts of nonferrous scrap totalled 772,064 short tons, and shipments in the same period were 773,733 tons, with a corresponding reduction in stocks. These figures compare with receipts of 771,789 tons and shipments of 753,521 tons in the first three quarters of 1944, and receipts of 1,030,262 tons and shipments of 991,398 tons in the full year.

In 1944 there was a small decline in consumption of ferrous scrap in the U.S., to 61,349,201 short tons, against 61,650,956 tons in 1943. The 1944 total included 35,426,349 tons of plant scrap and 25,922,852 tons of purchased scrap. The make-up of steel furnace charges showed little change; plant scrap content rose from 28.7% in 1943 to 29.0% in 1944, while purchased scrap dropped from 21.8% to 21.2%, the total declining from 50.5% to 50.2%. The sudden ending of the war with Japan brought an abrupt change in consumption in 1945, already declining after the close of hostilities in Europe. Average consumption during 1944 was 2,952,000 tons of plant scrap and 2,160,000 tons of purchased scrap monthly; during the first seven



months of 1945 these averages in tons were 2,520,000 and 2,000,000 respectively, dropping to 1,937,000 and 1,625,000 in Aug. 1945. Consumption during the first eight months of 1945 was 20,187,000 tons of plant scrap and 15,627,000 tons of purchased scrap, a total of 35,814,000 tons, 12% below the average rate for 1944.

(G. A. Ro.)

**Second World War:** *see* WORLD WAR II.

## Secret Service, U.S.

Secret service agents of the treasury department mapped and executed security plans to protect President Franklin D. Roosevelt at the "Big Three" conference at Yalta and President Harry S. Truman at Potsdam. Agents were also with President Truman at the United Nations conference in San Francisco and safeguarded the signed charter until its delivery to the state department June 28, 1945. Protection was extended by the secret service to distinguished visitors, including Prime Minister Winston Churchill, the earl of Athlone, governor general of Canada, Sergio Osmeña, president of the Philippines, Madame Chiang Kai-shek of China, Princess Juliana of the Netherlands, and Norway's Crown Prince Olaf, Princess Martha and their children.

In 1945, the secret service uniformed force protected \$232,657,030,473 in money, stamps, bonds and other government securities in transit, and another \$285,000,000,000 in production and storage in Washington and Chicago.

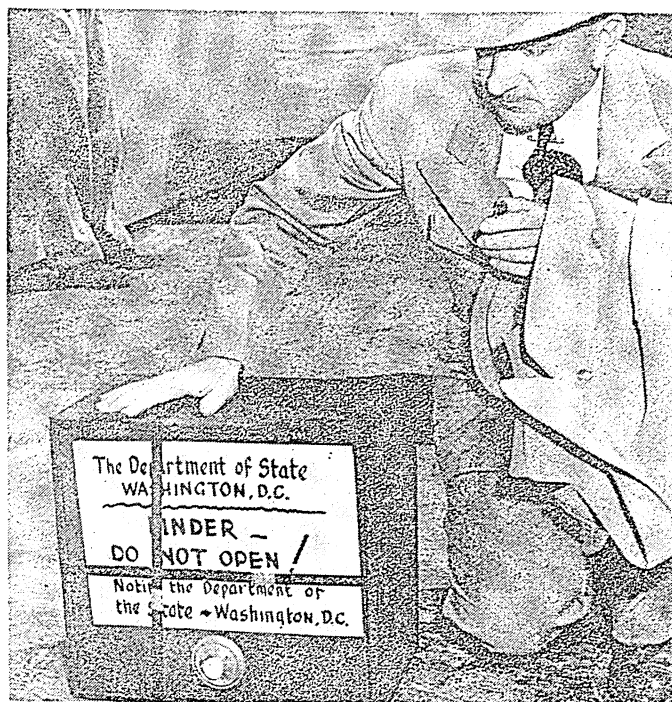
Counterfeiting was reduced to a point where it was not a serious menace and losses to the public through acceptance of counterfeits were held to a minimum. Total representative value of bogus bills and coins seized during the year was \$68,325, of which only \$28,852 represented losses to innocent victims. There were 58 persons arrested for counterfeiting.

Thefts and forgeries of government checks and war bonds were the principal secret service enforcement problems. Two plants for the production of counterfeit treasury checks were seized by agents before the counterfeiters succeeded in defrauding many merchants. There were 16,380 forged checks received for investigation and agents arrested 1,722 check thieves and forgers. Of these, 706 or about 41% were under 21 years of age. Special efforts were made in a "Know Your Endorser" campaign to prevent forgeries by minors by warning merchants to use extreme care in cashing checks for juveniles. In New York city alone, 31 juvenile forgers were arrested.

Forged and altered war bonds received for investigation totalled 2,587 and resulted in 241 arrests. In New York city the theft of \$2,125 worth of war bonds deprived the registered owner of support and necessitated his entry to a charity home before he submitted a claim for duplicate bonds.

There were 1,594 convictions for check forgery in the fiscal year 1945 as against 1,480 the previous year. Bond forgery convictions totalled 192 in 1945 as against 68 for the fiscal year 1944. Convictions for currency counterfeiting numbered 42 in 1945 and 54 in 1944. Convictions were obtained in 97.8% of the cases of all types which went to trial in 1945 as compared with 97.9% of cases tried in 1944. Fines in criminal cases in 1945 totalled \$126,713 and imprisonments totalled about 2,178 years. Additional sentences aggregating about 2,338 years were suspended or probated. There were 21,493 criminal investigations disposed of during 1945.

The secret service crime prevention program, which for several years had substantially reduced the financial losses suffered by the public, was actively continued in the "Know Your Money" and "Know Your Endorser" campaigns in accordance with the treasury department's effort to stimulate public respect for federal law and to secure the public's co-operative assistance in preventing crime by pointing to the stake which the honest



THE UNITED NATIONS CHARTER, completed in 1945, being transported from San Francisco, Calif., to Washington, D.C., under secret service protection in a 75-lb. fireproof safe

citizen has in the effort.

(F. J. W.)

**Securities:** *see* BUSINESS REVIEW; STOCKS AND BONDS.

## Securities and Exchange Commission.

The membership of this federal agency at June 30, 1945, consisted of the following: Chairman Ganson Purcell and Commissioners Robert E. Healy, Sumner T. Pike, Robert K. McConnaughey and James J. Caffrey. Commission headquarters were in Philadelphia, Pa.; regional offices were maintained in Atlanta, Ga., Baltimore, Md., Boston, Mass., Chicago, Ill., Cleveland, O., Denver, Colo., Fort Worth, Tex., New York, N.Y., San Francisco, Calif., and Seattle, Wash. The laws administered by the commission and its activities thereunder during the fiscal year ended June 30, 1945, are discussed below.

**Securities Act of 1933.**—Securities registered with the commission under this act during the fiscal year for public sale aggregated \$3,280,589,071, bringing the total of such securities to \$28,625,981,071. Through registration, disclosure is obtained of pertinent financial and other information upon which investors may determine whether to purchase securities being offered. Registration is not to be taken as a guarantee against loss, for the act contains no prohibitions against the sale of registered securities for lack of merit but imposes instead the requirement of truthful and adequate disclosure of facts upon which investors may determine their merits. The act also prohibits misrepresentation, deceit and other fraudulent practices, under penalty of fine, imprisonment or both.

**Securities Exchange Act of 1934.**—Under this act, which provides for disclosure of information concerning securities listed and registered on exchanges and for regulation of securities trading both on exchanges and in the over-the-counter market, there were registered with the commission on June 30, 1945: 19 national securities exchanges; 3,675 separate security issues of 2,185 companies listed upon exchanges; 4,046 individuals or firms doing a broker-dealer business in the over-the-counter markets; and one association of over-the-counter securities dealers. In addition to the disclosure of financial and other

information concerning listed securities, holders of such securities must be apprised of all relevant facts when their votes on corporate affairs are solicited. The commission has important powers of surveillance over securities trading practices in order to prevent fraud, manipulation and other conduct prohibited by the act. During the fiscal year, 16 individuals or firms were found by the commission to have violated provisions of the act, with the result of revocation of their registrations with the commission or their suspension or expulsion from membership in exchanges or the security dealers association. Actions of this nature to June 30, 1945, totalled 263.

**Public Utility Holding Company Act of 1935.**—In its regulation of the financing and related activities of registered public utility holding companies and their subsidiaries, the commission during the year ended June 30, 1945, passed upon the issuance of securities by these companies in the aggregate amount of \$1,308,641,520 as meeting standards prescribed in the act for protection of investors, consumers and the public; this brought the total of securities so approved to \$7,323,809,432. Insistence upon imposition of more conservative financing policies to meet the standards of the act operates to protect investors while at the same time improving the financial condition of the issuing companies.

Major readjustments in the composition of holding company systems to limit their operations to geographically integrated and economically co-ordinated units, and to simplify the corporate and capital structures of system companies and redistribute voting power among security holders on a fair and equitable basis were in progress during the fiscal year. As of June 30, 1945, the commission had approved 56 plans (in whole or in part) submitted voluntarily to accomplish these objectives of the act; and it had issued numerous other integration and simplification orders directing action to that end. To that date, nonretainable properties and interests divested from holding company systems aggregated approximately \$4,182,000,000; other properties the subject of divestiture orders aggregated \$3,500,000,000. In addition, holding companies with total system assets of \$3,850,000,000 were subject to liquidation and dissolution orders at June 30, 1945.

**Trust Indenture Act of 1939.**—Trust indentures covering debt securities in the principal amount of \$1,791,190,320 were qualified during the year ended June 30, 1945, as meeting the standards of this act, bringing the total of securities for which indentures had been qualified to \$6,137,318,058.

**Investment Company Act of 1940.**—On June 30, 1945, there were registered with the commission under this act 366 investment companies engaged in the business of investing and trading in securities. Their activities must conform to standards prescribed in the act for the protection of investors.

**Investment Advisers Act of 1940.**—Individuals and firms registered under this act as engaged in the business of advising others with respect to security investments numbered 783 as of June 30, 1945; their activities must conform to prescribed standards.

**Bankruptcy Act, Chapter X.**—In performance of its function under this act as adviser to federal courts in corporate reorganization cases under chapter X, the commission participated in 116 cases during the year ended June 30, 1945, and presented to the courts its analysis and views as to the fairness and feasibility of 63 plans of reorganization proposed in such cases.

**Enforcement Activities.**—In court actions instituted by the commission during the year ended June 30, 1945, to enjoin fraudulent or other unlawful activities in the purchase and sale of securities, 32 individuals and firms were permanently enjoined from continuing the acts and practices complained of;

this brought the total of persons so enjoined to 1,089. Indictments and convictions on charges of fraudulent securities transactions numbered 23 and 17, respectively; the 35 persons convicted brought the total of such convictions to 1,135. (See also STOCKS AND BONDS.) (G. PL.)

**Seeing Eye, The.** From 1928, when Morris Frank brought the first guide dog, Buddy I—bred and trained by Mrs. Dorothy H. Eustis and Elliott S. Humphrey in Switzerland—to pass the test of New York street traffic, the Seeing Eye in the U.S. has every year come nearer its ambition to supply all capable blind persons with the independence and companionship a soundly educated dog gives. In 1945, 885 men and women relied upon such dogs. Seeing Eye provides dog guides to the war blind (happily fewer than feared), at no cost to the service men or the government; and Morris Frank, guided by Buddy I's successor, visited 94 army, navy and Veterans' administration hospitals to advise in the care of the newly blinded. Funds come from a membership of about 23,000 sympathetic people and from special gifts and legacies. Replacement of dogs (whose lives are shorter than ours) is guaranteed, so as not to let slip back into helplessness anyone whom a guide dog has once set free. The Seeing Eye, Inc., is at Morristown, N.J. Henry A. Colgate is president. (B. TA.)

**Seismology.** The year 1945, marking the end of hostilities over most of the world, was the signal for a general reorganization of seismological activities on a peacetime basis. Indicative of this was the first meeting after the beginning of World War II of the executive committee of the International Union of Geodesy and Geophysics in London in December to make future plans for its various affiliates, including the International Seismological association. In the United States, steady progress in seismological research continued and there was little disruption of routine observatory activities.

Earthquake activity was below normal. On Nov. 27, 4,000 persons were killed near Karachi, India, by a seismic sea wave from a submarine shock in the northern part of the Arabian sea. Several hundred were killed at Adana, Turkey, on March 20. The greatest shock of the year, as indicated by seismograph records, occurred near the Bismarck archipelago on Dec. 28. The outstanding shock in the United States occurred in open country about 40 mi. southeast of Seattle, Wash., and destroyed a few chimneys. Ground and air waves generated by the atomic bomb blast in New Mexico on July 16 were recorded on seismographs in many states.

The outstanding research development was the navy's successful use of seismographs to spot and track hurricanes from minute ground waves called microseisms which had long been known to be associated with barometric lows. The method was originally developed at St. Louis (Missouri) university.

An investigation of local earthquakes due to the water load at Boulder dam revealed that they occurred mostly on a fault system a short distance upstream from the dam. Reclassification of important earthquakes according to a magnitude scale based on instrumental records was advanced at the Pasadena Seismological laboratory. Records back to 1904 were being used. (See also DISASTERS.) (F. NN.)

**Selective Service, U.S.** Administration of the Selective Training and Service act during 1945 was marked by defeat of both Germany and Japan, but in January of that year the need of combat replacements was acute and, partly because of losses and a temporary military setback in Germany, calls for men from the armed forces, which had dropped down to considerably under 90,000 a month,



were raised with a view of obtaining 750,000 men by July of 1945.

On Jan. 1, 1945, the manpower picture, registrants 18 through 37, looked like this:

Total living registrants . . . . .	22,084,000
Class I-A . . . . .	797,000
(Note.—Class I-A figures include men being processed for preinduction physical examination, postponed inductions, appeals, etc.)	
Class I-A* . . . . .	3,000
(Note.—Men being processed for preinduction examination, etc., who, without local board approval have left employment for which they were deferred. SS Reg. 622.22-2)	
Class IV-F (rejected for military service) . . . . .	3,592,000
Unclassified . . . . .	61,000
Classes II-A and II-B (deferred in occupations other than agriculture) . . . . .	4,198,000
Classes II-A(L) and II-A(F), II-B(L) and II-B(F) (deferred in occupations other than agriculture and not qualified for general military duty) . . . . .	864,000
Classes II-C and III-C (deferred in agriculture) . . . . .	1,472,000
Classes II-C(L) and II-C(F) (deferred in agriculture and not qualified for general military duty) . . . . .	132,000
Class III-D (deferred as hardship cases) . . . . .	51,000
Class I-C (registrants who have become members of the armed forces) . . . . .	10,753,000
(Note.—Includes a substantial number who have been discharged or transferred to the reserves. Does not include registrants 38 years of age or over, women, or non-registered enlisted men, i.e., men enlisted at age 17, etc.)	
All other classes . . . . .	161,000

During the month of Jan. 1945, Selective Service took coordinated steps with other agencies to reduce the number of withdrawals from war industries for reasons other than induction in order to assist the procurement of men for the armed forces and simultaneously to keep the production of war munitions at a high level. Provisions were made generally tightening the requirements for deferments in the older age groups, particularly 26 through 29. This was necessary because there were insufficient men in the most desirable age group—below 26—to meet the calls placed on the local boards.

Local boards and appeal boards were furnished with what was known as the War Manpower commission's "List of Essential Activities," revised to specify those considered most critical, as a guide in determining selections for induction among the age group 26 through 29.

The local boards were also advised that such registrants, to the fullest extent possible, should be called in the following order:

- (1) Registrants not employed in an activity appearing on the essential activities list;
- (2) Registrants whom the local board found to be employed in relatively unimportant jobs in essential but not critical activities;
- (3) Registrants whom the local board found to be employed in relatively unimportant jobs in critical activities;
- (4) Registrants whom the local board found to be engaged in relatively more important jobs in essential activities;
- (5) Registrants whom the local board found to be engaged in more important jobs in critical activities.

If a replacement was available for a registrant, however, the local boards were informed that he should be classified as available for induction, regardless of his place in the list.

In Feb. 1945, the regulations were further revised, making a distinction in the standards for registrants 30 through 33 and those 34 through 37. The reason was that the supply of men in the group below 26 was virtually exhausted and the number 26 through 29 was extremely limited. Consequently, the revised regulations provided that a registrant 30 through 33, to be deferred, had to be "necessary to" as well as "regularly engaged in" an activity in war production or in support of the national health, safety or interest; while a registrant 34 through 37 need only be "regularly engaged in" such an activity.

Registrants in the age group 18 through 37 who left the employment for which they were deferred without the consent of their local board were classified as available for service.

The manpower pool on May 1, 1945, shortly before the defeat of Germany, is shown by the following table:



HOME FOR LEAVE and reassignment in 1945, a veteran of the European war hurries from a New York dock with his mascot in one hand and his lunch in the other

	Total	Per cent
Total living registrants (18 through 37) . . . . .	22,023,000	100.0
Class I-A . . . . .	1,024,000	4.6
(Note.—Includes men being processed for preinduction examination, postponed inductions, appeals, etc.)		
Class I-A* . . . . .	52,000	0.2
(Note.—Men being processed for preinduction examinations, etc., who, without local board approval, have left employment for which they were deferred)		
Class IV-F (rejected for military service) . . . . .	3,253,000	14.8
Class II-A and II-B (deferred in occupations other than agriculture, most of whom have not had physical examination) . . . . .	3,451,000	15.7
Classes II-A(L), II-A(F), II-B(L), and II-B(F) (deferred in occupations other than agriculture and not qualified for general military service) . . . . .	1,325,000	6.0
Classes II-C and III-C (deferred in agriculture, most of whom have not had physical examination) . . . . .	1,297,000	5.9
Classes II-C(L) and II-C(F) (deferred in agriculture and not qualified for general military service) . . . . .	241,000	1.1
Class III-D (deferred as hardship cases) . . . . .	46,000	0.2
Unclassified . . . . .	60,000	0.3
Class I-C (registrants who have become members of the armed forces) . . . . .	11,119,000	50.5
(Note.—Includes registrants discharged or transferred to the reserves. Does not include registrants 38 or over, women or non-registered enlisted men, i.e., men enlisted at 17, etc.)		
All other classes (includes public officials, ministers and divinity students, conscientious objectors, and ineligible aliens) . . . . .	155,000	0.7

A reduction in calls came shortly after the defeat of Germany, but General Hershey reminded local boards that "the release of men who have fought long and well depends on sending others to fill their places" in summing up the changes in Selective Service policies which became effective May 23, 1945.

General Hershey described the objectives of the changes in policy in these words:

- (a) To continue to meet the calls of the armed forces;
- (b) To continue to defer for industry and agriculture the men they must have to carry on adequate production of munitions of war and food;
- (c) To resubmit for re-examination men under 26 who have been rejected for military service—especially those individuals who the local boards, their examining physicians, or the medical advisory boards believe can render military service;
- (d) To defer men 30 and over, especially fathers, when they are rendering service which the local board believes to be contributing to the national health, safety and interest. In the attainment of this objective, the local board should decide whether or not a registrant has a moral



right to leave a war job, the farm, or the merchant marine until he is no longer needed. When the local board decides that it is the registrant's duty to finish the job for which he has been continually deferred, he is not entitled to the privilege of continued deferment if he fails to remain at his post, regardless of age or marital condition;

(e) To permit the occupational deferment indefinitely of registrants 30 and over and those unfit for military service;

(f) To permit the local boards to indefinitely defer in I-C or I-G those men who have completed—either under the point system, physical disability discharge, or otherwise—sufficient service to warrant relief from induction;

(g) To permit local boards to resubmit for induction registrants discharged from the armed forces whose service has been insufficient to entitle them to be relieved from induction.

Revised requirements announced in June provided that to be eligible for occupational deferment a registrant 30 through 33, as well as a registrant 34 through 37, need merely be "regularly engaged in an activity in support of the national health, safety, and interest or useful to the community, or in an activity in war production or in an agricultural occupation or endeavour essential to the war effort." It was previously required that registrants 30 through 33 be found "necessary to" as well as "regularly engaged in" the occupations described in order to be eligible for occupational deferment.

The national military manpower pool of male registrants, ages 18 through 37, was as follows immediately before the defeat of Japan was announced Aug. 14:

	Total	Per cent
Total living registrants. . . . .	22,029,000	100.0
Class I-A. . . . .	658,000	3.0
(Note.—Includes men being processed for preinduction examination, postponed inductions, appeals, etc. Of the total number in Class I-A, 299,000 are 18 through 25, who are being processed and of whom only about 50,000 are available to fill a call at any one time.)		
Class IV-F (rejected for military service). . . . .	3,256,000	14.8
Class II-A and II-B (deferred in occupations other than agriculture, most of whom have not had physical examination, and of whom 107,000 are aged 18 through 25). . . . .	3,445,000	15.6
Classes II-A(L), II-A(F), II-B(L) and II-B(F) (deferred in occupations other than agriculture and not qualified for general military service). . . . .	1,409,000	6.4
Classes II-C and III-C (deferred in agriculture, most of whom have not had physical examination, and of whom 239,000 are aged 18 through 25). . . . .	1,265,000	5.8
Classes II-C(L) and II-C(F) (deferred in agriculture and not qualified for general military service). . . . .	272,000	1.2
Class III-D (deferred as hardship cases). . . . .	45,000	0.2
Unclassified. . . . .	87,000	0.4
Class I-C (registrants who have become members of the armed forces). . . . .	11,430,000	51.9
(Note.—Includes registrants discharged or transferred to the reserves. Does not include registrants 38 or over, women, or non-registered enlisted men, i.e., men enlisted at 17, etc.)		
All other classes (includes public officials, ministers and divinity students, conscientious objectors, and aliens). . . . .	162,000	0.7

With the defeat of Japan, President Truman decreed a substantial reduction in calls of men for the armed services and at the same time lowered the age of acceptability for induction from under 38 to under 26.

No registrant over 26 years old was to be inducted, or ordered to preinduction physical examination, unless he volunteered. Local boards were advised to give special preference for occupational deferment to registrants under 26 engaged in transportation and coal mining, both of which industries were still hard pressed for manpower. Special consideration was also given registrants in national defense projects and key personnel in reconversion activities.

Classification II-B was eliminated in September. In Class II-B had been placed registrants "necessary to and regularly engaged in an activity in war production." These registrants were transferred to Class II-A, defined as "necessary to and regularly engaged in an activity in the national health, safety and interest," including:

(1) the production and services required to maintain the armed forces of the United States during the period of the occupation of enemy territory; (2) research, development and manufacturing of weapons or other items necessary to the maintenance of adequate national defense; (3) transportation and other activities required for the demobilization of our armed forces; (4) activities and services required for an expeditious reconversion from a wartime to a peacetime economy; and (5) other activities which the local board considers essential on a national or local basis.

In announcing a deferment plan for advanced students and teachers in scientific and engineering courses, General Hershey

told local boards that the demands of long-range national interest required a resumption of such advanced studies for men having the necessary qualifications and that this plan was set up "in order to fully develop the technical and scientific skills which have been acquired and to provide for adequate teaching facilities for returning veterans who desire to resume their studies in these fields." In consequence, the local boards were instructed to give serious consideration, under specified conditions, to the occupational deferment request of any registrant accepted by an accredited college or university as a candidate for a master's degree or a doctor's degree in the physical sciences or engineer courses; likewise for teachers of the physical sciences and engineering and those engaged in research in accredited colleges and universities.

Regulations were also amended to provide for the postponement of induction of high school students before they were 18 years old, until they were graduated or until they became 20 years of age, whichever was the earlier, with the provision that their course of instruction be pursued "continuously and satisfactorily."

Under specified conditions the local boards were also instructed to give special consideration to registrants under 26 pursuing a full-time course of study in medicine, dentistry, veterinary medicine or osteopathy until their graduation.

In December, national headquarters announced discontinuance of induction of fathers except in the case of volunteers. A registrant with less than three children could volunteer for induction but a registrant with three or more children was not acceptable to the armed forces and could not volunteer.

Regulations defined a father as follows:

The term "children" . . . shall include legitimate or illegitimate children from the date of their conception, children legally adopted, step-children, foster children, and persons who are supported in good faith by the registrant in a relationship similar to that of parent and children but shall not include persons 18 years of age or over unless they are physically or mentally handicapped.

Discontinuance of induction of fathers with three or more children had been announced previously, on Nov. 5.

Registrants who were interned as civilians by enemy nations, on or after Dec. 7, 1941, are not to be inducted into the armed forces, local boards were instructed on Dec. 28, 1945. Regulations were amended to provide for classification of such registrants in Class I-G, a deferred classification.

At the end of the year 1945 there were approximately 7,000 conscientious objectors assigned to some 150 civilian public service camps and projects. All of them 38 years of age or over had been discharged. Others were being released in accordance with the general plan of demobilization, but the rate of discharge was slightly below that of the armed forces. The peak number in the camps and projects was approximately 8,500.

The manpower picture, close to the end of 1945, for registrants 18 through 25 was approximately as follows:

	Total, ages 18-25		Age groups	
	Number	Per cent	19-21	22-25
Total living registrants. . . . .	8,818,000	100.0	3,167,000	4,768,000
I-C. . . . .	6,228,000	70.6	2,220,000	3,643,000
IV-F. . . . .	1,288,000	14.6	526,000	599,000
I-A, I-A-O, I-A*, I-A(B). . . . .	312,000	3.5	62,000	49,000
Unclassified. . . . .	133,000	1.5	24,000	48,000
II-A. . . . .	105,000	1.2	35,000	45,000
II-A(L) and II-A(F). . . . .	304,000	3.5	116,000	174,000
II-C. . . . .	225,000	2.6	92,000	101,000
II-C(L) and II-C(F). . . . .	163,000	1.9	73,000	75,000
III-D. . . . .	12,000	0.1	4,000	6,000
I-G, IV-B, C, D, E and obsolete. . . . .	48,000	0.5	15,000	28,000

The Selective Training and Service act specifically provides job preference for veterans. It provides that, if the veteran's military service was satisfactory, and he applies for his former civilian position, federal or private, within 90 days after release by the military, "such person shall be restored to such position or to a position of like seniority, status and pay." Concerning private employers, these words were added, "unless the em-

ployer's circumstances have so changed as to make it impossible or unreasonable to do so." And another provision requires that the veteran who has been restored shall not be discharged without cause within one year.

General Hershey repeatedly asserted that only congress can change the law and that aside from the responsibility of the director of selective service to administer the statutory provisions, no legal authority is given by the act to any individual, or any administrative body, to adjudicate the job rights of veterans either directly or indirectly.

United States district attorneys have the responsibility to represent veterans if they must go to court to obtain their civilian job rights, and the district courts of the United States are empowered to enforce compliance with the law's provisions.

The Selective Service act requires that "The Director of Selective Service . . . shall establish a personnel division with adequate facilities to render aid in the replacement in their former positions or in securing positions" for "those who have satisfactorily completed their service." That division in 1945 was functioning through 6,443 local boards, their clerical staffs and re-employment committeemen in co-operation with their state headquarters.

A comprehensive statement issued by General Hershey in Sept. 1945, defined the three main objectives of the Selective Service System's Veterans Assistance program as follows:

- (1) To assist veterans of World War II in obtaining re-employment in former positions, or positions of like seniority, status and pay, and to assist them in obtaining new employment, where desired;
- (2) To furnish information to veterans and to the public regarding rights, benefits and privileges of veterans under existing federal, state and local laws, and to refer inquirers to the proper agency, organization or person where such rights can most readily be obtained; and
- (3) To stimulate national, state and community awareness of their responsibilities for providing sufficient job opportunities to accomplish full employment for veterans.

This program is designed to be carried out through the full co-operation of all Selective Service agencies and personnel, compensated and uncompensated.

Fifty-five state organizations (including New York State Procurement office), 6,443 local boards, and 505 appeal boards comprised the Selective Service system in 1945.

There were 198,943 persons connected with the system on Dec. 31, 1945. Of this number 181,707 who were uncompensated, were divided as follows: 24,276 local board members; 7,889 government appeal agents; 75,827 members of advisory boards for registrants; 28,234 examining physicians; 7,394 examining dentists; 2,514 members of boards of appeal; 8,497 members of medical advisory boards; 18,096 re-employment committeemen; 8,449 advisers and field agents of the medical survey program; 1 state director; and 530 special advisers and consultants.

The original Selective Training and Service act, enacted Sept. 16, 1940, provided that not more than 900,000 men were to be in training at one time, and placed a 12-month limitation on length of service unless congress should declare the national interest imperilled.

The organization formed under the regulations was composed of a director of selective service appointed by the president and responsible to him; state directors appointed by the president upon recommendation of the governors of the states; at least one local board in each county or similar political subdivision, appointed by the president upon recommendation of the governors; one or more re-employment committeemen attached to each local board to advise and protect veterans in their rights to obtain their old jobs back as provided in the act; a medical examiner attached to each board; a government appeal agent to carry appeals in behalf of the registrant or the government; and one or more boards of appeal for each state, members of which were appointed by the president upon recommendation of the governor.

The act's termination date was set for May 15, 1945, except for certain provisions, including especially those having to do with veterans' re-employment rights.

Toward the end of 1944 the act was extended to May 15, 1946, unless the president should proclaim, or congress should declare by concurrent resolution, a termination of hostilities.

Congress passed a joint resolution removing the territorial restrictions on the use of the army immediately after the attack on Pearl Harbor, and on Dec. 20, 1941, amended the Selective Training and Service act of 1940 with provisions extending the period of military service from one year to the duration of the war, plus six months. The restriction that limited the number of inductees in training at any one time to 900,000 was likewise removed.

The registration age was extended by another law from 18 to 65 years, but liability for service was not extended at that time beyond the 20 to 45 year-old group.

Two polls taken during the year 1945 by the American Institute of Public Opinion, one in January and the other in July, showed that the majority public opinion approved of the manner in which the local boards were administering the Selective Training and Service act.

The question: "Do you think the draft is being handled fairly in your community?"

The result:

	Yes	No
January 1945 . . . . .	75%	25%
July 1945 . . . . .	79%	21%

Executive officers of the Selective Service system on Dec. 31, 1945, were: director, Major General Lewis B. Hershey; deputy director, Colonel Carlton S. Dargusch; asst. director, presidential appeals and advisory, Colonel John D. Langston; asst. director, camp operations, Colonel Lewis F. Kosch; asst. director, postwar plans, Colonel Victor J. O'Kelliher; chief liaison and legislative officer, Colonel Louis H. Renfrow; executive asst. to the director, Colonel Campbell C. Johnson; general counsel, Colonel George H. Hafer; budget officer, Lieut. Colonel Arthur R. Boone; chief information officer, Colonel James T. Coatsworth; planning officer, Colonel William Hart; adjutant general, Colonel Edmund H. Jones; presidential appeals officer, Colonel John N. Andrews; medical consultant, Colonel Richard H. Eanes; special assignments officer, Lieut. Colonel Joseph H. Berry, Jr. (See also FEDERAL BUREAU OF INVESTIGATION; HEART AND HEART DISEASES; INDIANS, AMERICAN; LAW; MEDICINE; PHYSICAL MEDICINE AND OCCUPATIONAL THERAPY FOR THE WOUNDED; WAR MANPOWER COMMISSION.) (L. B. H.)

**Selenium.** World production of selenium is of the order of 600-700 short tons a year, mostly from the United States and Canada. In the United States production dropped from 635,581 lb. in 1943 to 485,446 lb. in 1944. On the other hand, imports increased from 81,720 lb. in 1943 to 97,800 lb. in 1944. Supplies were plentiful, and production exceeded sales from 1942, and producers accumulated stocks of more than 500,000 lb. The Canadian production declined from 374,013 lb. in 1943 to 298,592 lb. in 1944, but increased to 419,000 lb. in 1945. (G. A. Ro.)

**Senate:** see CONGRESS, UNITED STATES; ELECTIONS.

**Senegal:** see FRENCH COLONIAL EMPIRE.

**Serbia:** see YUGOSLAVIA.

**Serédi, Justinian George,** CARDINAL (1884-1945), Hungarian prelate, was born April 23 in the village of Deaki, Hungary. As a young boy of

humble origin named George Szapucsek, he was encouraged by the local priest to study for the clergy. He joined the Benedictine order at 17 years of age, and attended the Benedictine university in Rome from which he was graduated with a doctorate in theology. He was ordained a priest in Hungary in 1918. He was soon recalled to Rome where Pope Pius XI named him counsellor of the Papal Committee for Codification of Canonical Law and also appointed him confidential secretary of the Vatican secretary of state. While in Rome he edited the 14 volumes of the *Codicis Juris Canonici Fontes*, a work on church law. On Dec. 19, 1927, he was created and proclaimed a cardinal priest by Pope Pius XI and became primate of Hungary and archbishop of Esztergom. Cardinal Serédi was as early as 1934 an outspoken opponent of nazism. By law a member of the Hungarian upper house, he frequently denounced anti-Semitic laws from that platform and used every opportunity to attack racial discrimination. He was put under house arrest in Oct. 1944 for his failure to endorse the nazi puppet regime of Premier Ferenc Szálasi, and was taken as a hostage by the nazis shortly before the Russian troops captured Esztergom, his official residence outside Budapest. A Vatican German-language broadcast, reported by the Federal Communications commission April 13, said that he had died of a heart attack but did not state where or under what conditions his death had occurred.

**Serum Therapy:** see MEDICINE.

**Service Organizations, United:** see UNITED SERVICE ORGANIZATIONS.

**Seventh Day Adventists.** Membership in United States and Canada, as of Sept. 30, 1945, was 211,552, a gain of 5,861 over the same date in 1944. World membership was 564,024, a gain of 14,734 over 1944. Total church receipts for the calendar year 1945 in the United States and Canada were in excess of \$24,000,000 representing a per capita contribution of \$113.20. This compares with \$22,612,119 for the calendar year 1944, representing a per capita of \$109.28. As of Sept. 30, 1945, there were 2,715 churches in the United States and Canada, and 6,691 in the world. Retail sales of literature by denominational publishing houses for the calendar year 1945 were in excess of \$7,000,000 in the United States and Canada; and in excess of \$9,000,000 in the world. Publications were issued in 185 languages. Enrollment in denomination's schools in the United States and Canada—elementary, secondary, college—as of Sept. 30, 1945, was 33,520; compared with 31,345 on the same date in 1944. Conferences and institutions throughout the world were, almost without exception, free of debt at the end of 1945, with assets in excess of \$100,000,000.

When World War II ended in the summer of 1945 approximately 12,000 Seventh-day Adventist youths were serving in the U.S. army in a noncombatant capacity, most of them in the medical corps. On Oct. 12, 1945, one of these men, Cpl. Desmond T. Doss, was awarded the congressional medal of honour, the first conscientious objector ever to receive this decoration.

During 1945 a special offering for rehabilitation of mission institutions was received in all the churches in the United States and Canada, netting a little more than \$1,000,000. This is part of a \$5,000,000 rehabilitation fund being created for overseas fields. During the year 220 tons of clothing were shipped abroad through the welfare organization of the church.

Important developments of the year included: A \$3,000,000 expansion program for the denomination's medical college located at Loma Linda and Los Angeles, Calif.; the creation of a plan for a closer integration with the church, legally and other-

wise, of certain self-supporting institutions; a plan for financial aid to physicians and dentists who wish to engage in private practice overseas; a plan for increasing the theological training of prospective ministers by the addition of eight quarters of seminary training beyond college; a plan for additional training for mission appointees, particularly in the matter of elementary medical care for primitive peoples.

The regular quadrennial world conference, which was to have been held in May 1945, will be held at Takoma Park, Washington, D.C., June 5-15, 1946. Plans for general postwar reorganization of the world work of the denomination were being held in abeyance until that conference. (See also CHURCH MEMBERSHIP.) (F. D. N.)

**Sewage:** see PUBLIC HEALTH ENGINEERING.

**Seychelles:** see BRITISH EAST AFRICA.

**Shaposhnikov, Boris Mikhailovich** (1882-1945), Russian army officer, was born Oct. 4 in Zlatoust, Russia. At 19 he entered the Moscow Military school and after completing his studies went into army service. He was graduated from the Academy of the General Staff in 1910, was commissioned an officer in the tsarist army, and was aide to Grand Duke Nicholas on the general staff during World War I. In May 1918, his offer to serve the red army was accepted; he was appointed an assistant commissar by Lenin and Trotsky, and in 1930 he joined the Communist party. He was chief of the general staff, 1929-31, and was again appointed to that position in 1937 when he also became a member of the central executive committee of the U.S.S.R. For his achievements in the Finnish campaign, 1939-40, he was promoted to the rank of marshal in May 1940. In the summer of that year, he resigned from the general staff because of ill health, but was recalled Oct. 31, 1941, when the Germans were nearing Moscow. Under his direction, the red army traded space for time, and curtailed the power of the blitzkrieg technique with a defense in depth strategy. His planning enabled the Russians to hurl back the nazis at Stalingrad in 1942. Russia's recognition of his achievements was evidenced by the nation-wide observance of his 60th birthday. As chief of the Frunze Red Banner Military academy, 1932-35, Shaposhnikov trained many of the outstanding red army commanders and helped lay the groundwork for the creation of a modern army. He was vice-commissar for national defense, 1941, Stalin's personal military adviser and deputy of the supreme soviet of the U.S.S.R. In April 1943, it was announced that owing to protracted illness, Shaposhnikov had been replaced as chief of staff by Marshal A. M. Vasilevsky. His publications include *The Cavalry* (1923), *On the Vistula* (1924) and *The Brain of the Army*, 3 vols. (1927-29). He died March 26.

**Sharpening Stones:** see ABRASIVES.

**Sheehan, Winfield R.** (1883-1945), U.S. motion picture producer, was born Sept. 24 in Buffalo, N.Y. After a brief try at newspaper work, he entered the motion-picture industry in 1914 in Hollywood, where he organized the studios of Fox Film corporation. He rose to become vice-president and general manager of the firm and in 1926 was put in charge of all its productions. Sheehan was credited with discovery of such screen celebrities as Theda Bara, Warner Baxter, Tom Mix, Will Rogers, Alice Faye, Janet Gaynor, Paul Muni, Shirley Temple and Rita Hayworth. He was one of the few producers to foresee the popularity of "talkies" and was quick to convert to sound stage equipment. Among his productions were *What Price Glory*, *David Harum*, *Florian*, *Seventh*



*Heaven and Cavalcade*, for which he won the 1933 Academy award. He left the Fox company in 1935. Nine years later, he returned to the industry with his own producing company, which filmed the story of Capt. Eddie Rickenbacker's life, *Captain Eddie*. He died in Hollywood, Calif., July 25.

**Sheep.** The great decline in the number of sheep on United States farms, which started in 1943, continued through 1945. On Jan. 1, 1945, there were 47,945,000 sheep and lambs according to estimates by the U.S. department of agriculture compared with 51,769,000 head a year earlier—a decline of 7%. Since the number of sheep and lambs on feed was larger than a year earlier the decline was entirely in stock breeding sheep. This decline brought the total down to the level of 1928. At this rate of decline the number of sheep appeared likely to drop to the low record of the early 1920s, when there were only about 33,000,000 head compared with the high peak of 56,700,000 head in 1942. During the first eight months of 1945 the slaughter of ewes was the largest on record for that period of the year.

The low returns for lambs and shortage of labour on the ranges were the chief factors causing the decline. Subsidies for lambs sold for slaughter were a factor that was expected to check the decline in lamb production. These subsidies were authorized through June 1946. While wool prices were relatively high the world stocks were large and the future of wool prices uncertain. With the end of World War II the labour situation began to improve as the experienced ranchmen, removed from the range country by the draft, were returning. Wool production in 1946 was expected to show further declines because of the marketing of the large numbers of mature sheep.

Lamb feeding was at a high level in 1945 in spite of the smaller lamb crop. A total of 6,630,000 head of sheep and lambs were reported by the U.S. department of agriculture to be on feed on Jan. 1, 1945. This compares with a high record of 6,979,000 head in 1943. The slaughter of lambs declined in midsummer, however, as growers withheld them for the higher subsidies for heavy animals compared with light ones.

The farm value of sheep and lambs declined to \$411,000,000 on Jan. 1, 1945, from \$451,383,000 a year earlier. This compares with a prewar average of \$339,000,000 from 1934-43. Prices of slaughter lambs were higher during the first half of 1945 than a year earlier but declined during the last quarter as slaughter became heavier on Dec. 1 when an increase in the subsidies became effective. (See also LIVESTOCK; MEAT; WOOL.)

FILMS.—*Farm Animals* (Encyclopædia Britannica Films Inc.).  
(J. C. Ms.)

**Shidehara, Kijuro,** BARON (1872– ), Japanese statesman and diplomat, was created a baron in 1920. He was graduated from the Imperial university, Tokyo (1895), entered the diplomatic service in 1896, and was appointed Japanese minister to the Netherlands (1914). The following year, he was made vice-minister of foreign affairs. He was Japanese ambassador to Washington, D.C. (1919-22), and attended the Washington conference (1921-22). Baron Shidehara was foreign minister from 1924-27 and from 1929-31, when he resigned in protest against Japanese seizure of Manchuria. This earned him a reputation as a "liberal." It was subsequently alleged, however, that Shidehara, related by marriage to the Mitsubishi family, had championed the practices and policies of the "Zaibatsu" (Japanese big business). He lived in relative seclusion until the fall of the first postwar cabinet of Prince Naruhiko Higashi-Kuni in 1945, whereupon Shidehara formed the new government on Oct. 6. On Oct. 9, the baron-premier

promised establishment of a "liberal" regime, but prudently refrained from indicating whether his government would include all parties of the left, including the communists. He urged caution in abolition of Shinto as the state religion and, like his predecessor, Higashi-Kuni, he defended the authority of the emperor. Shidehara complied, albeit reluctantly, with directives from Gen. MacArthur, such as the one of Oct. 11 under which the Japanese cabinet was ordered to allow Japanese women to vote, encourage labour unions, liberalize educational methods, abolish the "thought-control" organs and democratize Japanese economic institutions.

**Shigemitsu, Mamoru** (1887– ), Japanese statesman and diplomat, was born July 29 in Oita-ken. He received his law degree from Tokyo Imperial university, entered the foreign service in 1911, and held minor diplomatic posts in Germany, England and the United States, 1911-18. He was a member of the Japanese delegation at the Paris peace conference, 1919. Shigemitsu was minister plenipotentiary to China, 1929-30. In 1932, he was hit by fragments of a bomb hurled by a Korean patriot at Shanghai and lost a leg. He was made vice-minister of foreign affairs, 1933, and was appointed ambassador to the soviet union, 1936. Two years later, he was named ambassador to England. In 1941, Tokyo ordered him to leave his British post and return home. Two days after the Japanese attack on Pearl Harbor, Shigemitsu was appointed ambassador to the Chinese puppet regime at Nanking. In April 1943, Premier Hideki Tojo reshuffled his cabinet and made Shigemitsu his foreign minister. Prior to Pearl Harbor, Shigemitsu was reported in favour of Japanese co-operation with Britain and the United States and was said to be highly critical of the ruling Japanese military clique. Shigemitsu was retained as foreign minister in the Koiso cabinet (July 1944), but was not in the succeeding Suzuki regime. When Prince Higashi-Kuni formed the first postwar cabinet of defeated Japan (Aug. 16, 1945), Shigemitsu was back as foreign minister. In his first statement, Aug. 18, he told his countrymen that they must admit their defeat and said Japan must win the "world's sympathy and understanding." He signed the Japanese surrender document aboard the U.S. battleship "Missouri," Sept. 2. On Sept. 17, Shigemitsu, too closely associated with Japan's defeat, was dismissed as foreign minister.

**Shinwell, Emanuel** (1884– ), British cabinet member and politician, was born Oct. 18 in London. A member of the Labour party, Shinwell was a member of the house of commons, 1922-24, 1928-31 and was re-elected in 1935. He was financial secretary in the war office (1929) and secretary for mines (1924 and 1930-31). A caustic-tongued debater, Shinwell was a frequent critic of conservative governments. His oratorical attacks generally were couched in blunt language and his exchanges with the Churchill government leaders frequently enlivened debates in commons. During World War II, Shinwell denounced the Churchill government for its "fumbling" of the Malaya, Hong Kong and Libya campaigns, and for many other real and alleged negligences. However, he did not spare members of his own party in the Churchill coalition and at one time, in late 1942, the Labour party executive board was pondering "disciplinary measures" to curb Shinwell's acidulous attacks. An avowed "left-winger," Shinwell surprised his supporters in Dec. 1942 with a spirited defense of the much criticized Darlan agreements; he stated that if the Allies could master north Africa with Darlan's aid the agreements were justified. After the Labour party took over the government in the summer of 1945, Prime Minister Attlee appointed Shinwell to the post of

minister of fuel and power. An advocate of nationalization of the coal mines, Shinwell declared (Aug. 17) "we will steadfastly pursue a policy of public ownership in vital services of the country." He headed the British delegation at the Anglo-American oil conference in London and negotiated the new oil pact (Sept. 24). A bill to "establish public ownership and control of the coal mining industry and certain allied activities," was introduced in commons by Shinwell (Dec. 19).

**Shipbuilding.** Statistics on shipbuilding, unavailable during World War II, were gradually made public after the close of hostilities, providing approximate data on world shipping from Sept. 1939 to the end of 1945.

Estimates of world merchant shipping losses by sinking, during the war, show a loss in Allied tonnage more than double that of the axis powers. Losses of the former were approximately 22,168,000 gross tons; those for Germany, Italy and Japan were estimated at 10,000,000 gross tons. Total losses of 32,168,000 gross tons thus represent a destruction of slightly less than half of all prewar merchant shipping of steam and motor vessels (each more than 100 gross tons), which amounted to about 68,500,000 gross tons.

New construction during the war was carried on mainly by the U.S., Great Britain, Canada and Sweden. The heaviest output came from the U.S. which built 38,250,000 gross tons between Sept. 1939 and Dec. 31, 1945. Great Britain followed with an output of 6,900,000 gross tons, Canada with 2,700,000 gross tons and Sweden with 875,000 gross tons. With new construction totalling 48,725,000 gross tons, losses were more than offset to bring the total world tonnage at the end of 1945 to about 85,000,000 gross tons, an increase of about 20,500,000 gross tons more than the prewar figure.

U.S. shipping emerged from the war with its tonnage four times greater than at the outset and equivalent to 67% of all world tonnage in 1939. British shipping, including that of the colonies and dominions, had shrunk by about 2,400,000 gross tons. Below are statistics on the standing of the U.S. and the British empire before and after the war, as well as the losses and new construction of both:

	U.S.	British empire
Tonnage, Sept. 1939 . . . . .	11,400,000 gross tons	21,000,000 gross tons
War losses . . . . .	3,800,000 gross tons	11,700,000 gross tons
New construction . . . . .	38,250,000 gross tons	9,300,000 gross tons
Tonnage, Dec. 31, 1945 . . . . .	45,800,000 gross tons	18,600,000 gross tons
Net difference . . . . .	+ 34,400,000 gross tons	- 2,400,000 gross tons

Between 1940 and 1945, construction of naval vessels, including both combatant and vessels of the large auxiliary types, in U.S. shipyards, numbered 1,555 vessels of 4,780,000 displacement tons. Vessels of the steel landing craft types numbered an additional 4,114, and 3,354 self-propelled naval vessels of smaller types, such as minelayers, coastal transports, salvage vessels, submarine chasers, etc., were also built. In addition to these four categories, many thousands of still smaller craft were built. For the army, U.S. shipyards turned out 12,813 vessels, mainly of the smaller types, with an approximate value of \$770,000,000. An additional \$56,000,000 was expended for 310 crane barges. For the coast guard, about 300 vessels of seagoing types and many smaller craft were constructed during the same period.

British naval construction between Sept. 1939 and June 1944 added 5,744 vessels to the fleet, weighing 1,907,077 standard displacement tons and including 722 major war vessels (1,333,961 s.d.t.), 1,386 mosquito craft (132,796 s.d.t.) and 3,636 landing craft, etc. (440,320 s.d.t.).

During 1945, cancellations by the navy and Maritime commission totalled 377 vessels, 212 of which, cancelled by the navy, were of the combatant and auxiliary types. The navy

also cancelled 12,214 district craft, small landing craft and small boats.

**Ship Repairing.**—During 1945, 23,800 vessels of 1,000 gross tons and over were repaired in U.S. repair yards, exceeding the amount of repair work for the two preceding years. In 1944, this figure was 22,014 and in 1943, 17,172. These figures, of course, include a possible repairing of the same vessel on more than one occasion.

**Employment.**—Labour statistics for U.S. shipbuilding showed a steady decline after the peak employment of about 1,722,500 in Dec. 1943. At that time, about 322,500 were employed in government navy yards and the remainder in private shipyards and repair yards. By Nov. 1945 only 332,600 were employed in private yards and about 228,800 in government navy yards, a drop of 76% and 31%, respectively, from their peak employment. At the close of 1945, many shipyards had closed down entirely, having completed building contracts with the navy or Maritime commission.

**Earnings.**—The latest available statistics on hours and wages at the end of 1945 showed the average hourly earning rate for Sept. 1945 in shipbuilding and ship repairing to be \$1.316, the highest rate in any of the durable goods industries. Average weekly earnings for September were \$50.92, on the basis of 38.7 hours per week. (See also SHIPPING, MERCHANT MARINE.)

(X.)

**Great Britain.**—The turnover in 1945 from war to peace conditions started in Britain, very gradually at first, at the beginning of the year; for the Allies already appeared to have sufficient standardized tramp-type ships for the completion of the war in Europe and the Japanese campaign demanded something much more akin to peacetime types. Owners were therefore allowed to order ships approximating to their desires. The surrender of Japan greatly accelerated the tendency, although the government control of material and work, carrying with it a measure of control of design, remained. Many shipping companies had to order new tonnage or see their business disappear; but the shipyards found it difficult to quote definite prices and owners were naturally nervous of accepting a vague liability.

At the end of World War II it was estimated that British prices for a straightforward cargo ship specification were about 50% higher than prewar rates, 25% more than the Swedish yards could quote, and they rose rapidly for ships of special types like passenger or refrigerated tonnage. The two new Union-Castle motorships for the South African route, of about 27,000 tons, were reckoned by the company to cost them more than £2,000,000 apiece, and as payments of the government's war risk insurance were not calculated on replacement value the financial problem was a very great one. Many tramp owners, who were not under the same pressure to restore their services at the first opportunity, were nervous of ordering, partly owing to the question of price, partly because there was a chance that the tramping market might be flooded by war-built government tonnage, and partly because an overhaul of the rules for the calculation of registered tonnage was widely demanded and might have serious effects on the earning powers of any particular type of ship. The popular shelter-deck type was considered likely to be the one most penalized by any change of rule.

The admiralty not only controlled design, principally in order that available materials might be put to the best possible use, but also allocated permits to place orders, first with regard to the national value of the ship proposed, and second to the war losses sustained by individual owners. This control, and the holding up of practically all technical development during the war in favour of simplicity to secure rapid delivery, caused the majority of the ships in process of building to be of con-

servative design in principle although with great improvements in matters of detail, particularly in the machinery and accommodations. In order to secure delivery a number of cargo ship owners ordered ships from various yards according to the dimensions and design which the respective establishments had built for the government during the war instead of in the usual classes of exact sisters, while the changed conditions expected during the following years caused some well-known companies to order ships differing radically from their prewar practice.

*Retention of Wartime Features.*—Many features insisted upon by the authorities during the war to avoid the bottleneck of supplies appeared likely to become standard practice in peace. The insistence on single screws instead of twin, in all but a few exceptional cases, was being perpetuated by many owners for cargo ships of a size and speed which would have been given twin screws before 1939. The great increase in the use of plastics and aluminum alloys for nonstrength members also found favour; while the electric drive ordered by the ministry of war transport for certain strategic and special service vessels was favourably discussed and was adopted by the Canadian Pacific line for their new 17-knot cargo ships and by the Anglo-Saxon Tanker company for a ship of very moderate speed. The welding of parts, or even of whole ships, also greatly increased in Britain, although not to nearly the same extent as in the U.S.A.

The old argument between the advocates of steam and diesel machinery continued with apparently as little chance of definite agreement being reached as there was in 1939.

With regard to the design and dimensions of passenger ships, the possibilities of air competition had much influence; but the first panic subsided and owners were determined to concentrate on features and attractions which aeroplanes could not offer, although there was divided opinion as to what these were and how space should be allocated between private cabins and public rooms.

Allied experts naturally carefully examined the technical progress made by the Germans when their surrendered merchant ships came in for survey and refit. In the hulls and major fittings German construction would appear to have made little or no progress after 1939. In matters of minor detail, however, and in machinery a good deal of interest was discovered.

Although cargo and passenger tonnage attracted greatest attention, the fishing and whaling fleets also placed a number of orders. Fishing trawlers taken up by the navy for mine-sweeping and antisubmarine work were being reconditioned as quickly as possible; but the so-called trawlers specially built for the admiralty were unsuitable for fishing, so that the industry did not get the same relief as it did in 1919. The successful German raid on the Norwegian antarctic whaling fleet and the acute shortage of whale oil throughout Europe led to special facilities being given to the British yards to hasten completion of the pelagic motherships ordered at Belfast and on the Tees.

*Labour Problems.*—On the labour side a measure of unrest, inevitable at the end of hostilities, caused anxiety. Concern was also caused by the friction between the trades unions, which were recognized as the official authority for all bargaining and arranging, and the shop stewards who were nominally members of the unions but who worked directly against them on many occasions during the war. Yards experienced difficulty in re-absorbing apprentices who had been conscripted into the services before their time was completed and in striking a balance between their former earnings and the wages appropriate for men three, four or five years older (frequently with a wife and family) with no more technical knowledge.

In the matter of plants the normal developments which would

have taken place in six years were naturally retarded, but advantage was taken of the opportunity given by air-raid damage to carry out certain improvements piecemeal. Most of the biggest British yards were considering big modernization plans, although frequently they were handicapped by the age and size of their sites in built-up areas.

*Europe.*—In all the liberated countries great efforts were being made to get the shipbuilding industries again active, the damage done by German sabotage and Allied air raids varying immensely but usually being serious. The Danish yards were the least damaged. The neutral Swedes, although handicapped during the war by shortage of material and having, owing to the German blockade, to lay up most of the ships which they completed, were able to keep their yards in excellent condition, to test and put into effect a large number of technical improvements and to put themselves into a particularly strong position for getting orders from Allied countries. (See also BUSINESS REVIEW.)

(F. C. Bo.)

WORKERS at the California Shipbuilding Corp. yards in Los Angeles, Calif., gathered beneath the V-slanted giant cranes as the news of Japan's surrender was made known in Aug. 1945





## Shipping, Merchant Marine.

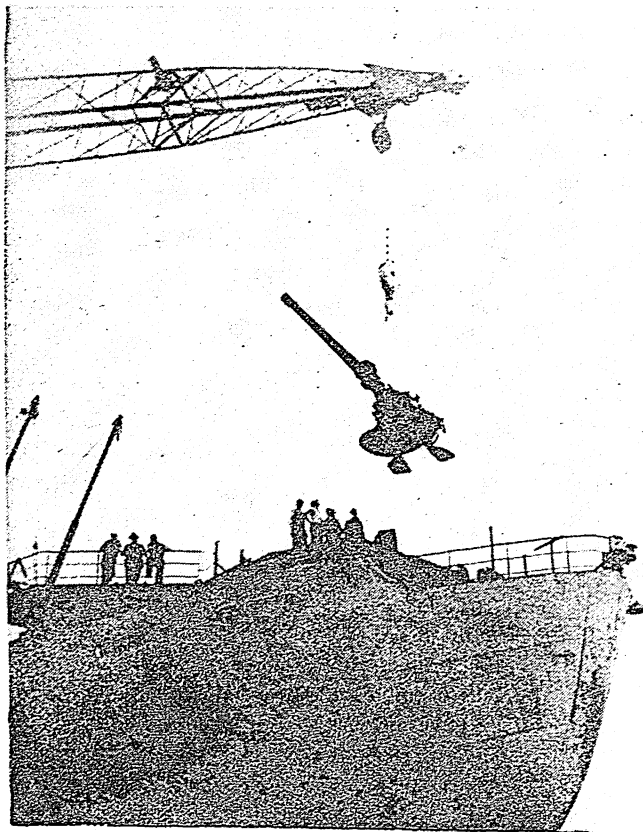
Shipbuilding under direction of the United States Maritime commission was reduced after the end of World War II to about one-third of the deliveries in the first quarter of 1945. There were 556 vessels under construction or contract when hostilities ceased on Aug. 14. Of these, 135 were cancelled, the building schedule adjusted to the new conditions, and the commission prepared to build ships in the categories that the wartime program had left deficient, notably passenger vessels and refrigerated ships.

Between Jan. 1, 1939, and Jan. 1, 1946, U.S. shipyards built 5,694 ocean-going vessels aggregating 56,473,399 dead-weight tons. (Dead-weight tonnage is the actual cargo-carrying capacity of a vessel, expressed in tons of 2,240 lb.) This total included dry cargo vessels of various types; tankers; wooden, steel and concrete barges; ore carriers; harbour and ocean-going tugs. It also included vessels built directly for or converted to military service; aircraft carriers, frigates, transports, hospital ships, tank carriers, oilers and tenders, and partially completed vessels outfitted by the navy as combat transports and combat cargo ships. In addition to these large vessels, about 1,000 small barges and 200 power boats were built.

Of these vessels 97% were constructed after Pearl Harbor. The Maritime commission, established by the Merchant Marine act of 1936, inaugurated a long-range program contemplating construction of 500 vessels at the rate of 50 per year. The first of these were delivered in the summer of 1939, at which time the commission doubled its construction program, redoubling it twice in the following two years, as the world shipping situation grew more critical.

In 1941 the commission conceived and put into execution the emergency Liberty ship program, to build ships by mass assembly methods by which it was hoped to reduce the construction time for these 10,500 dead-weight ton vessels to around six months.

THE LIBERTY SHIP "William Wirt" being disarmed in July 1945 after the close of the European war. As a merchant vessel in the West Indies during wartime she carried a 5-inch deck gun



The first Liberty ships were delivered three weeks after Pearl Harbor. Following the declaration of war against the axis, the commission expanded the shipbuilding facilities of the U.S. by the building of several shipyards for construction of Liberty ships and other type vessels. Almost 80 shipyards held Maritime commission contracts in 1943.

Production in U.S. shipyards in 1941 was 103 vessels, aggregating a little more than 1,000,000 dead-weight tons. The Liberty program so increased the production that by the end of 1942 the production of the previous year had been increased seven times. There were 762 vessels aggregating more than 8,000,000 dead-weight tons delivered in the year. Of these, 542 were Liberty ships.

The peak of the commission's program came in 1943. All ship construction records were broken in that year by the delivery of 1,949 vessels—1,238 of them Liberty ships—aggregating 19,270,746 dead-weight tons.

The 27,000,000 tons of shipping built in those first two years of the United States' participation in the war replaced all the shipping losses suffered by the United Nations. As a result of this fulfilment of the essential cargo needs of the Allied nations, the commission was able to give increased emphasis to the building of faster vessels than the Liberty, which is capable of about 11 knots.

These faster vessels were the C-types with which the commission had started its long-range program, and Victory ships, whose design and adaptability to mass assembly methods grew out of the Liberty program. All are propelled by modern turbine or diesel machinery, which give them about 50% more speed than the Liberty, according to the power of their propulsion machinery.

The Liberty program was curtailed in 1944 and many of the facilities of the commission were put into production of the faster cargo vessels, better suited not only to the purposes of war but the long-range uses of peace.

The demands for petroleum products for mechanized war also compelled the commission to increase production of tankers. Two tanker designs were produced by the commission shortly after it was established, and their production increased rapidly through 1944. In Aug. 1945, there were 1,057 tankers flying the U.S. flag, including those under military jurisdiction.

Ship construction in 1944 was greatly in the direction of military vessels. Many Victory ships emerged as transports. There were 50 aircraft carriers built in 1943 and 1944; 96 frigates—armed vessels to escort convoys—were delivered in the two years; 200 fast vessels became transport and cargo vessels equipped by the navy for specialized warfare; oilers and tenders were built for the navy, and a considerable number of fast ships were transferred to the armed services for special purposes.

The total of Maritime commission construction in 1944 was 1,786 vessels aggregating 16,447,366 dead-weight tons. Though these totals did not reach those of the previous year, there was actually more shipbuilding in 1944 than 1943, by tonnage displacement. The units constructed were larger and more complicated, and the dwindling of the Liberty program to 720 deliveries had its effect on the total.

The tonnage goal set for 1945 was 13,000,000 dead-weight tons, based on the assumption that the war would continue through the year. With the revisions after the war's end, the year's total was 1,097 vessels aggregating 10,598,154 dead-weight tons. There were 100 vessels scheduled for construction in 1946, almost all of them passenger, passenger-cargo or refrigerated ships.

(E. S. L.)

Europe.—At the beginning of 1945 all Allied shipping developments were in suspense in expectation of a long war against Japan which would tax the available tonnage even more than the

war in Europe, the distances involved demanding more ships, and the tramp type which existed in such numbers being far less useful. What tonnage could be spared from the east was nearly all devoted to supplying the fighting forces in Europe, then the armies of occupation and then the starving population of the liberated countries. Enormous quantities of stores and ammunition were being taken east to be piled up at the bases in anticipation of stiff fighting when Japan was invaded. The unexpectedly swift collapse of Japan brought great relief and immediate steps were taken to return the ships to commercial service as quickly as possible.

There was an immense amount of war work to be done first. As soon as Germany surrendered a large westward movement of U.S. troops for transfer to the Pacific began; in addition to all available U.S. ships a number of British passenger liners was employed, notably the Cunard White Star "Queen Mary" and "Queen Elizabeth," carrying 15,000 men each, and "Aquitania" carrying 8,000. Practically all other large British passenger ships were engaged in the Pacific, the numbers carried on each voyage being considerably reduced on tropical routes. After the surrender of Japan they were equally busy on the repatriation of men due for leave or demobilization, released prisoners, etc., and any space left was allotted to civilian passengers who could show a good reason for travelling. There were bitter complaints of the discomforts involved in voyages by troopship, although every passenger before embarkation had to sign a paper stating that he understood the conditions and would submit to the discomfort and military law. Apart from the troopers, a large and increasing number of passengers was carried in cargo ships, practically all the liners lately built having the legal accommodation for 12 increased four or fivefold by government wartime order. The question of postwar regulations was causing a good deal of concern as it was obvious that the passenger fleet would not be adequate for several years.

The official figures of British merchant navy casualties at the end of the war with Germany were 30,589 killed, 4,690 missing and 4,088 interned, the average strength latterly being 150,000 men. The demobilization of men who had chosen the merchant navy under the Military Service act was in many cases more difficult than in the fighting services, but there was an immediate drastic reduction in the state training schemes.

Norwegian and Danish merchant seamen proved conspicuously loyal to the Allies after the liberation of their countries, readily volunteering for indefinite service in the Pacific as soon as they had been given a few days' leave with their families.

Although steps were taken as quickly as possible to release shipping for commercial purposes it was obvious that the lifting of control would have to be gradual. Early in the year the united maritime authority had been established to utilize all Allied tonnage to the best advantage for the war effort. Sweden adhered to the arrangements voluntarily as soon as the Skagerrak blockade was lifted, and the acceleration of its end had to be carefully discussed. In the national control some British companies, particularly those owning cargo or passenger liners, had lost or lost control of so many of their ships, in some cases all, because of their national value that it was considered only fair to help them to keep the remnants of their prewar connections by allocating tonnage, as it could be spared for their routes, on the system employed during the war.

In the British general election the nationalization of all forms of transport was a prominent issue and it remained part of the trades union policy despite the recantation of Emanuel Shinwell and other former advocates of including shipping. Difficulties were realized particularly in the tramping trades which demanded vast experience, and the final policy was to demand that the coasting trade should be nationalized, beginning with the

liners. There was also a movement toward partial nationalization in both Australia and Canada; but in Palestine, where the Jewish element advocated great maritime expansion, the suggestion was for private enterprise with state encouragement only.

**War Losses.**—The Allied powers all lost 50% or more of the tonnage with which they started the war; France lost two-thirds and the U.S.S.R. was known to have had an immense number of ships destroyed during the German occupation and bombardment of Russian ports. From rather more than 21,000,000 gross tons with which Britain started the war about 12,000,000 were sunk, while about 7,000,000 tons were built despite handicaps. The losses were 1,360 ships by submarine, 440 by aircraft, 340 by mine and 210 by surface raiders. Axis losses had not been definitely published, but such of their ships as were still afloat were put on Allied service pending their disposal under the final peace terms.

(F. C. Bo.)

**Shipping Administration, War:** *see* WAR SHIPPING ADMINISTRATION.

**Shoe Industry.** With the advent of victory in Europe and later in Japan, style restrictions maintained in the United States under Footwear Conservation order M-217 were lifted in 1945 and the industry was again given the opportunity for design and creative development.

Tanneries turned out more sole leather from 1943 to 1945 than in any similar period after World War I to meet the unprecedented scale of military demand. During World War II, the quality of sole leather itself remained unchanged for civilian manufacturers. Such leather frequently came out of the same hides as the military cuts but the armed services took such a high percentage of certain grades and weights of leather that little was left for the civilian type. However, the signing of the peace was quickly followed by army and navy cutbacks in shoe procurement, which resulted in the first easing of the shoe situation.

One of the most important developments in the shoe industry, during the rationing period, was the production of the nonrationed shoe to fill the consumer gap, created by the lack of standard, rationed footwear. Not only were new methods and materials applied in producing these shoes but merchandising received an important stimulus. In the early summer, production of these nonrationed types began to decline and the industry was saved the costly obsolescence of war stock.

Reconversion for the shoe industry from war to peacetime pursuits did not entail the same difficulties as those industries where plant and equipment had been converted to direct military output. Nevertheless, time was required to expand the physical process of output and not until the end of Oct. 1945 did operations begin to reach the level required to meet consumer demand.

Shoe rationing was lifted on Oct. 30, 1945, and thus removed a tremendous bookkeeping burden from the retailers' shoulders. It returned to shoe retailers the function of servicing their customers with the shoes they needed and wanted and gave them back some semblance of peacetime operation.

The anticipated buying rush, when shoe rationing was lifted, did not develop. However, this good common sense on the part of the public did not offset the real problems confronting manufacturers and distributors in the closing months of 1945. In the face of heavy underlying demands, inventories were slim, materials short and manpower inadequate. In part, these conditions reflected the transitional phase which could be expected to moderate as time went on. However, one aspect of the situation was expected to be a harassing problem well into 1946. Requirements of the liberated European countries could only be filled

from the world sources upon which the United States draws for a portion of its raw material supplies. Until the end of 1945 these international requirements were reconciled through the agency of the Combined Raw Materials board and unless that body, or a similar agency, continued the task of ensuring world trade co-operation in hides and skins, continued supply difficulties were probable. Shoe factories outside the U.S. were being restored as quickly as possible.

Table I.—U.S. Domestic Shoe Production, 1945, 1944, 1943, 1942

Year	Government shoes	Civilian shoes	Total
1945 (prelim.) . . . . .	48,100,000	441,700,000	489,800,000
1944 . . . . .	50,485,000	417,446,000	467,931,000
1943 . . . . .	46,885,000	418,512,000	465,397,000
1942 . . . . .	40,875,000	442,995,000	483,870,000

In 1945 the estimated total production of civilian footwear in the U.S. amounted to 441,700,000 pairs, a greater total than in any year before 1941. Yet it would be completely misleading to assume that more shoes in the accepted and normal sense were available to the home front. On the contrary, production of staple footwear was substantially lower than prewar. Pairage was sustained only by the manufacture of nonrationed types and a record-breaking production of slippers. Unfortunately, there was no breakdown of the actual rationed types as against the nonrationed footwear but it was safe to assume that the (estimated) production of 169,800,000 pairs of shoes other than all leather, in 1945, represented, in the aggregate, the nonrationed shoes.

Table II.—Comparative Statistics of U.S. Shoemaking, 1943, 1944, 1945  
Production of Shoes by Major Types  
Includes Rationed and Nonrationed  
(000's omitted)

Year	Women's	Men's	Misses' and Children's	Youths' Boys'	Infants'	All Other	Total
1943 All leather . . . . .	153,203	83,928	32,203	19,830	25,441	23,463	338,068†
Other . . . . .	42,535	808	1,557	—	—	35,544	80,444†
1944 All leather . . . . .	117,024	66,121	35,643	16,265	29,075	22,833	286,961†
Other . . . . .	68,300	3,710	10,011	1,051	—	47,413	130,485†
1945* All leather . . . . .	110,600	56,700	40,000	14,700	30,700	19,200	271,900†
Other . . . . .	93,000	3,800	16,800	2,300	5,500	48,400	169,800†

Estimated Consumption of Shoes by Major Types  
Includes Rationed and Nonrationed

1943 All leather . . . . .	179,500	91,300	41,000	19,300	27,000	26,000	384,100†
Other . . . . .	33,500	600	1,200	—	—	42,600	77,900†
1944 All leather . . . . .	134,000	67,000	40,400	19,700	32,000	24,000	317,100†
Other . . . . .	56,000	3,100	8,300	900	—	45,700	114,000†
1945* All leather . . . . .	125,000	62,000	41,000	15,800	31,000	20,000	294,800†
Other . . . . .	86,000	3,500	13,000	2,000	4,000	46,000	154,500†

Per Capita Production of Shoes by Major Types  
Includes Rationed and Nonrationed  
(Pairs per Capita)

1943 All leather . . . . .	2.97	1.64	2.93	1.51	2.62	0.17	2.48†
Other . . . . .	0.83	0.02	0.14	—	—	0.26	0.59†
1944 All leather . . . . .	2.26	1.29	3.15	1.22	2.77	0.17	2.08†
Other . . . . .	1.32	0.07	0.89	0.08	—	0.34	0.94†
1945* All leather . . . . .	2.13	1.10	3.48	1.07	2.74	0.14	1.94†
Other . . . . .	1.79	0.07	1.46	0.17	0.49	0.34	1.21†

Estimated per Capita Consumption of Shoes by Major Types  
Includes Rationed and Nonrationed  
(Pairs per Capita)

1943 All leather . . . . .	3.49	1.78	3.73	1.47	2.78	0.19	2.81†
Other . . . . .	0.65	0.01	0.11	—	—	0.13	0.57†
1944 All leather . . . . .	2.59	1.31	3.58	1.48	3.05	0.17	2.30†
Other . . . . .	1.08	0.06	0.73	0.07	—	0.33	0.82†
1945* All leather . . . . .	2.40	1.20	3.57	1.14	2.77	0.14	2.11†
Other . . . . .	1.65	0.07	1.13	0.14	0.36	0.13	1.10†

\*Preliminary.

†Excludes shoes for military purposes:

1943 Military . . . . .	46,885,000 pairs
1944 Military . . . . .	50,485,000 pairs
1945 Military . . . . .	48,100,000 pairs

Synthetics, plastics and substitutes for leather footwear continued to be important during 1945 and it was expected they would be some influence in spurring the tanners to exert themselves in the competitive period that would follow when the leather situation became easier.

At the end of 1945, retail stocks were at an all-time low, with little prospect of replenishment. By and large, shoe retailers had a profitable year in 1945. (See also LEATHER.) (E. G. AN.)

**Shows.** Horses.—The principal local horse shows in the United States were resumed following the end of World War II particularly during the fourth quarter of 1945. The restrictions on shipments and travel limited attendance except in the larger cities. The American Horse Show association reported 108 shows held in 1945 under its auspices compared with 62 in 1944. Heavy horses were shown at the few state fairs and general livestock exhibitions, but these exhibitions were generally planned to open in 1946.

The Second Annual Chicago Horse show Nov. 3-11, 1945, was one of the largest ever held, with 588 horses in 1,705 entries in 125 classes. More than \$60,000 was paid in prizes to the winners. Attendance was large and more than \$85,000 was raised in benefits for war veterans. The outstanding show in the east was held at Devon, Pa., Sept. 20-22 with 215 horses in 1,000 entries. The Kentucky State Fair show at Churchill Downs with 400 entries was one of the largest. Other important exhibitions were the Los Angeles, Calif., fall show, the Spokane Horse show, the Nebraska State Fair exhibition, and those at Memphis, Tenn., and Jackson, Miss. The National at New York and most of the older shows in the east were severely restricted.

A new development of local community horse shows resulted from the renewed interest in light horses, including saddle horses and children's ponies. In Iowa there were 25 such local shows held in 1942, 67 in 1943, 152 in 1944 and 176 in 1945 with an average attendance of about 2,000 in 1945. Such shows were particularly popular in states that did not have legalized betting. In Tennessee the growing popularity of the walking horse, which has a gait that takes the place of the saddle trot, led to shows of this general-purpose animal in growing numbers. Plans and announcements indicated that horse shows would be resumed in increasing numbers in 1946.

(J. C. Ms.)

**Livestock.**—Livestock shows in the U.S. were more restricted in 1945 than in any previous war year due to additional curtailments on shipping and travel. A number of state fairs that were held in the three previous years were therefore cancelled altogether or were limited to the shipment of exhibits that could be sent by truck, making them local shows.

Denver repeated its 1944 rating at the top of all regularly held livestock shows in the U.S. when the National Western Stock show was held there Jan. 13-21, 1945. Among the few exhibitions in the U.S. whose facilities were not required for war purposes, this show continued uninterrupted during the war.

The Hereford cattle show at Denver was the largest showing of 1945 of this breed and was highlighted by the sale of two bulls at \$50,000 each. It also attracted creditable exhibits of the other two beef breeds, the Shorthorn and the Aberdeen-Angus. Perennially famed for its large exhibitions of commercial feeder cattle exhibited in carload lot units, as well as purebred beef bulls for range use, these departments continued strong.

Ft. Worth, Tex., is the home of the oldest livestock show in the U.S. This event, the Southwestern Exposition and Fat Stock show, was held from March 9-18 for the second time in its new setting, the Will Rogers Memorial amphitheatre.

Such other regular sectional expositions as the Pacific International in Portland, Ore., the American Royal in Kansas City, Mo., the Aksarben in Omaha, Neb., were again curtailed by reason of the war to shows featuring livestock raised and ex-



hibited by farm boys and girls as 4-H or vocational agricultural projects.

Largest among all livestock shows of the U.S., and the world, prior to World War II was the International Live Stock exposition in Chicago. This event was held annually during the first week of December from its inception in 1900 to 1941, following which it was cancelled for the duration of the war.

In its place four exhibitions confined to fat cattle, sheep and swine were held at the Chicago stockyards during the same week the full exposition took place prior to the war. The substitute show, known as the Chicago Market Fat Stock and Carlot competition, was held from Dec. 1-6, 1945. It was the United States largest showing of the year of fat stock, numbering 5,488 head of cattle, sheep and swine exhibited by stockmen and farm boys and girls from 15 states and Canada.

All of the animals in the show were sold at record-breaking prices in auction sales which followed the judging. The grand champion steer sold at \$10 a pound or \$11,100 for the animal. The grand champion carload of 15 head of fat steers brought \$2 a pound or \$30,660 for the load. The grand champion barrow, at \$7 a pound, brought \$2,037, and the grand champion wether lamb, at \$3 a pound, brought \$252. The total return to the owners on all the livestock in the show—all slaughter animals—was \$814,270.83.

The major show of 1945 on the Pacific coast, the Great Western Live Stock show, was held in Los Angeles, Calif., Dec. 1-7—the only major livestock event of the year on the Pacific coast.

Canada's two principal livestock shows, the Royal Winter fair and the Canadian National exposition, both in Toronto, had also been suspended during World War II. The largest show of 1945 in Canada was the Calgary Exhibition and Stampede in early July.

Both of the major annual dairy shows of the U.S., the National Dairy show, an itinerant exhibition, and the National Dairy Cattle congress at Waterloo, Ia., were also dormant because of wartime restrictions; and a majority of the state fairs were not held in 1945 for the same reasons.

States which supported fairs on a state-wide basis in 1945, most of which were restricted to livestock exhibits from within the state, were Arkansas, Colorado, Idaho, Kansas, Louisiana, Mississippi, New Mexico, South Dakota and Utah. None of the major state fairs, those of the midwest, took place.

The only show of importance in Great Britain that survived the war period was the annual Perth Show and Sale in Scotland. It featured exhibitions of Aberdeen-Angus and Shorthorn cattle. It was held in Feb. 1945, in consecutive weeks for the two breeds.

South America's leading agricultural show, the Palermo, in Buenos Aires, was held in August. It is the world's largest annual showing of Shorthorn cattle but less notable for its exhibitions of the other two beef breeds, the Hereford and Angus, as well as for Holstein-Friesians and Guernseys, its two principal dairy breeds. (W. E. O.)

**Dogs.**—The dog field, particularly that of shows, was affected materially by war conditions during 1945; but soon after V-J day, renewed activity in breeding, sales and shows appeared to be greater than at any time previous.

The headline news continued to be the excellent work of war dogs in actual combat. The use of dogs, mostly German shepherds and Doberman pinschers, in the Pacific Islands warfare against the Japs was praised officially by the war department, and certificates of merit were issued to various dogs. Use of dogs on the European battlefield was mostly for sentry or alert work with some messenger service and some work in locating wounded and missing persons.

Public interest in dogs continued to be extensive. Because at no time were there any priorities or ceiling prices in the dog field, sales were brisk.

Registrations in the various stud books reached record totals for 1945. The American Kennel club exceeded its previous top of 82,000 for a year's totals by reaching the new high of 135,000. The merry little cocker spaniel was still in top place followed in order by the beagle, Boston terrier, Scottish terrier and wire-haired fox terrier.

The *American Field* stud book, mostly for bird dogs, also had a new high of 16,589 with pointers, English setters and Irish setters leading in that order.

In bird dog trials, the two top winners may be said to have been the pointer Ariel, in the Alberta Prairie Chicken Trials; and the pointer Bolero, in the American Field Quail Futurity.

In retrievers, the National Field championship title was won by the black Labrador bitch Black Magic.

At the dog shows (bench shows), the boxer male Ch. Warlord of Mazelaine led in major show honours; although first placing in the largest show of the year, the Westminster in New York city with 2,652 dogs entered, was captured by the Scottish terrier male Ch. Shieling's Signature.

National Dog week in its 18th year was observed widely; it emphasized more training and better control of dogs, particularly in public places. (W. Ju.)

**Siam (Thailand).** A kingdom of southern Asia between Burma and French Indo-China, extending southward into the Malay peninsula; area 198,247 sq.mi.; pop. (census 1937) 14,464,105, (est. March 1940) 15,717,000. Chief towns: (pop. 1937) Bangkok (former cap., 681,214); Chiangmai (544,001); Khonkaen (473,475); Chiangrai (443,476). Ruler: King Ananda Mahidol; language: Siamese; religion: Buddhism.

**History.**—After the fall of the puppet government of Luang Pibul Songgram in July 1944, Thailand, under the leadership of Kuang Kovid Aphaiwong, prime minister, and the Regent Luang Pradit Manudharm, pursued a policy of non-co-operation with the Japanese, and in the attempt to revive the democratic way of life showed a complete re-orientation of the policy of Pibul. The sudden end in 1945 of the war in the far east gave the resistance movement which had been built up no chance to prove itself, but Ernest Bevin, British foreign secretary, acknowledged on Aug. 20 "the help received from this movement. If it has not taken overt action before now, I ought to make it clear that this has been due to our advice, on purely military grounds." He then added a *caveat*: "It remains to be seen how far its spirit permeates the country." The United States Office of Strategic Services issued a report in September which revealed that the regent was the leader of the resistance movement and was in constant communication with the state department, the British government and the Allied command in the India-Burma theatre.

On Aug. 16 Thailand repudiated its declaration of war on Great Britain and the United States and later announced that territories which it had occupied in Burma and Malaya would be returned to Britain. Arrangements were made immediately for the release of civilian internees and a Thai military mission was sent to the southeastern Asia command, which arranged for the evacuation of prisoners of war and the surrender of the Japanese in Thailand. It was also agreed that Thai naval, land and air forces should be handed over to the Allies for use as required.

There were disturbances in Bangkok at the end of September, Thai nationals shooting at Chinese and also fighting among themselves.

A British government spokesman at Singapore stated on Dec. 14 that Britain was still at war with Thailand. Britain considered the withdrawal of the declaration of war unconstitutional and thought that Thailand should offer concrete evidence of its good faith and make restitution for damage to British interests and the interest of territories on its borders, for which Britain was responsible. (J. R.A.)

On Sept. 7, 1945, a decision of the council of ministers was announced, to discard the terms "Thailand" and "Thai" and to revert to the terms "Siam" and "Siamese," applicable only to foreign languages, but not to the Thai language.

**Education.**—In 1938-39: government schools 429; scholars 61,297; local public and municipal schools 11,072; scholars 1,484,483; universities 2; students (1937) 11,525.

**Banking and Finance.**—(1942) revenue, \$77,650,000; expenditure \$95,800,000; expenditure, capital (est. 1941) \$20,700,000; public debt (March 31, 1940) \$25,500,000; notes in circulation (July 31, 1941) \$96,000,000; reserves (July 31, 1941), gold \$35,850,000; foreign assets (July 31, 1941) \$56,100,000; exchange rate (average 1940) 1 baht = 35.15 U.S. cents; (Sept. 1941) 1 baht = 36.97 cents U.S.

**Trade and Communication.**—Foreign trade 1940-41 (merchandise): imports \$60,200,000; exports \$95,000,000. Communications: roads, state highways completed (1938) 1,815 mi.; railways, open to traffic (1938) 1,925 mi.; airways, length of route opened (1938) 444 mi.; motor vehicles licensed (1937-38): total 11,439 (cars 5,910; trucks 4,233; buses 146; cycles 559); wireless receiving set licences (1938) 29,834.

**Agriculture and Mineral Production.**—Production (in short tons): rice (1939-40) 5,590,200; rubber (1940 exports) 49,500; tin ore, metal content (export 1940) 19,470; tobacco (1938-39) 9,240; cotton ginned (1940-41) 2,640; maize (1938-39) 6,160.

**Sierra Leone:** *see* BRITISH WEST AFRICA.

**Silesia.** Of this former Prussian province a part of Upper Silesia was ceded to Poland as a result of a plebiscite on June 15, 1922. It was organized as a province, Slask, with an area of 1,633 sq.mi. and a population of 1,124,967, with the capital Katowice (Kattowitz). The defeat of Germany in World War II resulted in having all the remaining parts of Prussian Silesia placed under Polish administration. This Polish acquisition consisted of the Upper Silesian district of Oppeln with an area of 3,750 sq.mi. and a population of 1,379,408; the Lower Silesian district of Liegnitz with an area of 5,257 sq.mi. and a population of 1,235,093, and the Lower Silesian district of Breslau with an area of 5,019 sq.mi. and a population of 1,897,172.

The province of Silesia included, in addition to great industrial wealth and natural resources, some of Germany's principal towns, like Breslau (pop. 625,198), Hindenburg (130,433) and Beuthen (100,584). In 1945 the German population was everywhere being replaced by Polish settlers. Under Polish administration Silesia was divided into three provinces, Lower Silesia with the capital at Wroclaw (Breslau), Middle Silesia with the capital Opole (Oppeln) and Upper Silesia with the capital Katowice (Kattowitz). A small part of the province of Silesia, especially the territory around Kladsko (Glatz) and Ratibor (Raciborz), was being claimed by Czechoslovakia. (H. Ko.)

**Silk.** With the surrender of Japan in Aug. 1945, to the United States forces, renewed interest in the use of silk was sharply accelerated by anticipated return of Japanese supplies of raw silk. Newer sources of supply, Brazil primarily, lost prominence among former users of the luxury fibre as the hope arose that the need of the Japanese for money to buy food and supplies from other countries would force their early return as silk producers at a price more in accord with prewar levels. The high price of Brazilian silk, \$12 to \$15 a lb., limited the possibilities of its use in fabrics and garments of prewar variety and some processors were disappointed in the general quality of the silk. Announcement in October by the U.S. military authorities that approximately 46,000 bales (approx. 6,103,000 lb.) were on hand in Japan for shipment as soon as the grades had been determined and a price policy set gave impetus to plans in the U.S. for a revival of silk as the fibre of luxury garments and other products.

The first half of 1945 saw increasing attempts by many countries to capture the profitable U.S. silk market before World War II ended. Most notable of the markets was Brazil. Production during 1945 totalled 1,102,000 lb. compared with 286,598 lb. in 1943. About half of this production was consumed in Brazil but the U.S. took 16,000 lb. in the first six months at an average price of slightly more than \$12 per lb. It was estimated that the shipments during the last half of the year exceeded this amount.

Brazilian authorities planned on increased production in 1946 by distribution of 4,000,000 gr. of silkworm eggs and supplies of mulberry cuttings through the Serfco de Sericultura.

In the United States, a group in Texas and another in California prevailed upon two governmental bodies to appoint special committees to study the problems attendant upon raising raw silk in their respective states. A Texas member of congress, William R. Poage, was appointed on Oct. 5, as chairman of a

subcommittee of the agriculture committee of the house of representatives with other members from Mississippi, Tennessee, Minnesota and California to investigate the possibility of developing a U.S. silk growing industry. The California state legislature created a special committee which issued a lengthy report on the "Possibilities of Silk Production and Industry in California" at the 56th session of the legislature during 1945.

Turkey, India, Russia, Spain, Damascus and Palestine were other competitors for the production of raw silk with Italy coming out of the war with its silk area virtually undamaged (around Como) and promising to ship raw silk to the U.S. as soon as price controls set by the U.S. government could be adjusted to permit such importation.

China came back first to the United States market, following the war's end, by shipping 600 bales in Dec. 1945. It was expected that further shipments would be made within a short period although some doubt was expressed as to whether sufficient silk of the quality desired would be available.

Plans for shipping the Japanese silk began with the steps taken by the Japanese ministry of agriculture in October to increase raw silk production by returning to mulberry cultivation about 150,000 chobu (367,500 ac.) which had been used for food production during the war. It was estimated that approximately 150,000 bales of raw silk could be added to production by this action. The mulberry trees had been pruned enough so as not to prevent the growth of vegetables but not enough to prevent the tree growth when needed. By the end of October, the Japan Raw Silk association was organized and capitalized at 20,000,000 yen to assume the business of the Japan Raw Silk Control Co. and the Japan Central Raw Silk association, previously ordered discontinued by Allied headquarters. In November, D. E. Douty, international silk expert and president of the United States Testing company in Hoboken, N.J., was sent at the request of Allied headquarters to Japan for an inspection of 46,000 bales of silk held in stock and a supply of cocoons that might produce an additional 60,000 bales. At the end of 1945, Japanese sources were being quoted as promising a crop of about 100,000 bales by May 1946 and 250,000 bales the following year. The prewar production varied from 600,000 to 800,000 bales a year. (See also RAYON AND OTHER SYNTHETIC FIBRES; TEXTILE INDUSTRY.)

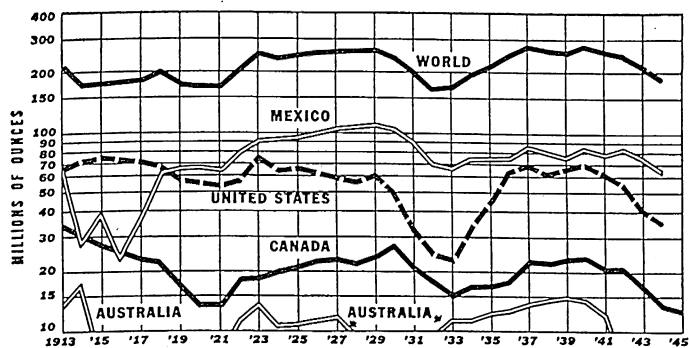
**BIBLIOGRAPHY.**—Brazilian Government Trade Bureau, New York; Bureau of Foreign and Domestic Commerce, Washington; Fairchild Publications, New York. (I. L. BL.)

**Silver.** Output of silver by the major producing countries is shown in the table.

	1940	1941	1942	1943	1944
United States . . . . .	68.28	71.08	55.86	40.87	35.65
Canada . . . . .	23.83	21.75	20.70	17.35	13.63
Newfoundland . . . . .	1.49	1.66	1.11	1.26	1.16
Mexico . . . . .	82.64	78.36	84.86	76.63	65.46
Honduras . . . . .	3.90	3.63	3.48	3.16	3.12
Argentina . . . . .	3.71	2.92	2.84	?	?
Bolivia . . . . .	5.63	7.35	8.12	7.30	6.80
Chile . . . . .	1.51	1.24	1.32	1.09	?
Peru . . . . .	19.37	15.12	16.04	14.66	15.83
Belgian Congo . . . . .	3.54	3.47	3.96	3.25	?
South Africa . . . . .	1.29	1.48	1.48	1.33	?
Australia . . . . .	14.08	12.00	9.51	8.59	?
Total . . . . .	275.39	261.57	247.75	217.04	186.20

It will be noted that data are lacking from Europe and Asia, each of which supplied about 8% of the prewar output. In these figures almost as much as in the case of gold is evidence of the extent to which output was restricted in favour of metals essential to the war program.

**United States.**—The United States outputs shown in the table are refinery data. Mine production was slightly lower, declining from 41,680,826 oz. in 1943 to 34,473,540 oz. in 1944, a drop of about half after 1940. However, this planned retrench-



SILVER PRODUCTION of the major producing countries and of the world, as compiled by *The Mineral Industry*

ment in favour of the base metals had repercussions that had apparently not been anticipated. While silver output was dropping by half, consumption of silver in industry was expanding rapidly, eventually reaching about fourfold over the prewar level, with the result that industrial consumption, much of it for war purposes, reached a total during 1941-44 that was about double the domestic output—aside from needs for coinage and other purposes, which in themselves took amounts about equal to output. In effect, the entire expanded industrial consumption had to be supplied from treasury stocks. In addition to these normal industrial uses, the treasury also supplied more than 900,000,000 oz. under lease for nonconsumptive uses in war plants, the chief demand of this type being for conductor bars in electrolytic plants producing aluminum and magnesium, the supply of copper being short at the time the plants were being built. A further 243,700,000 oz. was supplied to other governments under lend-lease. Because of scarcity of supply, the U.S. price for foreign silver was raised to a par with the price for domestic production, 71.11 cents, on Sept. 21, 1945.

**Canada.**—The preliminary estimate on mineral production in Canada during 1945 put the silver output at 12,866,597 oz., as compared with 13,627,109 oz. in 1944. (See also MINERAL AND METAL PRODUCTION AND PRICES.) (G. A. Ro.)

**Simons, Moises** (1889?-1945), Cuban composer, began the study of music with his father, Leandro Simons, a prominent musician. In 1930, he received the Spanish government's first prize for his operetta, *La Nina Merse*, presented at the Barcelona world's fair. In the same year, "The Peanut Vendor," a popular song, was published and fast became an international hit. Composer of light and serious music, Simons was best known for his compositions "Negra Quirina" ("Cuban Belle"), "A Gozar" ("Let's be Gay"), and "Serenata Cubana" ("Cuban Serenade"). He resided in Paris and then Madrid and died in the Spanish capital, June 28.

**Sinkiang** (CHINESE TURKESTAN). Largest and most remote of the provinces of China, bounded N. and W. by the soviet union, N. by Mongolia, S. by India and Tibet, E. by China. The name means New Dominion. Area, 705,769 sq.mi.; pop. (est. of the Chinese ministry of the interior, 1936), 4,360,020. Capital, Urumchi (Tihwa) (50,000) in the northern part of the province. The two other largest towns, Kashgar (80,000) and Yarkand (75,000) are in the south. Religions: Confucianism, Taoism, Mohammedanism. Governor (appointed 1944) Wu Chung-hsin. Chinese constitute about 10% of the population and there are 14 other ethnic groups, mostly Turki tribes.

Sinkiang is a country with vast stretches of desert and arid land. The limited area under cultivation is mostly in oases and river valleys. According to a Chinese estimate of 1918 a little

more than 1,000,000 ac. of land in Sinkiang were under cultivation. The principal crops were wheat and corn, with rice, cotton, kaoliang, beans, melons and other fruit also being cultivated. A later Chinese estimate of 1942 gives the following figures of livestock in Sinkiang: sheep 12,000,000; horses 2,000,000; goats 1,300,000; cattle 1,000,000; camels 500,000.

Because of its geographical location and the absence of rail and adequate highway connection with China, Sinkiang, both before and after the Russian revolution, carried on much of its limited foreign trade with the U.S.S.R. The completion of the Turk-Sib railway in 1930 facilitated trade contacts between the U.S.S.R. and Sinkiang. There is also some caravan trade over the high passes which separate Sinkiang from India.

Among Sinkiang's leading exports are wool, cotton, furs, skins, sheep, cattle and horses. Imports consist largely of machinery and manufactured goods. Some 2,440 mi. of highways were constructed during 1932-42, but there were no railways in the province in 1945. The air route from Chungking to Moscow is across Sinkiang, with stops at Hami, on the eastern border of the province, and Urumchi.

Russian political influence asserted itself in Sinkiang during a confused period of civil strife which became acute in 1934. Chinese sovereignty was never abrogated, however, and in 1942 and 1943 there was a more definite assertion of Chinese authority. Officials and commissions of the central government entered the province; British and U.S. consulates were reopened in Urumchi; Russian troops withdrew from Hami. Russian machinery and equipment which had been installed in Sinkiang were removed. Tass, the soviet official news agency, on April 2, 1944, reported an alleged violation of the frontier of Outer Mongolia in the course of a clash between Chinese troops and wandering Kazak nomads. (W. H. Ch.)

**Skating:** see ICE SKATING.

**Skiing.** With most of the top flight skiers still in the armed forces, the sport was devoted principally to junior development during 1945. In the only jumping test of importance, Merrill Barber temporarily succeeded Arthur Devlin as the United States' outstanding amateur, defeating the latter at the Bear mountain tourney.

Middlebury college won the Harvard invitational with 254.8 points to Harvard's 240.9. Elliott Lang, 14-year-old Andover, Me., high school sophomore, topped the metropolitan junior competition with firsts in the downhill and jump, second in the cross-country and seventh in the slalom.

Hampered by transportation difficulties, skiing in the middle west was held to a minimum. Plans for 1946, however, indicated a gradual return to the ski-train specials of prewar days.

(M. P. W.)

**Skin Diseases:** see DERMATOLOGY.

**Slate.** The production of dimension slate in the United States dropped from 73,310 short tons in 1943 to 60,950 tons in 1944. The production of slate granules and flour increased from 395,550 tons in 1943 to 416,890 tons in 1944.

(G. A. Ro.)

**Slim, Sir William Joseph** (1891- ), British army officer, was born Aug. 6. He was educated at a grammar school in Birmingham, England. At the start of World War I, he was commissioned into the Royal Warwickshires and was shipped to France with Lord Kitchener's "First 100,000." He subsequently saw action at Gallipoli, where he was severely wounded, and in Mesopotamia. After the war, Slim decided to stay in the services, and in



1939 he was commandant of a senior officer's school in Bombay province. When World War II opened, he was a colonel, and in Aug. 1940 he was a general. Gen. Slim participated in fighting on the border of Eritrea, and in the Anglo-Egyptian Sudan, the Allied campaign in Syria and the joint Anglo-Russian drive in Iran. After Japan's entry into the war, he was transferred to the Burma theatre in March 1942 as head of the 1st Burma corps. In Oct. 1943 Gen. Slim was given command of the British 14th army which halted the Japanese drive into Manipur state, India, in June of 1944. Then he opened the arduous campaign to regain all of Burma, and recaptured Mandalay in March 1945 and Rangoon in May. By the latter date the Burma campaign was virtually ended and his army had forced the enemy to retreat toward Thailand (Siam).

**Slovakia.** A part of Czechoslovakia until March 1939, when its independence was established with German help. Its nominal independence as a republic came to an end in the beginning of 1945. Slovakia then again became a part of Czechoslovakia. It enjoys a large degree of autonomy. Area 14,848 sq.mi.; population (census of 1930) 2,450,000, mostly Roman Catholics, but there is a considerable Protestant minority. Capital: Bratislava (123,852); chief cities: Trnava (24,000), Nitra (21,250).

**History.**—The clerical fascist regime in Slovakia which collaborated with the Germans came to an end in 1945. As the year ended, the country was under the Slovak national council which was composed equally of communists and democrats. The council enjoyed a large autonomy in the domestic affairs of Slovakia. In the Czechoslovak government in Prague the Slovaks were represented by six members in the cabinet and by two of the five vice-premiers. In the Czechoslovak provisional national assembly the Slovaks had one-third of the deputies. These 100 Slovak delegates, half communists and half Democrats, were elected in the city of Baňská Bystrica, on Aug. 29. The party which formerly ruled Slovakia, the Catholic Peoples party founded by Father Hlinka, was outlawed, as its leaders were responsible for Slovakia's independence and collaboration with the Germans. These leaders, among them the former president, Msgr. Josef Tiso, and prime minister, Dr. Bela Tuka, were under arrest and faced trial for collaboration in 1946. (See also CARPATHO-UKRAINE; CZECHOSLOVAKIA.) (H. Ko.)

**Smith, Holland McTyeire** (1882— ), U.S. marine corps officer, was born April 20, in Russell county, Ala. After graduating from the University of Alabama, 1903, he practised law, but gave it up to join the marine corps, and was commissioned a second lieutenant in 1905; he was promoted through the grades to major general, 1941, when he became commanding general of the Atlantic fleet's amphibious forces. In 1943, he directed U.S. amphibious forces during the battle for the Aleutians and in the invasion of Tarawa and Makin. Smith was also assault commander of operations in the Marshall Islands, Feb. 1944, the landings on Saipan, June 1944, and the invasion of Iwo Jima, Feb. 1945. Lt. Gen. Roy S. Geiger succeeded Smith as commanding field officer of the marine corps, June 22; the latter was made head of the marine training and replacement command at San Diego, Calif.

**Smith College.** Smith college for women in Northampton, Mass., had a 1945-46 total enrolment of 2,355. No summer session was held in 1945, so the number of girls studying during the summer decreased, but the numbers doing volunteer work and employed in camps and business in-

creased. Curriculum emphasis remained on general education in the arts, humanities, history, languages and science. Interest in international affairs continued, illustrated by departmental and college lectures on public affairs, by a junior year in Mexico for students taking Spanish, and by exchange of students with the University of Toronto. The intensive method of language instruction was tried in German and Russian. Demand grew for courses cutting across departmental lines, and majors correlating work in several departments. Trustees, faculty, alumnae and students continued to discuss problems of education in post-war society. (For statistics of enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (H. F. D.)

**Smithsonian Institution.** The institution was founded in the United States in 1846 through the bequest of James Smithson, an English scientist, "for the increase and diffusion of knowledge among men." The governing body is the board of regents, comprising the chief justice of the United States, the vice-president, three senators, three representatives, and six eminent private citizens. The executive officer is the secretary. Dr. Alexander Wetmore was the secretary in 1945. The institution administers six government bureaus that grew directly out of its early activities, and also the Freer Gallery of Art. The National Gallery of Art is a bureau of the institution, but is administered by a separate board of trustees.

The staff of the institution continued in 1945 until the end of the war to devote a considerable part of its time to furnishing technical information to the army, navy and other war agencies. Hundreds of requests were received for such information in the fields of geography, anthropology, biology, geology and engineering. Many of the requests called for extended research, reports or conferences. Two papers were published in the series "Smithsonian War Background Studies." These covered China and the Aleutian Islands. Most of the 21 papers that were issued in this series dealt with the geography, peoples and resources of the regions penetrated by World War II. Others treated of the evolution of nations, the natural-history background of camouflage, and the poisonous reptiles of the world. Up to the close of 1945, 232,725 copies had been printed by the institution, and the army and navy had ordered 409,720 additional copies.

The institution continued during 1945 to take its part in the government's program for the improvement of cultural relations with the other American republics. Four of the five volumes of the *Handbook of South American Indians* were in press, and the fifth was practically completed. The new Institute of Social Anthropology created within the institution continued its co-operative work in anthropology in Mexico and Peru. Several members of the staff conducted field expeditions in South and Central American countries in co-operation with scientists of those countries.

All the priceless and irreplaceable material from the collections of the United States National museum that had been evacuated to a safe place during the war was returned safely to the institution. As the repository of more than 18,000,000 specimens of national value, the institution, of course, continued their care and the care of the buildings.

The astrophysical observatory maintains its three solar observing stations on distant desert mountains, to keep unbroken its unique record of the variation of the radiation emitted by the sun on which all life and weather depends. Much progress had been made in the study of the relations of solar variation and weather.

The art treasures of the National Gallery of Art were augmented by numerous gifts during 1945, including 80 important

Italian, French and Dutch paintings and 26 pieces of sculpture from Samuel H. Kress and the Samuel H. Kress foundation, and 1,740 prints and drawings from Lessing J. Rosenwald. The gallery gave Sunday evening concerts, lectures, and conducted tours for servicemen and women and their friends.

It was expected that the Smithsonian Institution's program of research and exploration would be resumed as soon as possible after the re-establishment of normal conditions. (A. Wt.)

**Snyder, John Wesley** (1896— ), U.S. government official, was born June 21 at Jonesboro, Ark. He attended Vanderbilt university, Nashville, Tenn., 1914-15, leaving before he obtained a degree, and in 1917 he joined the army and was promoted to artillery captain. While in France, he met Capt. Harry S. Truman and after the war the two became friends. Following the armistice, Snyder entered the banking profession, and in 1930 he became national bank receiver in the office of the comptroller of currency in Washington, D.C. He was appointed manager of the St. Louis loan agency of the Reconstruction Finance corporation in 1937 and executive vice-president and director of the Defense Plant corporation, a subsidiary of the RFC, in 1940. In early 1943, Snyder resigned from his various governmental posts to return to private banking. On April 17, 1945, President Truman appointed Snyder federal loan administrator, and three months later (July 16) Snyder was made director of the Office of War Mobilization and Reconversion. Regarded as a "hard-headed businessman" rather than a social theorist, he was opposed to government planning and he stood for a minimum of government regulation of private enterprise. Snyder endorsed (Sept. 1) the Murray Full Employment bill, declaring that his task of reconversion would be futile if it were not accompanied by full production and employment. He also was opposed to a formal declaration of the end of hostilities of World War II, declaring (Oct. 26) that such an act would end wartime controls and seriously interfere with reconversion. In his first report on the U.S. transition from a wartime to a peacetime economy on Sept. 6, he declared that the initial reconversion steps had started out "boldly." He advocated retention of some controls and urged that the forces of deflation and inflation be checked by a "firm policy of economic stabilization."

**Soap, Perfumery and Cosmetics.** The year 1944 with total retail sales of \$546,300,000 was the largest in the history of these industries, in the United States. As the year 1945 closed it was estimated that sales of toilet soaps, perfumes and cosmetics would exceed 1944 by at least 20%, to a total of something more than \$650,000,000, with totals in the southwest and the far west running far ahead of this figure in percentage.

Supplies of raw materials continued to improve although in this respect the position of the three industries was far from ideal. At the end of 1945 fats and oils were still scarce and critical. This was especially true of castor oil, which was a vital factor in the production of hair tonics. Closures and glassware were still in relatively short supply. At least two of the largest producers were six months back in deliveries at the end of 1945. In view of the over-all situation the Civilian Production administration retained order L-103 in force—the order which prohibits the manufacture or use of new glass moulds. Thus as in the previous year, the creation of new products was somewhat limited all through 1945.

After V-E day it was hoped there would shortly be some importation of natural flower oils from France. By the end of the year a few odd lots had made their appearance, but the condition of the French industry was not such as to hold out

much hope for resumption of steady imports. The French perfumers themselves were in equally bad case as to supplies of bottles, chemicals, solvents, fats, oils, materials imported from other parts of the world; indeed almost everything essential to the operation of their industry. In addition, their costs in francs were several times higher than they were before the war; so that even with revaluation of the franc it was not anticipated at the close of 1945 that French goods could be a serious competitive factor on the U.S. market for some time to come: either there would be no French perfume offered for sale at all in the U.S., or it would be so expensive as to put it entirely out of reach of all but a very few.

In Great Britain the domestic quota system which it had been hoped would be relaxed after V-J day was still in force at the end of the year, although it was felt that something must be done about it shortly, as one means of reducing unemployment, which with demobilization, was again becoming a factor in the total industrial situation. There had however, been some easing of export restrictions; which fact, coupled with the reduction of the tax of 100% on all profits in excess of the pre-war years, to 60%, to take effect in April 1946, gave the industries a better outlook.

However, unquestionably the most significant development in Great Britain was the formation of a new trade association. Previously there had been two such groups. It was felt that on any approach to official bodies, that however the two associations might complement one another, nevertheless, the industries would be better served if they could speak with one voice. As a result a new group was formed, known as the Toilet Preparations and Perfumery Manufacturers Federation of Great Britain, Ltd. Apart from material shortages probably the biggest problem in the British industries was, as with individuals, one of housing. (H. T.)

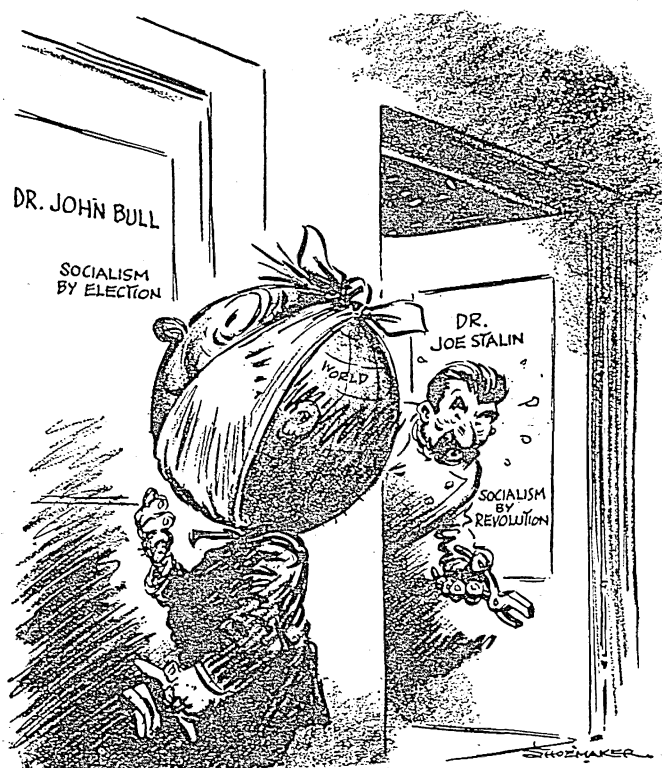
**Soapstone:** see TALC.

**Soccer.** The Brookhattan soccer team of the Bronx, N.Y., scored an unusual "grand slam" in 1945 by winning the National and Lewis cups and the American league championship. Winners of the eastern division play, Brookhattan won the National Challenge cup in the final over the Cleveland Americans. The Eintracht Sports club of Brooklyn won the National Amateur cup, along with the eastern and New York state amateur titles.

The Vikings of Chicago, Ill., continued to three years their dominance of midwest soccer, repeating as champions of the National league. The western amateur was won by the Rafteries of St. Louis, Mo., while the St. Louis Schumachers won both the national junior and western junior crowns. Pompeii of Baltimore, Md., captured the eastern junior division, while the Cork Celtics of New York won the Metropolitan league but relinquished the Metropolitan cup to Segura of Brooklyn.

(M. P. W.)

**Socialism.** In 1945, a year of momentous events, there were no national elections in the United States by which to judge the strength of socialism. In this respect municipal elections were not significant. Bridgeport, Conn., followed its usual habit by re-electing Jasper McLevy of the Connecticut Socialist party as mayor. Louis P. Goldberg, chairman of the New York Social Democratic federation, was elected to the New York city council on the Liberal party ticket. The year saw conferences of the Socialist party and the Social Democratic federation on lines of joint action. It also saw more inclusive exploratory conferences looking to the possible formation on a nationwide scale of a mass party along the lines of the Canadian Co-operative Commonwealth federation.



"THE PAINLESS WAY." Cartoon by Shoemaker of the *Chicago Daily News* after the results of the British election were announced in July 1945

The Socialist party aggressively pushed a bill for full production and full employment for which it got support of a non-partisan committee. It vigorously opposed peacetime military conscription and urged U.S. leadership in bringing about its universal abolition, along with effective renunciation of atomic explosives as part of a program of progressive disarmament essential to any healthy development of the United Nations organization and to peace itself. The party was critical of the San Francisco charter but approved its ratification. It was insistent on the end of the veto power of each of the Big Five in the Security council and on nonimperialist peace settlements, the liquidation of colonial empires, and more adequate feeding of the hungry, as essential to peace. Originally, the victory of the British Labour party stimulated increased interest in socialism in the U.S., but the Labour government's apparent support of imperialist policies retarded the interest its electoral success had aroused.

**South America.**—In Peru the Peoples' party (formerly the Aprista) in the summer election elected on its socialistic program a larger number of deputies than any other party.

In Argentina the Socialist party, many of whose leaders were exiled (some of them carried on a vigorous agitation from Montevideo, Uruguay), formed with the communists and others a democratic union against Col. Juan D. Perón and they were members of the coalition in support of the radical candidate for president, Dr. Jose P. Tamborini.

In Venezuela Romulo Betancourt, head of the Accion Democratica, professing socialistic aims, secured power in a coup d'état after the regime of President Medina showed signs of perpetuating itself in power.

**Canada.**—Canada perpetuated the Liberal government of Mackenzie King in its general election. The socialist Co-operative Commonwealth federation (C.C.F.) led by M. J. Coldwell increased its representation in the dominion parliament from 10 to 28 but was unable to follow the example of Australia, New Zealand and Great Britain by winning a socialist victory. It increased its voting strength in Manitoba, British Columbia and Nova Scotia. It lost relative strength in Ontario. In Saskatche-

wan under the government headed by Prime Minister T. C. Douglas it extended government control over electric power, conducted an insurance business and increased other public services.

**Australia.**—In Australia socialist government under the Labour party continued in power following the death of John Curtin, the prime minister. His successor, Joseph Benedict Chifley, had been treasurer and minister of postwar reconstruction in the Curtin cabinet. The government extended public banking and nationalized all interstate civil air line operations.

**New Zealand.**—In New Zealand the Labour government continued its insurance operations; bought many large estates for improvement, subdivision and lease to veterans; and took first steps toward complete acquisition of shares of the Bank of New Zealand.

**Great Britain.**—Following V-E day the British Labour party broke up the national coalition. Prime Minister Churchill then set a general election on July 5. Labour polled 11,992,292 votes; the Conservatives 9,960,809 votes; and the Liberals 2,239,668 votes. The Labour party elected 393 out of 640 members of parliament. Clement R. Attlee succeeded Winston Churchill as prime minister with Ernest Bevin, foreign minister; Hugh Dalton, chancellor of the exchequer; and Herbert S. Morrison, president of the council and leader of the house. The Labour government nationalized the Bank of England and took preliminary steps for nationalizing coal mines, civil aviation and cable and wireless communication. The party announced a further program for nationalizing the electric and gas industry and all inland transportation and canals. Its leaders drafted legislation for establishing social insurance on the lines of the Beveridge plan; for rebuilding devastated cities and towns; for a national health service, the reorganization of textile industry; the repeal of the Trade Disputes act and for widespread educational reform.

**Continental Europe.**—The re-establishment of democratic parties in areas where they had been repressed or entirely suppressed in the midst of a hungry, cold and chaotic Europe was very difficult. A major question everywhere was the relation of socialism to communism. In eastern Europe, notably Poland, the officially recognized Socialist party was commonly regarded as the puppet of the communist dominated government while the Independent Socialist party was illegal. In Rumania the Social Democratic party represented in the so-called National Democratic front cabinet became increasingly critical of the government and of the communists and finally refused to enter joint election lists with the communists. In October it demanded a series of reforms including cessation of illegal arrests. In Hungary, Socialists worked closely with communists and were said to have suffered because of their co-operation, especially in the Budapest local election. In the national elections they won 69 seats in parliament as against 70 for the Communists and 245 for the Agrarians or small landholders. Socialists held three seats in the cabinet headed by Zoltan Tildy of the small landholders.

In Austria the provisional government headed by Dr. Karl Renner, Social Democrat, gave way to a coalition government formed following the November election. The Peoples' party (conservative) won the most votes and seats in parliament. The Social Democrats were fairly close seconds while the communists made a poor showing. The Social Democrats had five posts in the Figl cabinet, the Peoples' party seven and the Communists one. Dr. Karl Seitz, mayor of Vienna in its great socialist days, was elected chairman of the reconstituted Social Democratic party. The Renner provisional government instituted laws for the nationalization of power, mining and petroleum and much heavy industry.

In Czechoslovakia there had been no national elections and



the Social Democrats were represented in the provisional cabinet and a national assembly, in which the Czech and Slovak communists had the largest number of seats. The government was nationalizing the key industries and financial institutions of the country and expelling all Sudeten Germans.

In Germany all political parties existed by grace of the occupying powers in their respective zones, and Social Democratic representation was a matter to be determined by the occupation authorities. In Bavaria Wilhelm Hoegner, a Social Democrat, was minister-president under U.S. appointment. The new Saxon provisional government was also headed by a Social Democrat, Rudolf Friedrichs, once mayor of Dresden. The Russians in their zone permitted a rebirth of the Social Democratic party and it had minority representation in a provisional government.

In October the first conference of the Social Democratic party was held in Wennigsen near Hannover in the British zone. The conference was divided on the proper attitude toward communists, the majority of delegates from western Germany opposing united front action, while the majority from eastern Germany held that it was necessary. The official report of the conference declared that "the attitude of the Communist party apparatus has completely destroyed any hope of overcoming the cleavage for the time being."

In the Scandinavian countries, Sweden after July had an all Social Democratic cabinet led by Premier Albin Hansson which had taken a number of steps toward increased socialization. In Norway the Labour party (socialist) won 77 out of 150 seats in the October election and organized a coalition government under the Socialist premier, Einar Gerhardsen. In Denmark on May 9 a provisional government was formed under leadership of Vilhelm Buhl, a Social Democratic underground leader. In August the Socialist party rejected proposed unity at that time with the communists. In the general elections the Socialist representation in parliament fell to 48, the Communists elected 18, the Agrarians 38, out of a total of 149. Buhl refused to form a minority or a coalition government and the Agrarians formed a minority government.

In Italy the most significant development was the socialist decision in October as a result of Ignazio Silone's leadership to reverse an earlier decision of the Rome conference looking toward fusion with the communists. In membership the Socialists were third in size, the Catholic Christian Democrats being first and the communists second.

In France the Socialists emerged from the October election for the National Assembly with 151 deputies, the Communists 152, and the Catholic Popular Republican movement (M.P.R.) 138. The Socialists were represented in the coalition cabinet under Gen. Charles de Gaulle and were pushing extensive measures of socialization.

In the Netherlands, Socialists held the posts of minister of social affairs, of commerce and industry, and of food supply in a coalition government. In Belgium at the end of the year Achille van Acker continued to head a four-party cabinet much disturbed by controversy over the question of the abdication of King Leopold which the Belgium Socialists were demanding.

In Finland in March the Social Democrats, while winning the largest number of seats in parliament of any single party, were far from a majority and lost heavily over their previous showing. Prime Minister Juho K. Paasikivi of the National Coalition party continued his leadership following the election but reconstituted his coalition cabinet. At the end of the year the old Social Democratic party leader V. Tanner, together with other wartime leaders, was a defendant in the War Guilt trials which were the result of Russian pressure.

A Socialist party emerged in Japan which demanded the resignation of the Shidehara cabinet, but its strength was unknown.

(See also COMMUNISM; LABOUR PARTY.) (H. W. L.; N. T.)

**Socialist Soviet Republics:** see UNION OF SOVIET SOCIALIST REPUBLICS.

**Social Security.** In 1945 the importance of adequate provision for economic security to the future of the world was stressed in the creation of an Economic and Social council by the United Nations conference and in the meetings of the Inter-American conference and of the permanent committee of the Inter-American Conference on Social Security. The United Nations Relief and Rehabilitation administration also emphasized the need for revival of social insurance systems in liberated countries. Plans to strengthen and broaden such systems, developed in part by European governments-in-exile during World War II, were put into effect in 1945, notably in Belgium, France, Czechoslovakia, Luxembourg and Norway. Great Britain set up its new ministry of national insurance and adopted a system of cash family allowances. First payments were made of children's allowances in Canada. The Argentine system of old-age, invalidity and survivors' insurance for commercial workers began operation; Ecuador similarly began its expanded program of health, maternity, disability, old-age and survivors' insurance; and Brazil enacted an organic law which was to unify nearly all existing systems and extend coverage for social insurance, assistance and services to all income recipients.

**United States.**—No new social security measures were established on a nation-wide basis in the United States in 1945. In a message to congress on Nov. 19, President Truman made the first comprehensive recommendation for a health insurance program. Both social insurance and public assistance in 1945 continued to reflect wartime conditions. In addition to comprehensive provisions for aged, disabled or unemployed veterans and for veterans' survivors, the federal government administered the old-age and survivors' insurance system for industrial and commercial workers, special retirement and unemployment insurance systems for railroad workers, and retirement and workmen's compensation provisions for federal employees. All states and territories administered unemployment compensation programs, for which administrative costs are met by federal grants under the Social Security act, and all states but Mississippi administered workmen's compensation. Slightly more than half the employees of state and local governments were members of public retirement plans.

With termination of all federal work programs by July 1943, the only significant forms of public aid in the United States in 1945 were the special types of assistance, administered by states with the aid of matching federal grants, and general assistance, financed wholly by states and localities. During the first nine months of 1945, two new state plans were approved for federal aid (aid to dependent children in Alaska and aid to the blind in Delaware), bringing the number of jurisdictions using federal funds for all three programs to 47. One state administered aid to dependent children and three administered aid to the blind without federal funds, and one had no program for aid to the blind.

**Social Insurance and Related Programs.**—In an average week of 1944, about 32,000,000 persons were in jobs covered by the federal old-age and survivors' insurance program or the railroad retirement system; most of these were also covered by state unemployment compensation laws or the Federal Railroad Unemployment Insurance act. Of the jobs excluded from old-age and survivors' insurance and, by and large, from unemployment insurance, 8,000,000, on the average, represented farm owners or farm workers; 6,000,000, employees of federal,

state or local governments; 4,500,000, self-employed persons in nonagricultural pursuits; and 2,000,000-3,000,000, workers in domestic service, service for certain nonprofit organizations, casual employment and other excluded jobs.

Payments under all social insurance and related programs represented about 1.3% of all income payments in 1944, about the same proportion as in 1943.

Estimated weekly unemployment in 1944 averaged only about 800,000, and a weekly average of less than 100,000 persons received unemployment benefits under state laws, the Railroad Unemployment Insurance act, or the G.I. Bill of Rights. Payments to unemployed persons totalled \$67,086,000. Reconversion and demobilization caused a slight increase in unemployment benefits in the first seven months of 1945, and a sharp jump after Japan's surrender. In Sept. 1945, payments totalling \$58,000,000 were made to a weekly average of 637,000 beneficiaries under the state laws, 2,100 railroad workers, and 73,200 ex-servicemen.

Of an estimated 9,900,000 persons aged 65 or over in Dec. 1944, nearly one-third were employed or were wives of employed persons and about 1,200,000 were beneficiaries under retirement programs. In 1944 the federal old-age and survivors' insurance system paid \$119,000,000 in monthly benefits to retired workers and their wives and young children. In Sept. 1945 such benefits, totalling \$13,700,000, were paid to about 625,000 persons. At least 1,100,000 persons were potentially eligible for benefits but were not drawing payments, largely because the insured worker continued in covered employment.

The wage loss from illness or disability of persons in the labour force was estimated at \$3,500,000,000 for 1944. Disability compensation under social insurance and related programs totalled only \$670,783,000, of which \$412,000,000 represented payments to disabled veterans; \$191,000,000, workmen's compensation; \$5,000,000, temporary disability benefits in Rhode Island; \$31,000,000, payments to disabled railroad workers, and about an equal amount, payments to disabled government employees.

In 1944, social insurance and related public programs paid survivors \$290,089,000 in monthly benefits and \$56,684,000 in lump-sum payments. Of the monthly benefits, nearly half was paid under the veterans' program, nearly one-fourth under old-age and survivors' insurance, and about one-sixth as workmen's compensation. In Sept. 1945, monthly survivor benefits totalling \$9,000,000 were paid to 564,000 beneficiaries of old-age and survivors' insurance (88,000 aged widows, 5,900 aged parents, 354,000 children of deceased workers and 116,000 widows with such children in their care). About 624,000 survivors of veterans received \$26,200,000.

**Public Assistance.**—During the war there was a marked and nearly continuous decrease in recipient rolls for old-age assistance and aid to dependent children from prewar levels and a decline also in recipients of aid to the blind. General assistance caseloads dropped precipitously. In 1944, public aid under these programs represented only 0.6% of all income payments in the United States and totalled \$944,000,000 in contrast to the 1941 total of \$2,325,000,000 which also included federal work programs. In Sept. 1945, \$61,000,000 was paid to 2,000,000 recipients of old-age assistance; \$12,700,000 to 259,000 families receiving aid to dependent children in behalf of 658,000 children; \$2,300,000 to 71,000 recipients of aid to the blind; and \$6,900,000 to 232,000 general assistance cases.

**Financing Social Security Programs.**—In fiscal years ended in 1944 the federal government, the states and their localities expended \$4,110,400,000 for social security and welfare purposes, including not only social insurance and public assistance, but also expenditures for public health and welfare and em-

ployment services, which accounted for about one-fourth of the total. Of the total, \$2,118,200,000 represented state and local funds, and \$1,992,200,000, federal funds, of which \$533,800,000 was granted to states.

Total contributions to social insurance programs by employers and employees rose with increasing wages subject to contribution. Since benefit expenditures were at relatively low levels, the assets of social insurance trust funds increased. Of \$15,300,000,000 in assets of the three largest funds on Sept. 30, 1945, \$6,900,000,000 was in the old-age and survivors' insurance trust fund, \$771,000,000 in the railroad retirement account, \$6,900,000,000 in the state accounts and \$676,000,000 in the railroad account in the unemployment trust fund. (See also LAW; RELIEF.)

(A. J. A.)

**Great Britain.**—The first instalment of the comprehensive scheme of social security envisaged in the government's White Papers of 1944 was given legislative effect by the Family Allowance act on June 15, 1945, to operate from a date to be fixed. This act provided for the payment to every family which includes two or more children, and for the benefit of the family as a whole, an allowance in respect of each child, other than the first, at the rate of 5s. a week. Payment of the allowances would continue generally until the children reached the age of 16. The family was broadly interpreted so that qualification for an allowance extended to children being maintained by either of their parents or other persons. Where the parents were living together the allowance would normally be paid to the wife, although payment might be made either to the wife or husband. The allowances would be inalienable and of universal application; there would be no exceptions; but as an interim measure arrangements were made to avoid duplication of such payments from other state funds until the comprehensive scheme of national insurance should come into operation. Any person dissatisfied by the award or decision in respect of an allowance might appeal to one or more referees, who might on a point of law refer the matter to the high court of justice.

It was estimated that more than 2,500,000 families would be eligible for allowances which would be paid to about 4,500,000 children. The cost of allowances would be about £57,000,000 and the cost of administration about £2,000,000 all of which would be met by the exchequer. The administration of the act was the responsibility of the new minister of national insurance, James Griffiths, M.P.

Little progress was made in public with the proposals for a national health service, but the National Insurance (Industrial Injuries) bill was brought before parliament, and other bills dealing with the remaining aspects of the social insurance proposals were anticipated.

The Industrial Injuries bill implemented the general provisions of the first White Paper (Cmd. 6551) on workmen's compensation, and the bill was explained in a memorandum by the minister of national insurance issued as a White Paper (Cmd. 6651). The main provisions were the establishment of an industrial injuries fund under the control of the minister of national insurance into which would be carried all contributions by insured persons, their employers and the exchequer, which would contribute one-fifth of the aggregate of insured persons and their employers, and out of which would be paid all benefits and administrative charges. It was assumed that in postwar conditions annual contributions of employers and employed would be approximately £23,000,000 and the exchequer contribution £4,500,000. The scheme would cover all persons working under a contract of service, there would be no income limit and no provision for contracting out. Contributions would be paid by all insured persons and their em-

ployers, a total of 7d. a week for men (employer 4d., workman 3d.), women 5d. (employer 3d., woman 2d.), boys under 18, 3d. (employer 1½d., boy 1½d.), girls under 18, 2d. (employer 1d., girl 1d.). Benefits were to include injury allowances, dependents' allowances, disablement pensions and widows' pensions, and were generally higher than those proposed in the first White Paper on workmen's compensation—for example, an injury allowance for a married man of 56s. at a flat rate for 26 weeks as against the original proposal of 43s. 9d. for the first 13 weeks and then rising to 50s. The rates proposed in the bill were subject to the consideration of parliament. (J. McAT.)

**Social Service:** see CHILD WELFARE; RELIEF; SOCIAL SECURITY.

**Societies and Associations.** The following is a selected list of U.S. societies and associations, with date of founding, membership, officers, and chief activities during 1945. See also the separate articles on AMERICAN LEGION; BOY SCOUTS; RED CROSS; YOUNG MEN'S CHRISTIAN ASSOCIATION; etc.

**American Academy of Arts and Letters.**—An organization founded in 1904 by the National Institute of Arts and Letters in order to make the institute more efficient in the protection and furtherance of literature and fine arts. Membership of the academy is limited to 50 members chosen only from the institute. At the fourth joint public ceremonial on May 18, 1945, medals were awarded and 15 \$1,000 arts and letters grants were given. On Nov. 2 at the annual meeting three new members were elected, Douglas South Freeman, Robinson Jeffers and Lee Lawrie. Officers elected for 1946 were: president, Walter Damrosch; chancellor and treasurer, James Truslow Adams; secretary, Van Wyck Brooks. In 1945 the academy published the 24th edition of its *Yearbook* and one art exhibition catalogue. Headquarters: 633 W. 155th St., New York city.

**American Academy of Arts and Sciences.**—Membership of the academy is limited to 800 fellows and 130 foreign honorary members divided among four classes: mathematical and physical sciences; natural and physiological sciences; the social arts; and the humanities. At the regular monthly meetings held in 1945 various research papers were read. Three grants-in-aid for research were made during the year by the committee on the Permanent Science Fund. Officers (1945): president, Howard M. Jones; treasurer, Horace S. Ford; corresponding secretary, Abbott Payson Usher; recording secretary, Hudson Hoagland.

**American Academy of Political and Social Science.**—The academy, nearly 60 years of age, had a membership in 1945 of almost 12,000. Members are primarily business and professional people interested in serious discussion of public questions. During the year meetings were held as usual. The annual meeting held in April was devoted to the topic "Twentieth Century Agreements and Disagreements." The academy publishes a bimonthly journal, the *Annals*, and various timely documents. President (1945): Ernest Minor Patterson. Headquarters: 3457 Walnut St., Philadelphia 4, Pa.

**American Association for the Advancement of Science.**—A scientific association whose membership in 1945 increased to more than 27,000. It publishes a nontechnical science series; a technical series of 20 volumes, of which those on *Human Malaria* and *Relapsing Fever* were widely used by the medical corps of the U.S. army and navy in the tropics; and the serial publications, *A.A.A.S. Bulletin*, the *Scientific Monthly* and the weekly journal *Science*. Officers (1945): president, Charles F. Kettering; permanent secretary, Forest Ray Moulton; treasurer, William E. Wrather.

**American Association of Law Libraries.**—The association was founded in 1906 and incorporated in 1935 "to promote librarianship, to develop and increase the usefulness of law libraries, to cultivate the science of law librarianship, and to foster a spirit of co-operation among the members of the profession." The association in 1945 had a membership of 503 bar association, county, court, government, law school and state law librarians in the U.S. and Canada. Publications: *Index to Legal Periodicals*; edited for the association at the Harvard Law School library, Cambridge, Mass., *Law Library Journal*. President (1945-46): Miles O. Price, Columbia University Law library, New York city.

**American Bankers Association.**—A national organization with a membership in 1945 of more than 15,000 banks. The association's primary activities are educational. Its educational projects include the American Institute of Banking, which offers study courses to banking employees, and the Graduate School of Banking, which offers a two-year graduate course for bank officers. In 1945 the association gave direction to the activities of the banks of the U.S. in war bond drives, tax collecting for the bureau of internal revenue, loans to manufacturers and credit to farmers. Officers elected in 1945: president, Frank C. Rathje, president of the Chicago City Bank and Trust company, Chicago, Ill.; vice-president, C. W. Bailey, president of the First National bank, Clarksville, Tenn.; treasurer, S. Albert Phillips, vice-president of the First National bank, Louisville, Ky. Headquarters, 12 E. 36th St., New York city.

**American Bar Association.**—The association was founded in 1878 to advance the science of jurisprudence and promote the administration of justice. Its membership numbered about 35,000 in 1945. The Ross prize of \$3,000 went to Robert A. Sprecher of Chicago, Ill., for an essay on "The Development of the Doctrine of *Stare Decisis* and the Extent to Which it Should be Applied." Winners of the American citizenship essay contest

were: Ralph Bushnell Potts of Seattle, Wash., first prize; John H. Flanagan of Carthage, Mo., second prize; and Paul R. Kach of Baltimore, Md., third prize. The association publishes the monthly *American Bar Association Journal*, an annual volume of reports and proceedings, and various pamphlets. Willis Smith was president in 1945. Headquarters: 1140 N. Dearborn St., Chicago, Ill.

**American Bible Society.**—The society held its 129th annual meeting in May 1945. Daniel Burke, LL.D., was president; Gilbert Darlington, treasurer; Rev. Dr. Francis C. Stiffler, editorial and recording secretary. In co-operation with the British and Foreign Bible society, the Scottish Bible society and other missionary organizations, the scriptures were translated into 1,068 languages up to 1945; 21,000,000 volumes were distributed throughout the world in 1944.

**American Chemical Society.**—Founded in 1876, this society had 43,050 members in 1945 with 108 local sections in 43 states. Local meetings were held in place of national meetings due to wartime restrictions. During the year expenditures were approximately \$975,000. Officers (1945): chairman, Roger Adams; president, C. S. Marvel; treasurer, Robert T. Baldwin; secretary, Charles L. Parsons. Publications, *Journal of the American Chemical Society*; *Chemical Abstracts*; *Industrial and Engineering Chemistry*; *Chemical and Engineering News*; *Journal of Physical Chemistry*; *Chemical Reviews*; *Journal of Chemical Education*; *Rubber Chemistry and Technology*. Headquarters, 1155 16th St. N.W., Washington, D.C.

**American College of Life Underwriters.**—The college grew out of the needs for efficient life underwriting and was incorporated in 1927. Its objects are the training of students and the setting up of standards for the profession. In 1945, there were 2,472 holders of the Chartered Life Underwriter designation. To obtain the C.L.U. award, candidates must first pass five examinations, which in 1945 were held at 107 universities and colleges, and then complete three years of satisfactory business experience. President: S. S. Huebner. Headquarters: 36th and Walnut streets, Philadelphia 4, Pa.

**American College of Surgeons.**—The college was founded in 1913 by surgeons of the U.S. and Canada to elevate the standards of surgery and to stimulate high professional and ethical ideals. The fellowship for 1946 numbered approximately 14,000; 582 were received into fellowship in 1945. On its approved list in 1945 were 3,181 hospitals in the U.S., Canada and other countries; 392 cancer clinics in hospitals and 1,137 medical services in industry were approved during the year. Hospitals approved for graduate training in surgery and surgical specialties in 1945 numbered 289. Official journal: *Surgery, Gynecology and Obstetrics*. President in 1945: Dr. W. Edward Gallie, Toronto, Ont., Canada. Headquarters: 40 E. Erie St., Chicago, Ill.

**American Economic Association.**—This professional association of economists was founded in 1885 to encourage economic research and stimulate thought and discussion of economic problems. It was composed in 1945 of 4,159 members and 1,752 library, corporate and other subscribers. The 58th annual meeting, held at Cleveland, Ohio, in Jan. 1946, was the first after 1941 of national scope. The program covered a variety of subjects, including full employment, monetary policy, problems of foreign areas, monopoly and competition, international investments, public utility regulation and international cartels. Publications: *American Economic Review* (quarterly), and *Papers and Proceedings* of the annual meetings. President (1946): Emanuel A. Goldenweiser.

**American Geographical Society.**—The principal activity of the society in 1945 was the completion of what was believed to be the largest cartographic project ever undertaken by a private institution. This was the *Map of Hispanic America on the Scale of 1:1,000,000*. It took 25 years to complete at a cost of more than \$500,000. For this work the society was awarded a citation by the Pan-American Society of the U.S. for its contribution to inter-American co-operation. Official publications are the quarterly periodical, the *Geographical Review* and the monthly, *Current Geographical Publications*. With the addition of numerous books, pamphlets, maps and atlases during 1945, the society's collection was brought to a total of 116,587 books, 23,014 pamphlets, 133,357 maps and 2,287 atlases.

**American Institute for Property and Liability Underwriters, Inc.**—The institute was incorporated in 1942 for the establishment of educational standards and the training of students in professional property and casualty underwriting. In 1945, 229 candidates took 452 examinations held in 23 states, the District of Columbia and Hawaii. Forty-six candidates held the C.P.C.U. (Chartered Property Casualty Underwriter) designation in 1945. President: L. G. Purmort. Headquarters: 36th and Walnut streets, Philadelphia 4, Pa.

**American Institute of Accountants.**—This national society of certified public accountants was founded in 1887 to maintain high standards of education and practice for the profession, and to develop the technique of accounting to serve the public interest. With more than 9,000 members and associates in 1945, it continued its activities in the development of war contract termination and renegotiation procedures, and in the improvement of federal income taxation. Officers (1945-46): president, T. Dwight Williams; vice-presidents, Homer N. Sweet and Earl A. Waldo; treasurer, Maurice E. Peloubet; secretary, John L. Carey. Publications: the *Journal of Accountancy*; the *Certified Accountant*, both monthly. Headquarters, 13 E. 41st St., New York city.

**American Institute of Chemical Engineers.**—This organization was founded in 1908 for the advancement of chemical engineering in theory and practice. During 1945, many of the regular activities were curtailed due to wartime restrictions, but one national meeting was held in Chicago, Ill., in December. Officers (1945): president, Dr. Lawrence W. Bass; treasurer, C. R. DeLong; secretary and executive secretary, Stephen L. Tyler. Publications, *Transactions of the American Institute of Chemical Engineers*; *A.I.Ch.E. Bulletin*. Headquarters, 50 E. 41st St., New York city.

**American Institute of Electrical Engineers.**—The society, founded in 1884, had 75 sections and 125 student branches in educational institutions throughout the U.S. in 1945. Its wartime activities consisted chiefly in the preparation of emergency standards and operating guides for electrical equipment. President in 1945: Dr. William E. Wickenden,



president of Case School of Applied Science, Cleveland, Ohio. Publications: monthly, *Electrical Engineering*; annual, *Transactions*; the semi-annual, *Transactions Supplement to Electrical Engineering*; *Standards*; and the *Yearbook*. Headquarters, 33 W. 39th St., New York city.

**American Institute of Mining and Metallurgical Engineers.**—An organization founded in 1871 for the purpose of promoting the economic and scientific search for, production and use of minerals, including metals, coal, petroleum and other nonmetallic minerals. Its membership in 1945 was 14,000. Because of travel restrictions only sectional meetings were held during the year. Publications for 1945 included five volumes of *Transactions*; monthly issues of the magazine *Mining and Metallurgy* and regular issues of the periodicals: *Petroleum Technology*, *Metal Technology* and *Mining Technology*. Officers (1945): president, Harvey S. Mudd; secretary, A. B. Parsons. Headquarters, Engineering Societies Bldg., 29 W. 39th St., New York city.

**American Iron and Steel Institute.**—The publication of the 24th edition of the *Directory of Iron and Steel Works in the United States and Canada* was one of the important activities of the institute in 1945. The directory covers the many changes in the industry that took place after the preceding edition was published in 1938. Research activities sponsored by the institute proceeded at an accelerated pace during 1945. The officers were: president, W. S. Tower; vice-presidents, B. F. Fairless and Frank Purnell; secretary, G. S. Rose. Headquarters: 350 Fifth Ave., New York city.

**American Law Institute.**—From its organization in 1923 to early 1944, the principal work of the organization was the *Restatement of the Law*, an "orderly statement of the common law of the states of the U.S." The last two volumes were published in 1945. The *Restatement* was in general use by the courts. The chief work of the institute in 1945 was on a model code of commercial law, expected to be completed in 1949 or 1950. There were in 1945, aside from the official membership of persons holding leading judicial bar and law school faculty positions, 860 life members. The president in 1945 was George Wharton Pepper; William Draper Lewis was director and chief of editorial staff. Executive offices, 3400 Chestnut St., Philadelphia, Pa.

**American Society of Civil Engineers.**—A society founded in 1852 for the purpose of advancing the sciences of engineering and architecture. Membership in 1945 was approximately 21,000. The professional activities of the society were directed through the society's headquarters; its professional committees; its technical divisions; its 164 local subdivisions; and its student chapters at 123 institutions. Publications: *Proceedings* (monthly); *Transactions*, a yearly volume; *Civil Engineering* (monthly); and the *Yearbook*. President (1945), J. C. Stevens, Portland, Ore. Principal office: 33 W. 39th St., New York city.

**American Society of Mechanical Engineers.**—A national organization whose more than 19,000 members in 1945 were grouped into 17 professional divisions covering all phases of mechanical engineering. The society's work during the year was carried on by 70 sections including one in Canada. Student branches were also maintained in about 120 engineering schools. The society holds four national meetings annually. Officers (1945): Secretary, Colonel C. E. Davies; treasurer, K. W. Jappe. Chief publications, *Mechanical Engineering*, a monthly periodical, and *Transactions*, including the *Journal of Applied Mechanics*. Headquarters, 29-33 W. 39th St., New York city.

**Anti-Saloon League of America.**—A national nonpartisan interdenominational federation of state temperance organizations established in 1895. During 1945 it had affiliates in 31 states. The league advocated the maintaining of restrictions against the liquor traffic to prevent waste of food materials, fuel, transportation facilities and manpower during World War II. It also sought revision of the practices of the radio industry which allowed the sale of radio time to advertisers of alcoholic beverages but which permitted radio licensees to decline to sell time for temperance broadcasts. Protest was also made against radio advertisement of alcoholic beverages in areas where the people had voted "no licence" under local option laws. President (1945), Bishop Ralph S. Cushman; general superintendent, Dr. George W. Crabbe. National headquarters: 131 B St., S.E., Washington 3, D.C. (See also LIQUORS, ALCOHOLIC.)

**Brookings Institution.**—This nonprofit organization is devoted to research and training in the field of economics and government. The institution is supported by grants from foundations, its own endowment and income from the sale of publications. Publications for the year 1945 included the following: *International Tribunals: Past and Future*, by Manley O. Hudson; *Labor Policy of the Federal Government*, by Harold W. Metz; *Postwar Fiscal Requirements*, by Lewis H. Kimmel and associates; *Debtor and Creditor Countries, 1938-1944*, by Cleona Lewis; *Should Price Control Be Retained?* by Harold G. Moulton and Karl T. Schlotterbeck; *Business Leadership in the Large Corporation*, by R. A. Gordon. Officers (1945): chairman, Dwight F. Davis; vice-chairman, Dean G. Acheson; president, Harold G. Moulton; vice-president, Edwin G. Nourse; treasurer, Henry P. Seidemann; secretary, Elizabeth H. Wilson. Headquarters, 722 Jackson Pl., Washington, D.C.

**Carnegie Trusts.**—*Carnegie Corporation of New York*, established in 1911 with an endowment of \$135,000,000, makes grants to institutions and agencies whose activities aim at the advancement and diffusing of knowledge among people in the U.S. and Great Britain. During 1945 grants totalling \$1,002,500 were made among colleges and universities and various agencies. The other five separately administered Carnegie organizations in the U.S. founded before the corporation for specific purposes are:

*Carnegie Institute of Pittsburgh* (1896), comprising a museum of fine arts, a music hall, a museum of natural history and a public library;

*Carnegie Institution of Washington* (1902), devoted to scientific research; up to 1945 it had expended about \$50,000,000 in its program;

*Carnegie Hero Fund Commission* (1904), established to recognize heroic acts performed throughout the U.S., Canada and Newfoundland; up to 1945 it had awarded 3,373 medals and a total of \$6,714,449;

*Carnegie Foundation for the Advancement of Teaching* (1905), established to provide retiring pensions for teachers and to advance higher education, paid \$1,879,205.27 in 1945 in such allowances, raising the cumulative expended total to \$48,197,732.33;

*Carnegie Endowment for International Peace* (1910), established to

serve the purpose indicated by its name, continued in 1945, to expend its income in research, publication and study on the causes of war and international misunderstanding.

**Catholic Community Service, National.**—An agency designed to promote the spiritual, recreational, social and educational welfare of men and women in the armed forces, war production workers, and the families of both groups. It differs from other war service organizations, however, in its provisions for spiritual aid to Catholics. A member agency of the United Service organizations, it participated as of Jan. 1946 in more than 350 operations, and, in addition sponsored 71 independent operations in the U.S. and in Italy, France, Egypt, Hawaii, the Philippines, Australia and the Fiji Islands.

**Catholic Library Association.**—An international organization of librarians, educators and others interested in the promotion of Catholic literature and Catholic library work. The association's membership in 1945 was 1,442 with 21 units distributed throughout the U.S. Book fairs and the publication of bulletins and book lists were the principal activities of these units during the year. *The Catholic Library World*, issued eight times annually, is the official publication of the association. Officers (1945): president, Richard James Hurley, University of Nebraska, Lincoln, Neb.; vice-president, Brother Thomas, F.S.C., Manhattan college, New York city; secretary-treasurer, Dorothy E. Lynn, University of Scranton, Scranton, Pa.

**Commonwealth Fund, The.**—An endowment, established in 1918 by Mrs. Stephen V. Harkness "to do something for the welfare of mankind." In 1945 appropriations totalled \$1,644,216.90. Activities tending to promote or maintain physical and mental health accounted for three-quarters of this total. Fourteen fellowships for postgraduate study in medicine and public health were awarded Latin-Americans in 1944-45. Directors of the fund (1945): Malcolm P. Aldrich (president), William E. Birdsall, Phil W. Bunnell, Adrian M. Massie, Lewis Perry, Barry C. Smith, William E. Stevenson and Thomas D. Thacher. Offices: 41 East 57th St., New York city.

**Daughters of the American Revolution, National Society of.**—A society having 24 active national committees covering patriotic, educational and historical fields. Membership in 1945 was approximately 145,000 members in 2,570 chapters. During World War II more than \$400,000 was appropriated for numerous activities among the agencies of the Red Cross, army and navy. Most important among the national committees is the Approved Schools program, to which \$77,640 was subscribed in 1945, whereby 14 mountain schools were assisted by D.A.R. funds. Official publications of the society are: *National Defense News* and the *National Historical Magazine*. President general in 1945 was Mrs. Julius Y. Talmadge. Headquarters, Administration Bldg., 1720 D St., N.W., Washington, D.C.

**Elks, Benevolent and Protective Order of.**—This fraternal order was organized in 1868 for the purpose of practicing charity, justice, brotherly love and fidelity; promoting the welfare and enhancing the happiness of its members; quickening the spirit of American patriotism and cultivating good fellowship. In 1945, there were 1,410 lodges with 750,000 members. Charitable expenditures for the year amounted to almost \$4,000,000. The Elks war commission continued to work in co-operation with the U.S. government in the prosecution of World War II. Publication, the *Elks Magazine*, a monthly periodical.

**Falk Foundation, The Maurice and Laura, of Pittsburgh, Pa.,** continued during 1945 to devote its funds to the support of research studies of economic problems which are basic to the development of U.S. industry, trade and finance. In addition to new grants of \$69,100 for this purpose, payments of \$350,000 were made during 1945 on earlier grants. Research projects completed during the year under the foundation's subventions resulted in the publication by the Brookings institution, Washington, D.C., of *Postwar Fiscal Requirements*, *Should Price Control Be Retained?* and *Labor Policy of the Federal Government*; in the publication by the National Bureau of Economic Research, New York, N.Y., of *Labor Savings in American Industry, 1899-1939*; and in the publication by a special committee on postwar tax policy of *A Tax Program for a Solvent America*.

**Guggenheim Memorial Foundation.**—The John Simon Guggenheim Memorial foundation was established for the advancement of research in all fields of knowledge and for creative work in the arts. For the year 1945-46, 121 fellowships were granted, with stipends totalling \$352,125. The foundation in 1945 had an endowment of \$19,460,932; up to 1945, \$3,132,000 had been distributed in the form of 1,506 fellowships. Officers (1945): president, Mrs. Simon Guggenheim; secretary-general, Henry Allen Moe. Headquarters of the foundation are at 551 Fifth Ave., New York city.

**Kiwanis International.**—An organization, founded in 1915, which consisted in 1945 of 154,000 business and professional leaders in 2,340 clubs throughout the U.S. and Canada. Community betterment is its principal objective. Its program includes participation in public affairs, aid to youth, promotion of closer rural-urban relations, maintenance of democracy and preservation of the free enterprise system. Officers (1945): president, Hamilton Holt, Macon, Ga.; secretary, O. E. Peterson, Chicago, Ill. Headquarters, 520 N. Michigan Ave., Chicago, Ill.

**Knights of Columbus.**—A fraternal order of men, organized in 1882, dedicated to the preservation and championship of Catholic and American principles. Its membership as of Nov. 1, 1945, was more than 541,000 within 2,500 councils in the U.S., Canada, Newfoundland and Central America. At its 63rd supreme convention, appropriations were voted for \$3,000 to the Catholic Hour radio program and \$1,000 for the Canadian Catholic Hour. The order's Canadian Army Huts organization completed its fifth year of recreational and overseas activities in 1945; the plan for extending insurance benefits to sons and male relatives of members came into effect. Publications: *Columbia*, a monthly magazine, and *News*, a weekly. Judge John E. Swift was elected supreme knight. National headquarters: New Haven, Conn.

**Lions Clubs, International Association of.**—Founded in 1917 as a nonpolitical, nonsectarian association of service clubs whose purpose is to recognize and meet the needs of the community, its activities cover eight classifications: boys and girls; citizenship and patriotism; civic improve-

ments; community betterment; education; health and welfare; safety; sight conservation and aid to the blind. In 1945 its membership was made up of approximately 240,000 business and professional men with 4,950 clubs in 15 countries. Officers (1945): secretary-general, Melvin Jones; international president, Ramiro Collazo of Havana, Cuba. Monthly publication, the *Lion Magazine*. Headquarters, 332 S. Michigan Ave., Chicago, Ill.

**Music Library Association.**—The association was organized in 1931 to foster the establishment, growth and use of music libraries and collections. Membership in 1945 included about 350 individuals and 125 institutions in the U.S. and Great Britain. Two meetings are held annually. The summer meeting is held in conjunction with the annual conference of the American Library association. Officers (1945): president, Edward N. Waters of the Library of Congress; vice-president, Otto E. Albrecht of the University of Pennsylvania, Philadelphia, Pa.; secretary-treasurer, Catherine N. Lay of the District of Columbia public library. Publications: *Notes*, a quarterly journal; *Music and Libraries*; *Code for Cataloging Music*.

**National Academy of Sciences.**—A scientific body incorporated by an act of congress in 1863 for the purpose of investigating and reporting upon scientific subjects as called for by any department of the U.S. government. Membership is limited to 450 active members of U.S. citizenship and 50 foreign associates. In 1945 the academy was engaged largely in government problems concerned with scientific matters related to World War II. Officers (1945): president, Dr. Frank B. Jewett; foreign secretary, Dr. Walter B. Cannon; home secretary, Dr. F. E. Wright; treasurer, Dr. J. C. Hunsaker. The academy building is at 2101 Constitution Ave., Washington, D.C.

**National Association of Manufacturers.**—The association was founded in 1896 and functions as industry's "watch dog" on federal affairs, and as the spokesman of industry before the national government and its congressional and administrative agencies. It operates through six departments, namely those on taxation, industrial relations, economic security, public relations, research and law, as well as through various committees. Membership numbered 14,000 active members and approximately 1,200 associate members in 1945. The association issues six regular publications including the *Law Digest* and numerous bulletins. President (1946): Robert Wason. Headquarters are in New York city.

**National Lawyers Guild.**—As a consultant organization to the U.S. delegation to the San Francisco conference in 1945, the guild advocated the establishment of a new world court. The guild's proposal was in opposition to the American Bar association for the continuation of the old world court. The guild also supported the veto power of the permanent members of the Security council of the United Nations organization. Continued support of a federal unified system of social security was made by the guild in its advocacy of the enactment of the Wagner-Murray-Dingell bill. National officers (1945): president, Attorney-General Robert W. Kenny of California; secretary, Martin Popper of New York. Headquarters: 902 Twentieth St., N.W., Washington 6, D.C.

**National League of Women Voters.**—The league was founded in 1920 for the purpose of helping U.S. citizens to accept their responsibility for government. During 1945 local leagues in 550 communities gave information to the public on various local, state and national issues. Officers (1945): president, Miss Anna Lord Strauss; secretary, Mrs. Daniel Early; treasurer, Mrs. W. H. Peterson. Publication, *Trends* (biweekly). Headquarters (1945), 726 Jackson Pl., Washington, D.C.

**Performing Right Societies.**—A world-wide confederation of composers, authors and publishers of musical works whose chief purpose is the licensing to commercial interests of the right to perform publicly the copyrighted work of their members. The International Confederation of Performing Right Societies, whose activities had been hampered by war conditions and government regulations, was in 1945 returning to normal working conditions, with headquarters at Lausanne, Switzerland. The most influential member of the confederation is the American Society of Composers, Authors and Publishers (A.S.C.A.P.). Its total membership in 1945 reached about 2,000, comprising 1,750 composers and authors, 250 publishers. A.S.C.A.P. was a leader in steps to restore prewar conditions among societies of the confederation. Adopting a new policy of five-year rather than one-year contracts, new contracts were signed with the societies of England, France, Spain, Argentina, Brazil and Uruguay. In the fields of symphony and concert music as well as television, A.S.C.A.P. continued to expand its licensing activities. Deems Taylor was re-elected for fourth term as president, 1945-46. A.S.C.A.P. headquarters (1945); 30 Rockefeller plaza, New York city.

**Research Libraries, the Association of.**—This association of 47 of the largest research libraries in the U.S. and Canada met twice in 1945. The most important subject of discussion at both meetings was the problem of securing books and periodicals published in enemy and occupied countries during World War II. The association continued its printing of a book catalogue of Library of Congress cards, of which 130 of 160 projected volumes were completed by the end of 1945. The next project was to be a photo-lithoprinted edition of the *British Museum Catalogue of Printed Books, 1881-1900*.

**Rockefeller Foundation.**—The foundation was chartered in 1913 and is concerned with problems in the medical, natural and social sciences, the humanities and public health. During 1945, approximately \$11,330,600 was appropriated for work among its varied fields of interest. President (1945): Raymond B. Fosdick; secretary: Norma S. Thompson. *The General Education Board* was incorporated in 1903 for the promotion of education in the U.S. Appropriations in 1945 approximated \$2,945,000. President: Raymond B. Fosdick; secretary: William W. Brierley.

**Rosenwald Fund, The Julius.**—The provisions of the fund require that the trustees expend all of its funds by Jan. 6, 1957. By 1945, approximately \$20,000,000, representing all of its year-to-year income and nine-tenths of its principal, had been expended. The assets of the fund as of June 30, 1945, had a value of approximately \$2,500,000. The main programs in 1945 were concerned with the improvement of the content and quality of rural education of both white and Negro schools in the south; fellowships for Negroes and for white southerners; and improvement of race relations, especially between white and Negro citizens in the U.S.

During 1945 the fund expended approximately \$600,000.

**Rotary International.**—A world-wide organization of Rotary clubs, made up of groups of representative men, for the purpose of furthering co-operation and goodwill in business and community life. In 1945 there were 5,579 clubs in more than 60 countries with a membership in excess of 253,000. Activities in 1945 included general community service as well as a program designed to promote an understanding of the United Nations charter. The Rotary clubs of the U.S. and Canada sponsored 371 institutes of international understanding during the year. Official publication of the organization is the *Rotarian*. President (1945): T. A. Warren, Wolverhampton, England; secretary: Philip Lovejoy, Chicago, Ill. International headquarters are in Chicago, Ill.

**Russell Sage Foundation.**—This foundation, established in 1907 for the purpose of improving social and living conditions in the U.S., has an endowment of \$15,000,000. About 70% of its income in 1945 was devoted to work carried on by its own staff, the rest to work by other organizations. Its later publications included the *Social Work Year Book 1945*, edited by Russell Harold Kurtz; *Law Training in Continental Europe*, by Eric F. Schweinburg; and bibliographies on *Rehabilitation of the Disabled Serviceman* and *Organized Labor's Participation in Social Work*. Officers (1945): president of board of trustees, Morris Hadley; general director, Shelby M. Harrison. Offices, 130 E. 22nd St., New York city.

**Special Libraries Association.**—Founded in 1909 to promote the use of special libraries by business and industrial organizations. As of Dec. 31, 1945, the association had approximately 3,984 members, with 21 chapters in the U.S. and 2 in Canada. These members represented banking, advertising, insurance, finance, social welfare, publishers, newspapers, manufacturers, museums and specialized departments of universities. The official journal *Special Libraries* was published monthly September through April; bimonthly, May to August. Officers (1945): president, Herman H. Henkle, Library of Congress; treasurer, Paul Gay, University of Pennsylvania, Philadelphia; executive secretary, Mrs. Kathleen B. Stebbins, New York city. Executive office, 31 E. 10th St., New York city.

**Spelman Fund of New York.**—The fund was chartered in 1928. During 1945 it continued its program directed at the improvement of the methods and techniques in the field of public administration. The chairman of the board of trustees in 1945 was Charles E. Merriam.

**Theatre Library Association.**—An organization affiliated with the American Library association and interested in preserving and making accessible to the public the records of the drama and kindred fields of entertainment. The membership in 1945 was 130. Publications of the association are the *Broadside*, issued three times yearly, and the *Theatre Annual*, issued in January. Officers (1945): president, George Freedley, Theatre collection, New York public library; secretary, Mrs. Sarah Chokla Gross, McCord Theatre museum of Dallas, Tex.; treasurer, Mrs. Elizabeth P. Barnett, Theatre collection, New York public library.

**Twentieth Century Fund.**—Founded in 1919 by Edward A. Filene, the foundation serves a threefold purpose: research; policy formulation; and public education on current economic questions. During World War II, the fund carried on an intensive research and educational program on the basic problems of postwar reconstruction in the U.S. In progress during 1945 were surveys of the foreign economic relations of the U.S., cartel arrangements in world trade and monopoly problems in domestic business. Officers (1945): president, John H. Fahey; chairman of executive committee, Henry S. Dennison; treasurer, Morris E. Leeds; executive director, Evans Clark. Headquarters: 300 W. 42nd St., New York city.

**Woman's Christian Temperance Union, National.**—During 1945 more than 40,000 new women members were added to the national organization. Activities during the year included a training school for organizers held during the month of April as well as summer courses in alcohol education. Five motion pictures produced by the W.C.T.U. were shown to approximately 2,000,000 people as well as slide films to as many children in public and church schools. Officers (1945): president, Mrs. D. Leigh Colvin; vice-president, Miss Mary Ervin; corresponding secretary, Miss Lily Grace Matheson; treasurer, Mrs. Margaret C. Munns; recording secretary, Mrs. Glenn G. Hays. National headquarters are located in Evanston, Ill.

**Women's Clubs, General Federation of.**—The federation was composed in 1945 of 16,500 clubs approximating 2,500,000 members. It continued with its war service program during the year. An intensive recruiting drive was conducted for the women's services, the Cadet Nurse corps and the Women's Land army. The federation's war bond campaign, concluded in June, reached a total sales of \$154,459,132. The federation was one of the five national women's organizations to participate in the San Francisco conference. Other activities in 1945 included participation in conferences on youth programs and needs, national health and the united national clothing drive. President (1945), Mrs. LaFell Dickinson. National headquarters, 1734 N. St., N.W., Washington, D.C.

**Sociology.** The year 1945 saw a surprising increase in the amount of sociological publication—although whether all this represented fundamental research was in considerable degree doubtful. Apparently the imminence of victory of World War II in the early part of the year, and its decisiveness when it came, had something to do with the upswing. Publishers perhaps became more optimistic and were getting ready to capitalize on a postwar boom. On the other hand, the scholarly journals also showed a considerable increase in the number of significant articles.

Problems of the postwar world of course loomed large; among the more general treatises T. C. McCormick's (editor) symposium, *Problems of the Postwar World*, deserved promi-

nent notice. About 20 contributors dealt with topics ranging from fiscal policy to the treatment of occupied Germany, and the sociological chapters in the collection received very favourable comment from reviewers.

More specific studies, many of them postwar, fell into the general categories of military-civilian adjustment and readjustment, "the government of men" under wartime conditions of various types, social stratification, race relations and similar themes, critical analyses of currently accepted sociological doctrines and family problems. Most of these studies used sociological modes of analysis, broadly defined, but sharper focus here and there would have been desirable, as various reviews and critiques which appeared in 1945 pointed out.

Military-civilian matters were dealt with by Robert A. Nisbet, "The Coming Problem of Assimilation," S. Kirson Weinberg, "Problems of Adjustment in Army Units," Alfred Schuetz, "The Homecomer," all in the *American Journal of Sociology* (*Am. J. Sociol.*), and by Wilbur B. Brookover, "The Adjustment of Veterans to Civilian Life," in the *American Sociological Review* (*Am. Sociol. R.*). A text, *Counseling with Returned Servicemen*, by Carl R. Rogers and John L. Wallen, made its appearance, but like most counselling studies, it was only of indirect sociological significance.

*The Government of Men*, by A. H. Leighton, centred on the problem of Japanese relocation, but as the title indicates, many general considerations of social control were raised. Leighton is an anthropologist-psychiatrist by training, but like so many persons using such a perspective, his direction of attention and analytic interest is definitely although perhaps unwittingly sociological. Another study, much more clearly sociological because made with full awareness, was John Useem's "The Pattern of Military Government in Micronesia" in the *Am. J. Sociol.* and his integrally related paper in the *American Anthropologist*.

Useem and his wife, Ruth Hill Useem, contributed a significant analysis to the social stratification interest mentioned above as clearly apparent in 1945. "Minority-Group Patterns in Prairie Society," *Am. J. Sociol.*, dealt with the acculturation and concomitant secularization of a Norwegian group, and showed how thoroughly the old-line race relations approach was outmoded so far as certain minority group phenomena were concerned. More clearly in the social stratification vein was Oliver C. Cox's "Race and Caste: A Distinction," *Am. J. Sociol.*, and his "Estates, Social Classes, and Political Classes," *Am. Sociol. R.* The same is true of Thelma D. Ackiss' "Sociopsychological Implications of the 'White Superiority' Complex," Gerhart H. Saenger's "Social Status and Political Behavior," Orvis Collins' "Ethnic Behavior in Industry," H. B. Johnson's "Inter-marriage Between German Pioneers and Other Nationalities," H. L. Neugarten's "Social Class and Friendship among School Children," and Allison Davis' "Caste, Economy, and Violence"—all in the *Am. J. Sociol.* The *Am. Sociol. R.* contained Kingsley Davis and Wilbert E. Moore's "Some Principles of Stratification," Lloyd Allen Cook's "An Experimental Sociographic Study of a Stratified 10th Grade Class," William H. Form's "Status Stratification in a Planned Community," Julian L. Greifer's "Attitudes to the Stranger," and P. A. Sorokin's "War and Postwar Changes in the Social Stratifications of the Euro-American Population."

Numerous reviews and commentary articles appeared in the wake of Gunnar Myrdal, R. M. E. Sterner and Arnold Rose's *American Dilemma*, a race relations treatise in the narrower sense which was first published in 1944. The general conclusion seemed to be that they were psychologically correct in their diagnosis of impartiality among many U.S. sociologists dealing with the race problem. This same point was made from another angle by Carey McWilliams, "Race Discrimination and the

Law" in *Science and Society*. But although on the right track psychologically, Myrdal, Sterner and Rose went badly astray in the logic of their attack on the "freedom from value-judgments" position. An interesting article on a little-known race group was Brewton Berry's "The Mestizos of South Carolina," in the *Am. J. Sociol.* A good general summary was provided by E. B. Reuter's "Racial Theory: Developments in the Past Fifty Years," in the *Am. J. Sociol.*

The occasion of Reuter's survey was the special semicentennial issue of the *Am. J. Sociol.* This appeared in May 1945, and although unduly devoted to exaltation of certain parochial trends in U.S. sociology, it nevertheless furnished a welcome benchmark. Especially noteworthy was Florian Znaniecki's article, "Controversies in Doctrine and Method," in the *Am. J. Sociol.* Another important collection of papers—not, however, grouped around a central theme—was the April 1945 issue of the *Am. Sociol. R.* Because of the fact that the annual meeting of the American Sociological Society was cancelled, the papers designed to be read at that gathering were printed under one cover. The presidential address, Rupert B. Vance's "Toward Social Dynamics," was a valuable statement of the point of view that equates social dynamics with social progress.

This same collection was important because of the critical tendency it manifested; one of the many straws in the wind was Melvin Tumin's "Culture, Genuine and Spurious: A Re-Evaluation." The familiar categories of folk and urban, sacred and secular, were examined, with the conclusion that Edward Sapir (whose early work on culture was the start of the re-evaluation) had something real albeit hazy in view when he spoke of culture as "genuine" and "spurious." Other critical studies appearing in 1945 were Jessie Bernard's "Observation and Generalization in Cultural Anthropology," *Am. J. Sociol.*, a kindly but trenchant discussion of Margaret Mead's neglect of evidence and loose conceptualization; Joseph Schneider's "Cultural Lag: What Is It?," *Am. Sociol. R.*, an attack on W. F. Ogburn's carefree use of a dubious hypothesis; and Thomas C. McCormick's "Simple Percentage Analysis of Attitude Questionnaires," *Am. J. Sociol.*, a proposal for the more frequent use of simple types of statistical analysis over apparently more precise but really only more complicated procedures.

Marriage and the family had a bumper crop of books and articles. The long-awaited text, *The Family*, by Ernest W. Burgess and Harvey J. Locke bore the subtitle "From Institution to Companionate"—which raised afresh the problem of the nature of social institutions, if nothing else! Evelyn Millis Duvall and Reuben Hill brought out a lively presentation, *When You Marry*, designed for the general reader and for courses paying little heed to the larger contexts of marriage and the family; and Sidney E. Goldstein, in his *Marriage and Family Counselling*, provided the first complete manual combining the counselling experience of many specialists other than sociologists. Svend Riemer's studies, published in the *Am. Sociol. R.* and elsewhere, continued to stress the role of housing in family relations—an emphasis particularly timely in view of the present crisis. J. H. S. Bossard, Read Bain, R. H. Cole, Harry Grossman, J. O. Reinehmann, and others also made worthwhile contributions on family themes in *Am. J. Sociol.* or *Am. Sociol. R.*

Among miscellaneous but important publications were Abram Kardiner's *The Psychological Frontiers of Society*, a book which Robert Merton characterized as "marking a turning point in the study of man." Rural sociology was enriched by the work of an anthropologically trained observer, James West (pseudonym), whose *Plainville, U.S.A.* is a sort of Missouri *Middletown* or *Small Town Stuff*.

President of the American Sociological Society for the year was Kimball Young of Queens college (Long Island, N.Y.). The annual meeting, normally held in December, was postponed until March 1946. (H. BEC.)

**Sodium Carbonate.** Production of natural sodium carbonates in the United States increased from 165,993 short tons in 1943 to 184,826 tons in 1944. Canada has a small output, 44 tons in 1944 and 239 tons in 1945. (G. A. Ro.)

**Sodium Sulphate.** The output of natural sodium sulphate in the United States increased from 160,622 short tons in 1943 to 168,923 tons in 1944. Canadian production dropped from 102,421 tons in 1944 to 86,643 tons in 1945. (G. A. Ro.)

**Softball.** Its popularity unimpaired by the war, softball continued as one of the few growing sports in the United States. Two girls' professional leagues flourished, along with many amateur circuits. Rockford, Ill., won the All-America Girl's Ball League championship, while the Rock-Ola Music Maids finished first in the National Girls' Softball league. The Fort Wayne Zollners captured the Amateur Softball association's annual tournament with a 1-0 victory over Flint, Mich., in the final. The New Orleans Jax Maids won the women's amateur championship for the third time in four years. (M. P. W.)

**Soil Erosion and Soil Conservation.** The trend toward soil



conservation had reached world-wide proportions by the end of 1945. In addition to the United States, no fewer than 29 countries had embarked on some form of program to conserve soils and rainfall and thereby increase per-acre production of crops, whether cultivated, grass or woodland crops. At the same time, people of many other nations were seeking knowledge and facts about soil conservation methods and the best ways of determining the needs of eroding lands. This wide interest in modern conservation farming appeared to be motivated, in all parts of the world, by desire of the people for efficiency and safety in production of food and industrial crops, higher nutrition levels and better living for rural areas, and for security and permanence in a postwar world economy.

Brought to light by the United Nations Food and Agriculture organization's first conference at Quebec (Oct. 1945) was the need for development of scientific tropical and subtropical cropping systems and conservation cultivation practices for bringing into use many lands capable of producing quantities of food crops. Emphasized, also, was urgent need for modernization of farming through proved conservation methods, in overpopulated regions of the far east such as India, parts of the East Indies and China, to provide food supplements essential to the health of the people without destroying vast tracts of valuable land. Recommendations adopted by the conference which had a direct bearing on expansion of soil conservation programs already started in 30 countries were as follows:

1. That foresters and soil experts join hands and develop programs for better use of all lands.
2. That provision be made for training soil conservation technical staffs sufficient for leadership of all phases of soil conservation programs.
3. That exchange of personnel be promoted among countries, including agricultural scientists, technicians, farmers and students specializing in soil conservation agriculture.
4. That surveys be made of all countries not yet surveyed in detail, to determine best land utilization practices and conservation methods needed, and for best use of water available for agriculture.

**United States.**—By the end of 1945 all of the 48 states had enacted legislation authorizing local land owners and operators to carry on soil conservation and erosion control work and to obtain help in doing it. The common goal was to restore eroded lands and establish farming systems based on scientific land treatment and use. More than two-thirds of the states had appropriated special funds for use by their soil conservation districts. At the same time, several of the state legislative branches were re-examining their older land-utilization regulations in conjunction with their state soil conservation laws, with a view to revising and improving them to take into account new scientific findings regarding the physical capabilities of land and its needs for conservation techniques.

By Dec. 15, 1945, farmers in 45 states had organized 1,440 soil conservation districts and 21 grazing districts, including 3,622,557 farms with a total of 801,716,518 ac. Soil conservation farming plans had been prepared for about 140,000,000 ac. of this land, and complete conservation systems were established on approximately 13,000,000 additional acres during the year. An important trend was seen in the desire of farmers for conservation farming plans based on scientific findings regarding the land, yet flexible enough to allow production increases or decreases or shifts to new crops to conform with economic changes and demands likely to develop in the immediate postwar period. Some farm plans were revised with this trend in mind, and new plans including high-yielding rotation systems of various adapted crops were developed for an additional 9,000,000 ac.

Soil depletion and erosion were known to have affected from 2,000,000 to 3,000,000 ac. of good farm land as a direct result of World War II production. Wind erosion had become a problem on the peanut producing lands of Texas; while in the humid southeast, serious runoff erosion resulted from the growing of this essential war crop on erodible soils. Surveys showed, also, that land was deteriorating in some parts of the corn belt states where soybeans had to be expanded to sloping lands without cover crops or suitable rotations. These war damaged lands were marked for immediate postwar attention.

Interest in soil conservation treatments for range lands was greatly intensified as rangemen observed the advantages of seeding, rotation and deferred grazing, water developments for livestock and other methods of improving run-down ranges and keeping good ranges in continuous and high production. Many ranch owners were using a system devised by the soil conservation service for evaluating range conditions in relation to what the land could be made to produce with appropriate conservation practices. The system is based on the fact that a knowledge of the range vegetation and its effectiveness in controlling erosion is essential to economical use of range lands. During 1945 more than 10,000,000 ac. of range land in the 17 western states were brought under conservation systems of stocking, and 324,000 additional acres were seeded to grass.

The water conservation division, established as a part of the soil conservation service June 30, 1944, began water conservation surveys on 28 watersheds during 1945. Charged with the responsibility of appraising U.S. water resources, the division was collecting data for use in determining the values of proposed water projects and providing such information to departmental agencies, soil conservation districts, other state and federal

agencies, and civic groups and individuals.

Soil conservation methods for irrigated areas of the west expanded greatly during the war years. By 1945 there were nearly 250 soil conservation districts in the irrigated regions, including more than 4,000,000 ac., or one-fifth of all irrigated lands. Through group action the districts, with assistance of soil conservationists, were able to make economical use of the irrigation water available, to grow vast quantities of feed and forage for the livestock industry and to increase per-acre production of fruit and vegetable crops from some of the best dry-land soils of the west.

Research studies were carried on throughout the year in all states to improve soil conservation practices, adapt them to local conditions, and develop new practices or combinations of practices to fit special problem areas. In crop producing areas field experiments were conducted to improve methods of establishing grass and legume cover on cultivated fields so that lands overcropped during the period of emergency production could be speedily restored.

Important hill culture experiments, conducted by the Iowa Agricultural Experiment station and the soil conservation service over an eight-year period, were reported in the latter part of the year. The experiments were started to develop safe and profitable cropping systems for lands so hilly and steep or so badly eroded that they could not be farmed in the usual way. Results showed that fruits, grapes, nuts and post trees, as well as high tannin sumac and veneer woods can be grown profitably between contour strips of grasses and legumes ordinarily used for pasture or meadow. The steep slope soils were protected from erosion by this mixed cropping, and soil-fertility conditions were greatly improved in the eight years without use of fertilizers. The method was recommended to farmers having little cropland and too much rough, hilly land on their farms.

Water conservation research in progress included sedimentation studies in the southwestern states, where silting of reservoirs seriously hinders water utilization; development of methods for soil conservation and supplementary sediment control on reservoir watersheds in several parts of the country; and studies to explore the possibilities and values of recharging ground water through water spreading on soils treated to maintain infiltration rates.

**Mexico.**—Erosion surveys by the department of soil conservation revealed that the principal causes of erosion in Mexico were deforestation of steep slopes, lack of crop rotations and overgrazing on lowland farms, and up and down hill cultivation of moderately sloping lands. Soil conservation work was greatly expanded during 1945, the prime objectives being to save critically eroded areas and increase agricultural output to aid in solving serious nutritional problems in the immediate postwar period.

Techniques for major improvement of the land of much of central Mexico had been adapted by field experiment, and many thousands of acres had been treated. The principal soil conservation methods in use were contouring, rotations incorporating leguminous crops, a special process of terracing in which small dikes of stones, earth, branches or other available materials were constructed on the contour, planting of tested grasses and establishment of special types of forest and fruit trees on eroded hillsides. More than 40,000 young trees were planted by small farmers of the Jalisco soil conservation district.

A project for the study of climate and human welfare as related to soil and water conservation was started during the year at Tacubaya. This project which was co-operative between the soil conservation service and other agencies of the United States and several Mexican agencies, had begun collection of accurate climatic and geographic data for use in farm planning, especially in arid regions where methods of conserving rainfall were needed before cropping plans could be devised. Preliminary surveys indicated that much land considered too dry for profitable farming could be brought into production by irrigation and use of soil-moisture storage practices.

A national soil conservation law was passed by the congress of Mexico in Dec. 1945.

**Central America.**—In the latter part of 1944, soil conservation demonstrations were started in the central tableland region of Costa Rica where soils were found to be seriously eroded as the result of deforestation, overgrazing and cultivation of steep slopes. A conservation needs survey showed that large areas of abandoned steep lands would have to be planted to trees and grasses, and that conservation methods such as contour terracing, rotations with leguminous crops and use of soil organic materials on intensively cultivated lands would be necessary to save the soils of the densely populated region. Experiments were begun in several areas to develop high-altitude cropping systems and conservation practices for all parts of Costa Rica.

Work was started in Guatemala to apply soil conservation practices to the 10,000 ac. school farm of the National School of Agriculture. At the same time, demonstrations and experiments were set up in El Salvador to develop a soil conservation program for all of the country. All three of the Central American programs were led by conservation technicians trained in the U.S.

**South America.**—In Venezuela, the service of conservation and rational utilization of soils was established by decree of the president on Feb. 10, 1945, as a regular bureau of the ministry of agriculture and animal husbandry. The functions of the new service as set forth by the decree were to work uninterruptedly toward arresting erosion on all the nation's lands, and to utilize adequately and with the greatest profit the ranges, woodlands, farmlands and waters in permanent contact with farmers of all regions. Soil conservation works already started in Andean states were incorporated in the new agency, and funds and personnel were provided for a long-time soil conservation program. Preliminary country-wide surveys were started to determine the most critically eroded areas. In the state of Trujillo soil conservation cropping systems and retirement of land to pastures had already proved their effectiveness, and farmers were being aided in planning land use according to the conditions and capabilities of the soils. An intensive educational program was started to inform Venezuelan land users of the causes of erosion and simple ways to protect their fields while awaiting scientific farm plans.

Land surveys in Chile revealed moderate to severe erosion in the central coastal regions, where wheat and cattle are produced. With a view to bringing about soil conservation on these lands, Chilean agronomists started experiments to develop legumes and grasses and adapt them

to cropland rotations and pastures that would increase per-acre production and protect soils. Twenty-six grasses and legumes, including kudzu, from the United States were planted in Chile during 1945 to accumulate seed and seedlings for soil conservation plantings.

In Argentina, a broad program was underway to extend subsurface tillage, mulching with crop residues, contouring and other conservation methods to areas subject to drought and wind erosion. Experimental and demonstrational work was being done under supervision of the Institute of Soils and Agriculture, and practices had spread to farms and ranges, highway banks and reclamation areas in northern Argentina. Emphasis during the year was on adaptation of machinery to soil and water conservation methods of using residues for dune control, terracing and soil-moisture conserving practices such as pasture furrowing and subsurfacing for flat lands. Wind erosion damage was reported from many parts of the corn, wheat and grazing zones.

Uruguay started soil classifications and land-use investigations, preparatory to launching a program to apply conservation practices to farm and range lands. The major erosion problems of the country were sheet and gully erosion in cultivated fields. Brazilian programs were expanding rapidly in four states, with terracing and contour strip cropping adapted to large acreages of cotton, maize and tomatoes. Irrigation work was in progress to restore 260,000 sq.mi. of drought affected land in Maranhão, Piauí and Ceará to production, and soil conservation plans were being developed for using the lands to grow great quantities of food crops.

West Indies.—Soil conservation structures for steep mountainsides were extended over large areas southeast of Port-au-Prince, Haiti. Bench terracing with hillside ditching and walls built of rocks gathered from the land constituted the basis of the work. Land protection laws were enforced by specially appointed agents who patrolled the farms to prevent burning of residues, tree cutting on slopes of more than 30% and crop planting on 45% slopes without soil conservation methods.

In Puerto Rico and the Virgin Islands, where soil conservation work was a part of the program of the United States, emphasis was on farm planning and more efficient land use. More than 1,000 ac. of idle land in Puerto Rico were converted to production during the year, and 1,500,000 lb. of food and 3,500 lb. of sugar cane were harvested to provide income to 935 families. In western Puerto Rico, conservation practices on 10,000 ac. had increased coffee yield by 150,000 lb., sugar cane by 9,000 tons, minor crops by 400 tons and pasture crops sufficient to support an additional 500 animal units.

In St. Croix, Virgin Islands, pasture improvement demonstrations were spread to larger acreages. Soil conservation work started in Jamaica in both valley and mountain lands during the year.

Great Britain.—A new program for co-ordination of conservation agriculture and forestry and the better use of hill lands was formulated under Britain's ministry of agriculture and the secretary of state for Scotland. Hill lands were being planned according to suitability for afforestation or sheep farming. At the same time, there was an increased interest in erosion and how to combat it, as the Scott committee reported that approximately 100 sq.mi. of topsoil were lost to agriculture yearly and that wartime increase in overuse of soils, involving 125 sq.mi. in one area alone, had rendered much land unusable and made the need for conserving topsoil a national issue. Legislation authorizing an inland water survey for all of Great Britain was passed during 1945, and regional advisory water committees were being instituted to conform with natural water resources regions in preparation for collection of data. It was intended that water resources data would be co-ordinated with land-use and soils surveys data for over-all planning for conservation of natural resources.

Africa.—Marked progress was made in adapting soil and water conservation to seriously eroded lands in the British colonies. In Kenya, the soil conservation service was completing surveys for long-term planning. Works already completed included 70,000 ac. of narrow-based terraces, 17,000 ac. of runoff control structures, 200 grassed drainageways, 2,200 mi. of contouring and 44,000 ac. of contour banks and trenches.

In Uganda, emphasis was on control and protection of grazing lands and provision of stock water facilities. The area of reserved forest was increased by 380 sq.mi. to preserve lands not suitable for cultivation. In crop producing areas, contour strip cropping had been widely adopted by farmers. Research on grass covers in their relation to soil structure had shown that grass has inherent value in building soil in the Kampala region.

In Tanganyika, a ten-year program was started to control erosion on 5,000,000 ac. of pasture and on 1,000,000 ac. of cultivated land in the Central province. Large grazing areas were reserved for use during the dry season, hundreds of hilltops were closed to cultivation and gullying was controlled over large acreages of communal plantations. Land-use adjustments in Rhodesia consisted of the moving of villages involving some 18,000 people from impoverished areas to good lands laid out on the contour with strips of vegetation interposed for erosion control. Surveys were in progress in Nyasaland and Somaliland to determine areas suitable for cropping and methods for restoring severely eroded areas marked for retirement to trees or grazing. In Basutoland, Bechuanaland and Swaziland soil conservation methods in use by native farmers were terracing, contour cultivation, contour plantings on banks to prevent gullying, protection of water supplies, planting of fuel reserves, controlled grazing, fire control and introduction of improved farming practices through farm planning. Work in the three dependencies was carried out under the British Colonial Development and Welfare act with a grant of funds of approximately \$1,500,000.

India.—In Bombay province an extensive program was under way to apply soil and water conservation methods to the cultivated land of the province. Work had been completed on 140,000 ac. by the close of 1945, including lands in the districts of Bijapur, Ahmednagar, Sholapur and Satara. Plans were completed for 150,000 additional acres. An improved dry-farming method was being applied to much of the land, with elaborate systems of bunding (similar to terracing as used in the United States) to impound rainwater, check erosion and increase soil-moisture content in areas liable to periodic failure of crops due to inadequate distribution of rainfall, generally tracts with average annual rainfall of 25 in. Other practices already applied to large areas were strip cropping, gully control, contour cultivation, rotational grazing and pasture seeding,

incorporation of legumes into rotations, water impounding for livestock and crop residue management. It had been determined that the soil conservation methods were capable of increasing yields from 100% to 400% above those attained by former local practices, depending on the soil-climatic variations. The program was under leadership of the office of the director of agriculture for Bombay province.

China.—Funds were set up for soil conservation in the Yellow river basin. The Kansu soil conservation station was multiplying erosion control plant species for use in aeroplane seeding of eroded areas in the northwest provinces. Chinese technicians were trained by the soil conservation service of the United States in the making of maps from aerial photographs to enable China to progress rapidly with a soil conservation program in the postwar period. From the standpoint of China's total agriculture, preliminary studies revealed that the most fundamental needs were for methods of conserving and distributing water on farms, flood control in lowlands, more exact principles of bench terracing for slopes to permit use of more acres and higher per-acre yields and grassland improvement including production of hay and silage for livestock. A vigorous co-operative program between the United States and China was in progress to develop grass and legume varieties more suitable for northern regions of the United States and for China's central and northwestern provinces. Thirty grasses from different parts of the United States were tested in China during 1945; and, in exchange, the soil conservation experiment station at Tienshui, Kansu province, had provided the United States soil conservation service with planting materials of four Chinese lespedezas, a northern kudzu and hull-less barleys from the vicinity of Tienshui and from Tsoh Ni, a mountain community at the headwaters of the Dao river in Kansu province.

Australia.—A national soil conservation service was established by the government in the spring of 1945 and was authorized to plan a long-term soil erosion control program for the entire country. The new service absorbed the separate programs of Victoria, New South Wales and South Australia and also various soil conservation projects of limited extent in other states. Work was started to delineate critical areas, construct experiment stations for soil conservation research and to lay out demonstrations in co-operation with farmer groups. The first major demonstration was started in September on an area of 3,000 ac. near Gulgong, New South Wales. Operations begun included construction of 7 mi. of grassed waterways, contour banking of 750 ac. and pasture furrowing of 800 ac.

Erosion of gigantic proportions resulted from the worst drought in the history of Australia over an 18-months' period in 1944-45 and from flooding of northern rivers. With restoration of the eroded lands in view, farmers were adopting stubble mulching, terracing and contouring, shelter belt planting and pasture furrowing to prevent further damage and to prepare lands for scientifically planned rotations including grasses and legumes grown as green manure and feed crops.

New Zealand.—Regulations for treatment and use of land in soil conservation districts were adopted in May 1945. Soil conservation districts were established by declaration of the New Zealand governor-general by order-in-council under the New Zealand Conservation and Rivers Control act of 1941. Each district is headed by a committee consisting of a soil conservator appointed by the council, one or more persons appointed by the council from nominations by local authorities, and other persons appointed by the council because of specific knowledge of district problems. The committee may require a local land occupier (1) to change or restrict livestock numbers to conform with grazing capacity of land, (2) to refrain from stocking, plowing or cultivating any or all of his land for a specified period, (3) to plant grasses, trees, shrubs or other erosion-control plants as specified, (4) to carry out specified soil conservation works to reduce or prevent erosion or flood damage and (5) to refrain from changing use of certain lands if a change would promote soil erosion or damage by flood.

U.S.S.R.—Surveys by the Soviet Soil Erosion laboratory revealed serious gully erosion in battle-scarred areas of Byelorussia, the Ukraine, the Crimea, on the banks of the Don and on badly broken country west of the Volga. In addition to gullying, the infertile subsoil thrown up from craters and trenches covered all fertile topsoil on many fields. It was estimated that 588.6 cu.yd. of earth would have to be shifted on one field of an acre and a half before plantings could be made. Soil scientists were working on problems connected with restoring soil fertility to thousands of filled-in and levelled fields within the 17,537,000,000 ac. that had been overrun by the enemy during World War II. Intensive studies were in progress to develop green-manure crops, especially nitrogen-collecting plants, for infertile sandy soils, the nonblack soil belts and for northern podsol soils cleared of forests for agricultural purposes.

Crops had been adapted to soils, climatic conditions and water supplies in most of Georgia, Armenia, Azerbaijan, Uzbek, Tajik and Turkmen. In Georgia, contour planting and terracing for orchards and vineyards was used extensively, and in Turkmen contouring was applied to semidesert lands as they were reclaimed for production of fruits, vegetables, cotton and other crops by numerous irrigation works.

Damage by wind erosion in central Siberian regions was reported during the year 1945. Conservation of soil moisture was determined as an important feature of soil conservation for many regions of the U.S.S.R. (See also AGRICULTURE; AQUEDUCTS; DAMS; IRRIGATION; METEOROLOGY.)

FILMS.—*Work of Rivers; Work of Running Water; Work of the Atmosphere* (Encyclopædia Britannica Films Inc.) (H. H. Be.)

**Solar System:** see ASTRONOMY.

**Solomon Islands.** An archipelago in the western Pacific, included in Melanesia and forming a chain (in continuation of that of the Admiralty Islands and New Mecklenburg in the Bismarck archipelago) from N.W. to S.E.



between 154° 40' and 162° 30' E., 5° and 11° S., with a total land area of 17,000 sq.mi. Administratively the islands are divided between the British Solomons (a colonial possession of Great Britain, with a land area of 11,700 sq.mi. and a pop. [1931] of 94,105, of whom 497 were Europeans) and the northern islands of the group, of which Bougainville is the largest. These belonged to Germany before World War I and were assigned to Australia under a League of Nations mandate after that conflict. Powers of government in the British Solomons are vested in a British resident, whose seat of administration is located on Tulagi Island, off the south coast of Florida Island. Resident commissioner (appointed 1943): Col. O. C. Noel, O.B.E.

The Solomons constitute a double row of large mountainous volcanic islands, flanked by some small atolls to the north, east and south. They extend for a distance of 900 mi. from Bougainville strait in the northwest to Fakata, or Mitre Island, in the neighbourhood of the Santa Cruz Islands to the southeast. Their northern extremity is marked by the atoll Ontong Java or Lord Howe, their southern by Rennell Island; the intervening distance is 430 mi. The great majority of the natives belong to the Melanesian race, but some 4,000 inhabitants of the outlying atolls are Polynesians.

**History.**—The strategic importance of the Solomons had been realized in some quarters in Australia after World War I, but the terms of the league mandate forbade fortification of the northern islands, and the British government took no steps to create air and naval bases in the British Solomons. The base at Singapore was supposed to provide adequate protection for what seemed, before the Japanese onslaught in 1941, a safe and remote part of the world.

The central Solomons area marked the farthest southward penetration of Japanese ground, air and naval forces. A turn of the tide in this combat theatre was marked when U.S. marines seized Tulagi and the important Henderson airfield on Guadalcanal in Aug. 1942. For some time the marines were hard pressed, but decisive naval victories in October and November of that year eased the U.S. position.

A steady but slow process of clearing the Japanese from the part of the archipelago which they had occupied went on during 1943, and by the end of that year the Japanese were on the defensive in the last of their major strongholds in the Solomons area, the large northern island of Bougainville. The forward movement in the Solomons was co-ordinated with the clearing of the Huon peninsula in northeastern New Guinea, and with landings, at the end of 1943, in New Britain, an important objective of both drives being the major Japanese base of Rabaul, in New Britain. By Feb. 1944, the Allied offensive in the Pacific had by-passed the Solomons and New Guinea and pushed on to Truk, the next step on the road back to the Philippines. Formal Japanese surrender of the islands took place in a ceremony aboard a British aircraft carrier off Rabaul on Sept. 6, 1945. (See also WORLD WAR II.)

**Finances, Trade, Education.**—Revenue in 1940-41 was £51,320 sterling, expenditure was £65,848. Exports during 1940-41 were £131,938. Among the principal products of the Solomons are bêche-de-mer, copra, ivory nuts, trochas shell used for pearl buttons, cocoa, rubber, sweet potatoes, pineapples, bananas, yams. Education is in the hands of five missions.

(W. H. CH.; X.)

**Somaliland, British:** see BRITISH EAST AFRICA.

**Somaliland, French:** see FRENCH COLONIAL EMPIRE.

**Somaliland, Italian:** see ITALIAN COLONIAL EMPIRE.

**Somervell, Brehon Burke**

(1892- ), U.S. army officer, was born May 9 in Lit-

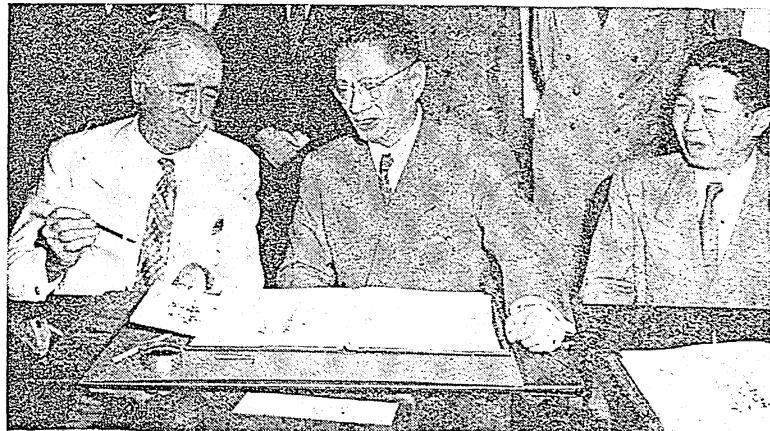
tle Rock, Ark., and was graduated from West Point in 1914. During World War I he was a divisional chief of staff of personnel and operations on the western front, 1918-19, and was assistant chief of staff of supplies of the U.S. occupation force in Germany, 1919-20. He later supervised a number of civilian engineering and construction projects in the United States and in Europe, and was WPA administrator for New York city, 1936-40. He was made assistant chief of staff in charge of the army supply division on Nov. 25, 1941, and supervised the shipment of supplies to U.S. armed forces all over the world. On March 2, 1942, Lt. Gen. Somervell was made commander of the army supply services. He was nominated for promotion to the rank of a full general, March 13, 1945. He attended the Potsdam parley in the summer of 1945 and on Sept. 20 he asked to retire.

Gen. Somervell made his final report as commanding general of the army service forces on Oct. 27, and on Dec. 26, the army announced that he would retire as of Jan. 1, 1946, to be succeeded by Lt. Gen. LeRoy Lutes.

**Soong, T. V.** (1894- ), Chinese statesman, was born in Shanghai, the eldest son of Charles Jones Soong, wealthy Bible publisher, and the brother of Mme. Chiang Kai-shek. He attended Vanderbilt university, Harvard and Columbia, where he specialized in economics, and later he worked in New York banking houses. He returned to China in 1917, and six years later became director of the department of commerce with the nationalist government established in Canton. He was finance minister, 1928-33, and in 1936 he founded the Bank of China. Chiang Kai-shek named him foreign minister, Dec. 23, 1941.

Soong spent much of 1943 in the United States. On Dec. 4, 1944, he was named acting president of the executive yuan, which gave him a position in China second in importance only to that of Chiang Kai-shek. Soong attended the San Francisco conference of the United Nations in April 1945 and at the plenary session, April 26, stressed that there was "no hope for any nation without a really effective system of collective security." He was in Moscow in June and July where he conferred with Premier Stalin, presumably on proposals for the Russo-Chinese treaty and the soviet plans for attacking Japanese forces in Manchuria. He quit his position as foreign minister, July 30, because of the burden of his many concurrently-held government posts. On Aug. 24, Leo T. Crowley, U.S. administrator for the Foreign Economic administration, disclosed that Soong had asked for a \$2,000,000,000 loan for China's rehabilitation.

CHINESE PREMIER T. V. Soong (centre) signing the United Nations Charter at Washington, D.C., on Aug. 21, 1945, in the presence of U.S. Secretary of State J. F. Byrnes (left) and Chinese Ambassador Dr. T-M. Wei. Dr. Soong was obliged to leave the conference at San Francisco before the final signing of the charter





**Sorghum:** *see* SYRUP, SORGO AND CANE.

**South Africa, British:** *see* BRITISH SOUTH AFRICAN PROTECTORATES.

**South Africa, The Union of.** A self-governing dominion of the British commonwealth of nations. The four provinces of which it consists, the Cape of Good Hope, Natal, the Transvaal and the Orange Free State, extend from the southernmost point of the African continent to the Limpopo in the north. The former German colony of South-West Africa (pop.: European 33,600; Bantu and coloured [mixed] 287,731) is administered under mandate as an integral part of the union, but this territory has not been incorporated as a province. Area 472,550 sq.mi. (incl. Walvis bay, 430 sq.mi.); pop. (est. June 30, 1941) 10,521,700 (Europeans 2,188,200; Bantu 7,250,700; coloured 844,400; Asiatic 238,400). Chief towns (pop. census 1936): Capetown (seat of legislature) 344,223; Johannesburg 519,384; Durban 259,606; Pretoria (seat of government) 128,621; Port Elizabeth 109,841. Governor-general in 1945: Rt. Hon. N. J. de Wet (governor-general designate: G. B. Van Zyl); premier: Field Marshal Jan C. Smuts. Languages: English, Afrikaans. Religion: European population: Christian (Dutch Reformed churches 55%; Anglican 19%; Methodists 6%; Presbyterians 5%).

**History.**—When hostilities ceased in Europe in May 1945, 80,000 South Africans were serving outside their country. Of these a large proportion were members of the 6th South African armoured division who had been in the front line for a year. The South African air force had never been out of action from the beginning of the war, and had grown to a striking power of more than 30 squadrons in the field. Parallel with this development was the expansion of the South African air force shuttle service which at the beginning of 1945 was flying 21 Dakotas in either direction along the 6,000-mi. route from Pretoria via Cairo to Fano in Italy. This service at one time carried as many as 1,000 reinforcements for the 6th division. With the release of South African prisoners of war in Europe the service was extended to England, and up to June 12, when it ceased repatriating ex-prisoners of war from England, it had carried 1,870 officers and other military personnel to South Africa.

The union's demobilization machinery swung into action in January and up to February, 8,056 European returned soldiers had been placed in new employment in addition to 19,560 who had been reinstated in their previous employment. The directorate of demobilization estimated that work would have to be found for 40,160 European male volunteers and it was not pessimistic about its capacity to place these men. In the meantime thousands of ex-volunteers had been assisted under the generous benefits and financial assistance scheme and were being rapidly rehabilitated in civilian life.

At the end of the second session of the union's ninth parliament—a session which proved to be the third longest in history—H. G. Lawrence, minister of social welfare and demobilization, succeeded in getting the Housing (emergency powers) act passed. This contained drastic proposals to speed up the building of houses on the national scale by the state and other bodies, and under it the government accepted the responsibility of providing houses for the people. Other acts passed during the session included the Financial Relations act and the Native Education Finance act, which gave effect to new arrangements outlined in the budget speech; the Standards act and Scientific Research Council act for the promotion of industry; the Electoral Laws Amendment act, which made the registration of voters continuous and abolished periodical registrations; the Registration of Employment act to provide information on unemployment; and the Native Urban Areas Consolidation act.

During the session the board of trade and industries' special report on industrial development was published. This recommended "moderate" customs protection, the reduction of costs under the threat of lower protection, research, decentralization of industry and certain taxation relief. It emphasized that rationalization and efficiency were more important than protection in future development. It was revealed by the minister of finance that South Africa's contribution to U.N.R.R.A. amounted to about £4,500,000. So far £1,025,000 had been voted. Ten per cent of the total was to be transferred in cash, 90% being used to make purchases on behalf of U.N.R.R.A. Of this a great portion was to be composed of military stores and equipment held by the government.

A scheme to reclaim the native reserves at a cost of several million pounds was initiated. It introduced two major factors: the recovery of exhausted land, the opening up of new areas for native settlements, and the payment of wages to those employed in working on and maintaining the recovery schemes in the permanent native reserves. (J. Mb.)

With the end of World War II, the wartime coalition government ended in November, and Prime Minister Smuts's United party continued in power alone. First the Labour party withdrew, entailing the resignation from the cabinet of W. B. Maudslayi and his replacement by Dr. Henry Gluckman. Then the Dominion party withdrew, entailing the cabinet resignation of Col. C. F. Stallard, and his replacement by J. W. Mushet. It was a friendly parting after a sustained war effort. The task of steering South Africa into the peace period thus fell wholly on the United party.

**Education.**—In 1941: state and state-aided primary and secondary: European schools 3,622, scholars 388,925; non-European schools 5,229, scholars 678,161; universities, average number of students, 11,801.

**Banking and Finance.**—Revenue (est. 1945-46) £SA118,277,000; expenditure (est. 1944-45) ordinary £SA59,813,000, war £SA102,500,000; public debt (March 31, 1945) £SA522,098,589; notes in circulation (March 31, 1945) £SA51,000,000; gold reserve (March 31, 1945) £SA103,000,000; exchange rate (average 1944) £1 SA=398 cents U.S.

**Trade and Communication.**—External trade (1940) (exclusive of goods in transit and of gold bullion and specie): imports (total) £105,099,234; exports (domestic) £28,562,207; re-exports £5,528,430. Communication and transport: roads fit for motor traffic (1938-39) 87,495 mi.; railways, including South-West Africa (March 31, 1940) 13,645 mi.; airways, including South-West Africa (1939): passengers carried 35,578; freight and mails carried 2,640,984 lb.; mileage flown 1,751,453; shipping (1940) entered 6,598; net tonnage 25,504,068; cleared 6,554; net tonnage 25,315,168. Motor vehicles licensed (Dec. 31, 1940): cars and taxis 317,958; vans and trucks 51,215; tractors 1,044; cycles 21,725; wireless receiving set licences (1944) 365,250; telephones, instruments in use (1940) 202,753.

**Agriculture, Manufacturing, Mineral Production.**—Production (in short tons): gold (1942) 439,191 kg.; diamonds (1939) 1,269,828 carats; maize (1943-44 est.) 3,674,400,000 lb.; coal (1940) 19,282,534; sheep, number (Aug. 31, 1939) 38,289,430; cattle, number (Aug. 31, 1939) 11,852,736; wool (1940) 137,788; wheat (1944-45 est.) 844,000,000 lb.; cane sugar, refined, 515,656; iron ore (metal content) (1940) 436,511; pig iron and ferroalloys (1940) 335,099; steel (1939) 346,122; silver (1940) 44.3; manganese ore (metal content) (1940) 192,351; chrome ore (chromic oxide content) (1940) 80,799; asbestos (1938) 24,140; wine (1938-39) 41,079,620 U.S. gal.; tobacco, European cultivation 15,212; potatoes (1938-39), European cultivation 216,933; oats, European cultivation (1939-40) 88,956; barley, European cultivation

(1938-39) 22,597; mohair (1940), export 2,094; copper (smelter production) (1940) 14,991; groundnuts (1938-39), European cultivation 14,881; benzol (1939) 1,874; superphosphates of lime (1937) 180,777. Industry and labour: (census 1939) establishments 9,837; employees, European 117,056; others 189,087; value of gross output £SA172,764,000; value added to materials used £SA85,108,000. Employment index (average 1929=100), average 1941, 164; Feb. 1942, 172.

**South America:** see ARGENTINA; BOLIVIA; BRAZIL; BRITISH GUIANA; CHILE; COLOMBIA; ECUADOR; PARAGUAY; PERU; URUGUAY; VENEZUELA.

**South Australia.** A state of the Australian commonwealth, 380,070 sq.mi. in area, bounded by longitudes 129° E. and 141° E., and by latitude 26° S. and the southern coast of the continent. Population (est. Dec. 31, 1943) 621,998. Chief city and capital (pop. Dec. 31, 1943), Adelaide, 362,500. Governor in 1945: Lieut. Gen. Sir Charles Willoughby Moke Norrie.

**History.**—The government in 1945 introduced a special bill to reappoint Sir Charles McCann as agent-general and trade commissioner in London for a further three years. He had been agent-general for 11 years. Detailed plans were submitted to the air minister for a modern continental-type airport for Adelaide to cost \$3,200,000. The state premier announced that the state government would accept liability for its maintenance. The government also planned the establishment of a deep-sea port in the southeast. Drought conditions during 1944 had adversely affected agricultural and pastoral output and stock losses were estimated at more than 900,000. The 1945 wine vintage, partly due to winter frosts, was down by 30% compared with the previous season. Meat exports, however, increased by 25%. A record house construction program costing \$4,000,000 was planned for 1945-46. It was to be undertaken by the state housing trust and state bank.

**Education.**—In 1941: number of schools (state) 989 (private) 157; teachers (state) 3,078 (private) 831; scholars (state) 72,156 (private) 13,502; average attendance (state) 62,051 (private) 12,002.

**Finance.**—In 1943-44: revenue \$49,744,000; expenditure \$49,696,000; debt outstanding (June 30, 1944) \$346,576,000. (Conversion rate: £A1=\$3.2 U.S.)

**Communication.**—Roads (1941) 54,412 mi.; railways (1942-43): government 2,547 mi. Motor vehicles licensed (Dec. 31, 1944): cars 59,271; commercial vehicles 24,906; cycles 7,139. Wireless set licences (Dec. 1944) 155,717.

**Agriculture and Manufacturing.**—In 1943-44 (in short tons): wheat 620,714; barley 126,430; currants 11,500; raisins 18,300; wool 57,500; butter 9,930; wine 16,900,000 gal. Industry (1943-44): factories 2,166; employees 69,000; gross value of output \$215,264,000; unemployment (trade union returns) (Feb. 1945) 1.2%. (W. D. MA.)

**South Carolina.** A south Atlantic state of the United States, and eighth of the original 13 to ratify the constitution, 1788; popularly known as the "Palmetto state." Area, 31,055 sq.mi., including 461 mi. of inland waters; pop. (1940) 1,899,804; white 1,084,308; Negro 814,164; others 1,332; 75.5% rural; 0.3% foreign born. Capital, Columbia (62,396). Other cities include Charleston (71,275); Greenville (34,734); Spartanburg (32,249). The bureau of the census estimated the civilian population of the state, July 1, 1944, at 1,923,354.

**History.**—Ransome J. Williams became governor on Olin D. Johnston's resignation Jan. 2, 1945, to become senator. Gov. Williams urged that criminal laws be better enforced. The sher-

iff's association agreed and severely criticized liberal pardons. Legislative efforts were ineffectively made for constitutional revision of the pardoning power. A resolution for referring to popular vote the removing of the constitutional prohibition of divorce failed, lacking the necessary two-thirds. The Preparedness for Peace commission recommended consolidations and systematization of governmental agencies, with little effect. An extensive alumina plant began operations in July; large hydro-electric expansion occurred; meat packing considerably enlarged, and a \$12,000,000 box factory and a \$10,000,000 celanese plant were announced. A few protracted strikes in textile mills occurred. The National Council of Negro Democrats, meeting in Columbia and sponsored by Carolina Negro Democrats with representatives from several states, urged a systematic campaign for making Negroes politics conscious as necessary for securing recognition in the south.

Exports (not including shipments under the War Shipping administration) from South Carolina to foreign countries, year ending June 30, 1945, were \$1,732,898; imports into South Carolina ports during the same period, \$3,912,566.

From Nov. 1, 1940, through June 30, 1945, accession to U.S. army personnel from South Carolina totalled 119,000 males and 1,886 females. Total accessions to the navy were not available; but those in service at the close of World War II totalled 45,827 males and 1,065 females.

**Education.**—Greatly increased appropriations were made for the university and other state colleges. The pay of public school teachers was raised. The retirement benefits for teachers and other state employees was to begin in 1946. State superintendent of education J. H. Hope, popularly elected continuously from 1922, reported for the year ending June 30, 1945: enrolment in white elementary schools 180,443; in Negro elementary schools 178,334 (white population 1940, was 270,144 greater than Negro); in white high schools 67,452; in Negro high schools 23,999; white and Negro elementary teachers respectively 6,210 and 5,201; white and Negro high school teachers respectively 2,904 and 774; expenditures for white schools \$20,710,888; for Negro schools \$5,257,019. Following the comprehensive examinations for reclassifying teachers into five groups, further subdivided, as a basis for future advances in pay, up to Jan. 7, 1946, 11,700 had been recertified with about 6,000 more soon to follow. As in Charleston in 1944, in Columbia in 1945 a federal court ordered equal pay for equal work for teachers irrespective of race. Reclassification based on training, experience and comprehensive examination was adopted largely in anticipation of such decisions.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—In the year ending June 30, 1945, federal allocation for needy persons equalled \$2,389,575, to which the state added \$2,535,322. A total of \$3,560,109 went to the aged; \$1,100,781 to dependent children; \$210,181 to the blind. There were 35,056 persons assisted financially. In addition there were sparsely inhabited poorhouses in 13 of the 46 counties. The State Unemployment Trust fund supplied entirely by employers totalled June 30, 1945, \$36,759,272. Payments to the unemployed during the year then ending were \$222,537. Patients in the state hospital for the mentally diseased June 30, 1945, were 5,591, including 850 on parole; in the school for feeble-minded 974; prisoners in state penitentiary and farms 933. Legal executions during same period, 2. Inmates in the reformatory for white boys 232; for Negro boys 167; in white girls' reformatory 88. The few executions registered tenderness of jurors and governor, not scarcity of murders.

**Communication.**—Paved highways June 30, 1945, 7,335 mi.; earth type improved roads 7,807 mi.; funded debt for highways, being steadily reduced was \$52,917,263. A \$42,000,000 three-year highway building program was adopted in Oct. 1945. Railroads 3,563 mi. Eastern Air Lines and Delta Air Lines crossed the state in all four cardinal directions.

**Banking and Finance.**—On June 30, 1945, there were 22 national banks (plus 19 branches), 86 state banks (plus 5 branches), 37 cash depositories and 1 private bank, with capital and deposits and resources as follows: national \$14,531,000, \$339,170,000 and \$354,755,000; state \$11,315,585, \$184,334,495 and \$195,825,055. Resources of federal building and loan associations totalled \$31,742,448; state associations \$13,140,651. The state debt on June 30, 1945, was \$54,961,555, almost all for highways. A state debt of \$1,964,469 was paid during the year. State tax collections for the year ending June 30, 1945, totalled \$45,280,301, of which \$13,221,730 was from income taxes and \$12,157,795 from gasoline and auto tags. A \$10,000,000 surplus remained. Federal internal revenues for the year ending June 30, 1945, were \$181,345,494, \$163,776,360 being from income taxes. Duties on imports were \$472,472. Farm mortgage debts on Jan. 1, 1944, totalled \$42,932,000, a decrease of 8.2% in five years.

**Agriculture.**—The value of 37 leading field and truck crops in 1945 was \$262,570,000 compared with \$274,841,000 in 1944. The farm labour shortage was so serious that a slight beginning was made in mechanical cotton picking. The value of cotton and cottonseed was \$81,927,000 and of the next most valuable crop (tobacco) \$60,970,000. Fruits, many of which were lost by frost in 1943 and 1944, were abundant. The peach crop was exceeded only by those of California and Georgia. The acreage of all crops cultivated was 4,416,000 ac., 4% below 1944. The acreage

Table I.—Leading Agricultural Products of South Carolina, 1945 and 1944

Crop	1945	1944
Corn, bu. . . . .	23,414,000	24,160,000
Wheat, bu. . . . .	2,912,000	3,588,000
Oats, bu. . . . .	16,023,000	15,064,000
Hay, tons . . . . .	508,000	410,000
Irish Potatoes, bu. . . . .	2,480,000	1,464,000
Sweet Potatoes, bu. . . . .	5,890,000	7,056,000
Tobacco, lb. . . . .	139,520,000	132,250,000
Cotton, bales . . . . .	675,000	864,000
Cottonseed, tons . . . . .	265,000	356,000
Peaches, bu. . . . .	5,760,000	2,460,000
Pecans, lb. . . . .	3,404,000	2,600,000
Peanuts, lb. . . . .	25,000,000	25,400,000

only of oats, lespedeza, sorghum and tobacco were above those of 1944. The total number of farms increased from 137,558 in 1940 to 153,573 in 1945, and acreage from 11,238,697 to 11,575,322. The average size of farms sank from 81.7 ac. to 75.4 ac.

**Manufacturing.**—The total value of manufactures for the year ending June 30, 1945, was \$1,106,912,578 as against \$1,093,100,709 the preceding year. Employees numbered 154,384 as against 161,122 the preceding year.

Table II.—Principal Industries of South Carolina, 1945 and 1944

Industry	Value, 1945	Value, 1944
Textiles. . . . .	\$787,171,222	\$771,034,396
Lumber and products (boxes, paper and pulp, furniture, etc.) . . . . .	81,832,929	88,041,111
Electricity . . . . .	25,223,573	25,364,657
Clothing (including knitted) . . . . .	24,981,840	22,710,948

**Minerals.**—Production for the year ending June 30, 1945, chiefly stone and clays, especially kaolin, totalled \$3,562,613; previous year, \$3,359,300. (D. D. W.)

## South Dakota.

A north-central state of the United States, admitted as the 40th state on Nov. 2, 1889, popularly known as the "Coyote state." Area 77,047 sq.mi., of which 511 sq.mi. are water; population (1940) 642,961, with 158,087 listed as urban and 484,874 as rural; Indian population 23,347. The federal census bureau estimated the civilian population on July 1, 1944, at 558,629. The state census taken during 1945 revealed a population of 589,802. Capital, Pierre (4,322 in 1940). Principal cities: Sioux Falls (40,832), Aberdeen (17,015), Rapid City (13,844), Huron (10,843) and Mitchell (10,633).

**History.**—Legislative enactments during the 60-day session ending March 2, 1945, included the creation of a state conservation commission; activation of a state teachers' pension and annuity system; reduction of the ore tax from 6% to 4%; increased old age assistance benefits; and an increase in state aid to education from \$1,165,000 to \$2,625,000.

State officials in 1945 included: M. Q. Sharpe, governor; Sioux K. Grigsby, lieutenant governor; George T. Mickelson, attorney-general; Mrs. L. M. Larson, secretary of state; Miss Hazel Dean, treasurer. J. F. Hines was superintendent of public instruction, a position filled by nonpartisan ballot.

**Education.**—The school census, ages 6–21 years, was 155,420 in 1944–45 as compared with 158,112 in 1943–44. The enrolment was 84,100 in elementary schools and 28,724 in high schools. Total expenditures were \$15,323,124.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—During the fiscal year ending June 30, 1945, the state department of social security distributed \$3,720,968 among 14,520 persons in old age assistance; \$603,985 among 1,948 families, including 4,763 children, under the aid to dependent children program; and \$56,568 for the needs of 254 blind persons. Unemployment benefit payments were allotted during 1944 to 2,762 claimants for a total of \$24,406 at an average weekly rate of \$8.84. Eight penal and charitable institutions were in operation during 1945 on a legislative budget of \$1,375,000.

**Communications.**—The state maintained a highway system of 5,905 mi. which in 1944 included 2,808 mi. of pavement and 2,797 mi. of gravel surface, maintained at a cost of \$2,432,597. There were 3,990 mi. of railroad in operation during 1944.

Telephones during 1943 numbered 96,679, of which 30,302 were rural.

**Banking and Finance.**—There were 36 national banks in operation on Dec. 30, 1944, with total assets of \$168,547,000 and deposits of \$159,283,000. One hundred thirty state banks and trust companies on June 30, 1945, had resources of \$150,822,000 and deposits of \$141,620,000. Nine building and loan associations on June 30, 1945, reported total resources of \$3,413,018.

Total receipts for the state treasury for the fiscal year ending June 30, 1945, were \$32,958,617; disbursements were \$27,486,473. The bonded indebtedness was \$24,994,000. Federal internal revenue collections for the same period totalled \$37,150,064, of which amount \$32,287,401 was derived from the income tax.

**Agriculture.**—Favourable weather conditions and the stimulus of high prices accounted for near-record crop productions in 1945.

About 1,000,000 acres of idle cropland were put into use during the war period and large areas of grazing land were shifted to grain production.

Principal Agricultural Products of South Dakota, 1945 and 1944

Crop	1945 (est.)	1944	Crop	1945 (est.)	1944
Corn, bu. . . . .	119,250,000	140,292,000	Potatoes, bu. . . . .	2,904,000	2,550,000
Wheat, bu. . . . .	53,098,000	38,847,000	Sorghum, bu. . . . .	962,000	2,091,000
Oats, bu. . . . .	146,759,000	92,430,000	Hay (tame and wild), short tons. . . . .	3,255,000	3,705,000
Barley, bu. . . . .	33,615,000	28,448,000			

**Mining.**—Gold mining operations, resumed in July 1945, remained below normal because of a manpower shortage. The state maintained a high rank during World War II in the production of feldspar, bentonite and mica. (H. S. S.)

## Southern California, University of.

This institution, on private foundation, at Los Angeles, Calif., comprised in 1945, 26 schools and colleges, the latest addition being the college of aeronautics, provided by Capt. Allan Hancock and located at Santa Maria, Calif. During 1945 the university lost by death Vice-President Henry Bruce and Dean R. K. Immel of the school of speech.

The 1945 enrolment was the institution's largest, and included 2,500 returned veterans. Military activities continued. The occupational and physical therapy departments were crowded and also many of the regular departments. The Graduate Record Examination was adopted for use in connection with admission to the graduate school.

In Jan. 1945 the graduate school celebrated, with elaborate program, its 25th anniversary, the general theme being "Graduate studies in a world reborn."

A complete system of retirement for faculty and other employees was in effect, under which 14 faculty members, including five deans and directors, were retired. Albert S. Raubenheimer was executive dean in 1945.

In Sept. 1946, the university was to abandon its accelerated wartime schedule and return to the regular two-semester plan. The six-weeks' summer session was to continue.

For the ninth time the "Trojan" football team won the right to represent the coast conference at the Pasadena Rose Bowl, on New Year's day. A movement was launched for a new field house and armoury building, as a memorial to Howard Jones, who served with distinction as head football coach for many years prior to his untimely death. (For statistics of enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.)

(R. D. Hu.)

**Southern Rhodesia:** see RHODESIA.



**South Tirol.** Tirol, south of the Brenner pass, was ceded after World War I by Austria to Italy. This new Italian province of Venezia Tridentina (5,250 sq.mi. with a population of 669,029 according to the census of 1936) was in its southern part (Trento) inhabited by Italians, while in the northern part (Bozen or Bolzano) the population was German. In spite of almost 25 years of strenuous Italian efforts at Italianizing the German population and much forced German emigration, the people of German-speaking southern Tirol retained their language and national character and the desire to be reunited with Austria. In Nov. 1945 the Austrian government presented a formal note to the Allies demanding the return of southern Tirol to Austria. Italy pleaded the retention of Austrian south Tirol for strategic reasons, regarding the Brenner pass as a military asset of great importance.

(H. Ko.)

**South-West Africa:** see MANDATES; SOUTH AFRICA, THE UNION OF.

**Sovereigns, Presidents and Rulers:** see PRESIDENTS, SOVEREIGNS AND RULERS.

**Soviet Republics:** see UNION OF SOVIET SOCIALIST REPUBLICS.

**Soviet Union:** see UNION OF SOVIET SOCIALIST REPUBLICS.

**Soybeans.** The United States soybean crop in 1945 was the third largest of record, estimated at 190,646,000 bu. compared with 192,863,000 bu. harvested in 1944 and an average of 86,732,000 bu., 1934-43. The yield in 1945 was only slightly less than in 1944, 18 bu. per acre, which compares with 17.6 bu. per acre 1934-43. The acreage grown for beans, 10,596,000 ac., was almost exactly the same as in 1944 compared with 4,812,000 ac. in 1934-43. Much of the crop in the central states was late and frosts resulted in small beans and poorly filled pods. Indiana and Illinois, leading soybean states, had yields of about 20 bu. per acre. Iowa harvested only 18 bu. per acre which was 2 bu. below 1944.

The total acreage of soybeans grown for both stock feed and beans was more than 13,300,000 in 1945, compared with the record of 14,600,000 in 1943, and the prewar average of 7,300,000 in 1935-39.

The support price of soybeans of \$2.04 per bu. to farmers was continued through 1945 and the value to processors averaged \$1.70 to \$1.75 per bu., the difference being paid by the Commodity Credit corporation. The purchase of soybean oil by the United States department of agriculture increased sharply in 1944 but declined in 1945. The amount used in

U.S. Soybean Production by Leading States, 1945 and 1944

State	1945 bu.	1944 bu.	State	1945 bu.	1944 bu.
Ill. . . . .	74,100,000	72,870,000	Kan. . . . .	2,740,000	3,315,000
Iowa . . . .	34,848,000	38,720,000	N.C. . . . .	2,700,000	2,058,000
Ind. . . . .	27,924,000	23,744,000	Mich. . . . .	1,952,000	1,595,000
Ohio . . . .	20,072,000	21,796,000	Va. . . . .	1,360,000	945,000
Mo. . . . .	9,490,000	10,605,000	Tenn. . . . .	966,000	1,044,000
Minn. . . . .	6,825,000	4,340,000	Miss. . . . .	962,000	1,150,000
Ark. . . . .	3,344,000	3,612,000	Wis. . . . .	636,000	735,000

manufacture also increased to a new high record in 1945. Of the total production of 1,400,000,000 lb. of oil in 1945 about one-half was used in manufacture. A disposition among growers to reduce the acreage of the crop was noticed in 1945 as foreign sources of oil were expected to again depress the market following the end of the war.

FILMS.—*Science and Agriculture* (Encyclopædia Britannica Films Inc.). (J. C. Ms.)

**Spaatz, Carl A.** (1891- ), U.S. army air officer, was born June 28 in Boyertown, Pa. He was graduated from West Point in 1914. During World War I he commanded a pursuit squadron in the St. Mihiel offensive in

1918, and was decorated for shooting down two enemy planes. He was chief of staff to Gen. Henry H. Arnold in 1941, and soon after Pearl Harbor he took over the air force combat command. In July 1942 he was named U.S. air commander in Europe. Early in 1943 he was shifted to the Mediterranean theatre as commander of the 12th U.S. air force and of the United Nations' Northwest Africa air forces. On Dec. 24, 1943, Pres. Roosevelt announced the appointment of Gen. Spaatz as commander of "the entire American strategic bombing force operating against Germany" from all directions. During 1944 and 1945, under his command, U.S. air forces brought all points in Europe within range of Allied bombers.

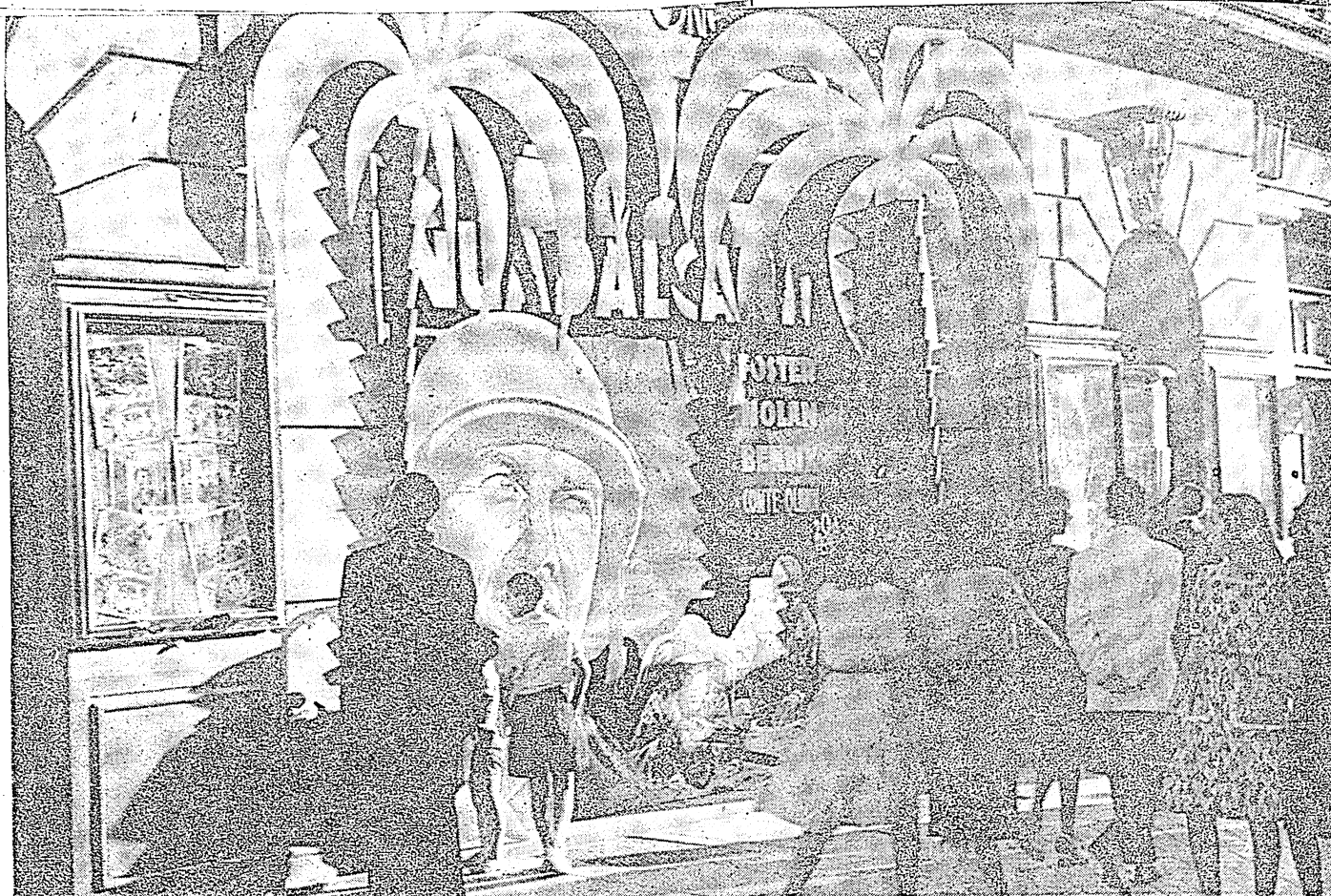
Spaatz was named for promotion to the temporary rank of full general, March 13, 1945. He represented the U.S. at the German surrender ceremonies in Berlin, May 8. He was named commander of the newly created U.S. strategic air force in the Pacific to direct Superfortress blows against Japan, the war department announced July 5. He said in a statement, Nov. 15, before a senate committee that a unified service command, in which the air force would be given equality, was an "imperative."

**Spain.** A southwestern European state, occupying about 84% of the Iberian peninsula. Area (including the Balearic and Canary Islands): 194,947 sq.mi. Pop. (1940 census): 25,877,971; (1944 est.) 26,761,902. Madrid (1,140,621) is the capital. Other large cities (1944 est. pop.): Barcelona (1,108,961); Valencia (508,072); Seville (347,997); Zaragoza (266,488); Málaga (258,598); Murcia (210,617); Bilbao (208,347). Religion: Roman Catholic. Caudillo or Chief of State: Gen. Francisco Franco.

**Foreign Affairs.**—Spain's government in 1945 weathered an ever-mounting storm of foreign criticism but only at the expense of isolation from the conflux of international affairs. In March the country was thoroughly aroused by Japanese atrocities in the Philippines. Diplomats in belligerent countries were instructed to cease representing Japanese interests, and in April Spain broke off relations with Japan. As Allied armies were delivering the blows which led to Germany's unconditional surrender, the government blocked the assets held in Spain by subjects of axis-dominated countries and on May 7 severed relations with Germany. Pierre Laval, who had fled to Spain in May, was expelled at the request of the Allies. But the official attitude toward Russia, exemplified by Franco's statement that "we cannot believe in the good faith of communist Russia," vitiated Spain's friendly overtures toward Britain and the U.S. At the Berlin conference the three powers declared that they "would not favour any application for membership" in the United Nations organization "put forward by the present Spanish government, which . . . does not, in view of its origins, its nature, its record and its close association with the aggressor states, possess the qualifications necessary to justify such membership."

Replying to a message from Franco, Churchill cited the overthrow of the Tangier regime as one reason for distrust of Spain's attempted *rapprochement* with the Allies. In August the Tangier question was studied by experts representing Britain, France, Russia and the U.S.; and, pursuant to the agreement signed by these four powers, in October Spain withdrew from its unilateral administration of the International Zone in favour of a committee of control.

Acutely susceptible to foreign antipathy, the government made every effort to disassociate foreign policy from its domestic program. The official attitude was expressed by Foreign Minister José Lequerica, who asserted that "the internal regime, purely Spanish, created by Spaniards and defended by them,



MOVIE THEATRE in Madrid, Spain, featuring *Guadalcanal*, U.S. war film, which had a successful run in that city during the summer of 1945

has nothing to do with its foreign policy." The policy of *Hispanidad* was said to "fortify the Pan-American and Good-Neighbour policy of the U.S." This view was received with scant enthusiasm in Latin America where complaints were chronic of Spanish co-operation with elements unfriendly to the United Nations.

Guatemala, Panamá and Bolivia broke diplomatic relations with Spain; but Britain and the U.S., despite strong demands from certain segments of public opinion, hesitated to take this drastic step. The latter governments, however, lost no opportunity to express publicly their distaste for the Franco regime. In December, U.S. Ambassador Norman Armour, who had replaced Carlton J. H. Hayes in January, was recalled.

In Mexico the Spanish committee of liberation, achieved some progress in harmonizing the divergent ambitions of the exiled groups working for Franco's overthrow; and in August formed a government-in-exile, headed by Martínez Barrio (president) and José Girál (premier), which Mexico, Guatemala and Panamá quickly recognized. Eschewing violence, the anti-Franco forces advocated a plebiscite, which they hoped economic sanctions and diplomatic pressure would force Franco to accept.

Denouncing Franco's dictatorial regime, the pretender, Don Juan, asserted that a constitutional monarchy "alone can provide an effective guarantee for religion, order and liberty." In order to strengthen the hand of the monarchists the duke of Alba resigned as Spanish ambassador to Britain. Late in December the U.S. and Britain accepted the invitation of France to a parley on the Spanish question, while year-end dispatches from Europe pictured Franco as striving to make a deal with the monarchists which would not rob him of personal power.

**Domestic Policies.**—Gen. Franco gave few assurances that his regime would undergo important transformation spontaneously. In Jan. 1945, he described the nation as a "Catholic state, eminently socialized . . . in which all Spaniards are equal before the law"; and in May he declared that "Spain is not a

dictatorship." The Falange, with its 100,000 state-supported officials, was called a necessary instrument for national unification; as for its political influence, Franco said that it "wields no political power . . . and makes no political decisions, because all political power and decisions depend absolutely upon the government." A cabinet shake-up in July, giving monarchists and non-party members a majority, was called a "further stage in Spain's spiritual and material reconstruction." Plans published in June promised the electorate an early opportunity to elect one-third of the membership of local and regional governing bodies, but later announcements postponed elections to the spring of 1946.

In Feb. 1945, the minister of justice reported that the jails held 22,900 political prisoners, as compared with the peak of 271,000 in 1940. The tribunal of political responsibilities was abolished in June; the government promised to drop political charges against exiles upon their return to Spain; and in October full pardon was extended to prisoners convicted of political crimes committed before the end of the Civil War. A bill of rights, based upon the constitution of 1876, was approved by the Cortes in July; but amendments to the penal code during the year made blasphemy, contravention of the labour laws and disparagement of the regime criminal offenses. Censorship of news dispatches to foreign countries was abandoned in April.

**Economic Conditions.**—Weather, war and politics combined to induce progressive deterioration in economic activity generally. Because of continued drought, abnormal cold and shortages of fertilizer, grain harvests were not expected to reach 60% of 1944 yields, when production was about one-third below the 1932-35 average. Thus, the country faced the necessity of importing almost half the cereals required for normal consumption; but the end of Allied preclusive buying curtailed the accumulation of foreign exchange for purchases abroad and reacted adversely upon mining and industrial production.

The wheat harvest for 1945 was estimated at 2,000,000 tons (2,700,000 in 1942). Estimates of sugar production for 1945-46 ran as high as 143,000 tons, as compared with an output of 159,000 tons in 1944-45. Olive production was expected to



show improvement over the poor yield of 1944, early estimates having placed the olive-oil yield for 1945 at 330,000 tons.

Iron ore production declined to 656,000 tons in the first half of 1945, compared with 863,000 tons during the same period in 1944. Steel output likewise dropped to 314,000 tons during the first half-year, from 385,000 tons in the first half-year of 1944. Coal (including lignite) production in the first quarter averaged about 1,000,000 tons monthly, or slightly less than the monthly average for 1944. In the first quarter lead production was down to 1,980 tons monthly (2,970 tons per month in 1944); copper, 715 tons monthly (880 tons per month in 1944); and zinc, 1,650 tons monthly, the same as in 1944. Tungsten ore output, reflecting the cessation of war demand, dropped from 102 tons in July 1944 to 10 tons in November, the last figure available in 1945. Foreign demand for superphosphates stimulated the production of pyrites to about 207,000 tons in the first half of 1945 (152,000 tons, Jan.-June 1944), while potash output rose above the 140,000 tons (K<sub>2</sub>O) produced in 1944 (the second highest output on record).

Excepting textiles, all industries dependent upon electricity or water suffered from the lack of power. With adequate supplies of raw cotton on hand, the cotton textile industry worked at near capacity; but cement production declined while the construction industries were handicapped by the dearth of equipment, materials and transport facilities. Over-all industrial activity in the second quarter was reported as 70% of the rate maintained in the first half of 1944.

**Trade and Transport.**—Although no statistics were available, it was estimated that foreign trade receded from the levels of the preceding year, when imports stood at 722,600,000 gold pesetas and exports at 776,400,000 pesetas.

In March the minister of public works reported on improvements in the transport system from the close of the Civil War. About 1,000 new locomotives and 30,000 passenger and freight cars were acquired by the railroads in this period and 1,500 bridges were rebuilt; but the shortage of coal and electricity forced the suspension or frequent curtailment of rail and street-car service. In April the government concluded an agreement with the International Telephone and Telegraph Co., under which Spain acquired four-fifths of the common stock in the Spanish Telephone Co.

**Finance.**—The peseta under exchange control was priced at 9.130 cents (U.S.). The public debt, which stood at 36,300,000,000 pesetas in April 1944, was increased in January by an issue, heavily oversubscribed, of 2,000,000,000 in treasury bonds. The circulation of the Bank of Spain reached 17,200,000,000 pesetas in August (17,700,000,000 at the end of 1944), just short of the maximum note circulation of 18,000,000,000 fixed by decree in March. The budget for 1946 called for expenditures of 13,200,000,000 pesetas. The army, air force, navy and government (police) departments received 48.6% of the total ordinary and extraordinary appropriations.

The official index of wholesale prices stood at 208 in May 1945 (1939=100), as compared with 203 for Oct. 1944; while the cost-of-living index (1939=100) rose to 184 in July (176 in Oct. 1944).

**BIBLIOGRAPHY.**—C. J. H. Hayes, *Wartime Mission in Spain* (1945); *Foreign Commerce Weekly*; *Boletín de Estadística* (Madrid). (R. S. S.)

## Spanish-American Literature.

Gabriela Mistral won the 1945 Nobel prize for literature. It was the first time that a South American received the coveted award. Gabriela Mistral was born in 1889 in northern Chile. After long years of leading an anonymous life in her native country she won recognition from the Mexican government, was invited as a guest of honour to teach and give

lectures in Mexico, saw her book *Desolación* published by the Instituto de las Españas in New York, and became one of the leading writers of America. In 1938 she published her second volume of verse, *Tala*. A career diplomat, in 1945 she was Chilean consul in Petropolis, Brazil.

The publishing house known as Fondo de Cultura Económica and its new series "Tierra Firme" were responsible for several of the best books published by Spanish Americans during 1945: *Ruta del Perú* by Luis E. Valcarcel; *Del ensayo Americano* by the Cuban Medardo Vitier; *Argonautas de la Selva*, an account of Francisco Orellana's adventures in the Amazon, by the Ecuadorean Leopoldo Benitez; and *Interpretación del Brasil*, the study by Gilberto Freyre which was so warmly received by American critics.

Younger novelists were far more productive than the old masters, Rómulo Gallegos being the exception; his latest work *Sobre la misma Tierra* has been called a film novel, better to be seen than read. Among the newcomers Gregorio Amunátegui, a Chilean senator, deserves special mention; his novel *Avenida San Juan 128* tells of behind the scene politics among Santiago's old conservative parties. The Argentinean Isidoro Sagues received a prize from Losada Publishing House for his novel *Mal de Ciudad*, the story of a provincial family shaken and stranded by the fast and modern Buenos Aires. A strong social conflict presented without outburst of any sort makes Alfredo Varela's *El Río obscuro* both pleasant and interesting reading. Manolo Cuadra is the author of *Almidón*, a doubtfully humorous novel which despite the author's efforts has failed to create any sensation outside his native Nicaragua. Nicasio Tangol deals with Chiloé and its people in his *Huipampa, Tierra de Sonámbulos*. *Pensativa* by Jesús Goytortúa Santos is a melodramatic tale based on the mysterious identity of the main character, a mystery, by the way, that the reader solves long before the author. The Argentinean writers, as if desirous to escape a reality which is not too pleasant to record, turned to poetic prose and memories of old times. S. Bulbrich and J. L. Borges edited a delightful anthology around the *Compadrito* theme, that colourful and bizarre type so popular with tango composers. Manuel del Cabral, known for his Negro poetry, has also written a book of poetic prose, *Chianchina busca el Tiempo*. Pedro Guillén writes a tale of two cities in his *Vida y Pasión de dos Ciudades*, the cities being Guatemala, where he was born, and Mexico where he settled down. Other 1945 novels deserving mention are: *Los de adentro* by Francisco Javier Espejo and Francisco Rojas Gonzalez' *La negra Angustia*. Julio Rosales, from Venezuela, produced the only collection of short stories worthy of special mention, *Historia de Rapaces*.

Among the biographies one of the most distinguished was María Wiese's account of José Carlos Mariátegui's life; well written and documented, this book is a great contribution to the political and literary history of modern Peru. Other biographies published in 1945 were: Carlos Cabello Reyes' *Genio y Figura de Bernardo O'Higgins*; Julio Iglesias' *José Santos Ossa*; and Raúl Téllez Yañez' *Fray Camilo Henríquez*. No year passes without the appearance of a book on Martí written by a Latin American author; in 1945 it was Andrés Iduarte's turn and his book is called *Martí, escritor*. Dr. Juan José Arévalo, president of Guatemala, published his *Escritos Políticos* in which he strives for the organization of one great republic that would embrace all the Central American countries. *Idola Fori* by Carlos Arturo Torres is a collection of essays dealing with sociological problems from an American point of view. Silvio Zavala's latest contribution to the history of America is also a group of essays entitled *Ensayos sobre la colonización española en América*. Some contributions to the criticism of Spanish American letters should also be mentioned, for example, Reginaldo



María Arizaga's *Valores poéticos de América* which includes poets of all the countries to the south, and Domingo Melfi's charming little book *El viaje literario*. On the more scholarly side it is important to point out the publication of Juan J. Remos' *Historia de la Literatura Cubana* and Arturo Jimenez Pastor's *Historia de la Literatura Argentina*.

The following are the outstanding books of poetry which appeared in 1945: Pedro Prado's new collection of sonnets entitled *Esta bella ciudad envenenada*; Humberto Díaz Casanueva's mourning poem, *Requiem*, dedicated to the memory of his mother which has originality, depth and true feeling; Fausto Soto's *Preludio Nuestro*, rich in imagery and delicate of expression; Adalberto Ortiz' *Tierra, son y tambor*, Negro poetry in the best tradition; Olga Solari's *Selva*, a promising first book; Humberto Zarrilli's *Cántico de la imagen*; Eduardo Mendoza Varela's *Poesía*; and Jorge Gonzalez Durán's *Ante el polvo y la muerte*, winner of the Mexican literary prize for 1944.

Mexico and Chile paid homage to two of their greatest living poets. Enrique Gonzalez Martínez received the Avila Camacho prize consisting of a gold medal and 10,000 Mexican pesos. Pablo Neruda, representing the Communist party in the Chilean senate, was awarded the Chilean national prize for literature, 100,000 pesos. In Argentina the literary awards of the year went to Eduardo Mallea, Ulises Petit de Murat and Leonidas Barletta.

(F. A.A.)

**Spanish Colonial Empire.** Total area (approx.) 135,200 sq.mi.; total population excluding Spain (est. July 31, 1944) 1,377,000.

The accompanying table lists the colonies, protectorates, etc., of Spain (*q.v.*) with certain essential statistics appropriate to each of them.

Spanish Colonial Empire

Country and Area sq. mi. (approx.)	Population Estimated July 31, 1944 (1930's omitted)	Capital, Status, etc.	Principal Products (in short tons)	Imports and Exports	Road, Rail and Shipping	Revenue and Expenditure
Ceuta Melilla, Alhucemas, Chafarines and Peñon Velez 82	145	Madrid, administered as part of Spain	exports (1942) raw materials 610,900 manufactures 7,370	(1942) imp. \$15,500,000 exp. 5,000,000		
Morocco, Spanish 8,080	992	Tetuan, protectorate High commissioners: General Juan Varela	(1943) iron ore 780,000 (1943) antimony ore 220	(1943) imp. \$29,500,000 exp. 7,600,000	rds. c. 500 mi. rly. 80 mi.	(1938) rev. and exp. \$12,300,000 1938 peseta =11.05 c.
Spanish Guinea including Fernando Po, Rio Muni and four small islands 10,900	168	Santa Isabel, colony	cocoa (1943) 13,898 coffee (1943) 3,850 wood (1943) 60,238	(1943) exp. \$9,040,000		(1932) rev. and exp. \$1,140,000 1932 peseta =22.4 c.
Western Sahara, including Ifni and Spanish Sahara 116,200	72*	Villa Cisneros, colonies	fish and dates			(1929) rev. and exp. \$1,320,000

\*Ifni = 35, Spanish Sahara = 37. 1 gold peseta = 24.9 cents U. S. 100 gold pesetas = 352.7 paper pesetas.

**Spanish Guinea:** see SPANISH COLONIAL EMPIRE.

**Spanish Literature.** During the latter part of 1944 and the whole of 1945 several Spanish refugees living in Mexico played intensely active roles in literature. José Moreno Villa, poet, painter and art historian of note, sketched in his unconventional autobiography many famous Spaniards who used to frequent the Centro de Estudios or reside in the Residencia de Estudiantes: Unamuno, Ortega y Gasset, Juan Ramón Jiménez, García Lorca, etc. The author also included some of his more recent poems along with reproductions of several oil paintings. While relating in his biography *El general Miaja* the life of the defender of Madrid, Lázaro Somosa Silva gives an eyewitness account of the desperate

efforts of the populace to fortify the capital in the early days of the siege by Franco. Ramón Iglesia in *El hombre Colón y otros ensayos* gathered a number of essays and reviews which have for their subjects the man Columbus, the historian Bernal Díaz del Castillo, the *mexicanidad* of the colonial humanist Sigüenza y Góngora and the problems of historiography. Two posthumous works of Enrique Díez-Canedo, *Letras de América* and *Epigramas americanos*, added more lustre to his already well-merited fame as a poet, critic and master of Spanish-American literature. The first mentioned consists of numerous essays treating literary figures belonging to practically every age and nation of Latin America. Especially stimulating are the chapters concerned with Sor Juana Inés de la Cruz; the editions of Rubén Darío's complete works and studies relative to the poet; and poetry in Mexico, Colombia, Bolivia and Chile. His little book of epigrams, handsomely printed and illustrated with attractive sketches and vignettes by Ricardo Martínez de Hoyos, contains fleeting impressions experienced between 1928 and 1944 while journeying through South America, the orient and Mexico. *No son cuentos* by Max Aub, Valencian journalist, playwright, novelist and poet, consists of eight sketches which, though related in short-story form, are in fact real human experiences connected with the Spanish Civil War. The first leaves a lasting impression with its portrait of the sharecropper converted into a patriot through the gift of some land. Paulino Masip shows in the four-act farce *El hombre que hizo un milagro* the effect produced on a small-town barber who by accident restores sight to a blind beggar.

Writers and scholars remaining in Spain also led productive lives. A new series *Clásicos Españoles* with approximately 100 volumes in preparation was initiated for the purpose of continuing the work of the two large collections known commonly

as the *B.A.E.* and *N.B.A.E.* Dámaso Alonso's *Ensayos sobre poesía española* is made up of literary essays discussing both the old and modern in Spanish letters: *Poem of the Cid*, Fray Luis de León, Quevedo, Bécquer, García Lorca, etc. His latest book of verse *Hijos de la ira* represents a new departure in his creative poetry, the whole being in a sense a study of his own relations to God. Vicente Aleixandre likewise manifests religious maturity in his *Sombra del paraíso*; retired from the world because of illness, he cultivates a style more ornate than formerly. *El mar en la poesía española* is an anthology of sea poems drawn from every literary period but with the 19th and 20th centuries making the most fruitful contributions. The well-known woman writer Concha Espina came forth with a new novel *Victoria en América*.

(H. L. JN.)

**Spanish Morocco:** see SPANISH COLONIAL EMPIRE.

**Spanish West Africa:** see SPANISH COLONIAL EMPIRE.

**Spars:** see COAST GUARD, U.S.

**Special Libraries Association:** see SOCIETIES AND ASSOCIATIONS.

**Spellman, Francis Joseph** (1889- ), cardinal archbishop of New York, was born at Whitman, Mass., on May 4. He was ordained in Rome, May 14, 1916, and served from 1922 to 1925 as assistant chancellor of the archdiocese of Boston. In 1925 he became the first U.S. priest ever called to active service in the papal secretariat of state at the Vatican. In 1932 he was named titular bishop of Sila, to serve as auxiliary bishop of Boston. On May 23, 1939, he was installed as the sixth ordinary of the New York archdiocese. Seven months later, on Dec. 11, 1939, he was named by the holy see to be the U.S. military vicar.

In his capacity as military vicar, Spellman was perhaps the most widely travelled churchman of his time. He journeyed the world over for inspections of military installations, conferences with chaplains and to meet and cheer U.S. fighting men in the field. On these trips he inaugurated the practice of obtaining the names and addresses of servicemen and writing to their parents. It was estimated he sent out more than 15,000 letters in carrying out this practice. During World War II, in connection with his work as military vicar and in support of the war effort, Archbishop Spellman gained wide recognition for a number of poem-prayers he composed. Among these were "Our Sleeping Soldiers," "Peace With Justice" and "Prayer For America." In Aug. 1945, his volume, *No Greater Love*, an account of his second tour of the European battle fronts, was published. In 1945 he was serving as secretary of the Administrative Board of the National Catholic Welfare conference, Washington, D.C.

On Dec. 23, 1945, an announcement of new appointments to the Sacred College of Cardinals included the name of Archbishop Spellman. He was created and proclaimed cardinal at consistory on Feb. 18, 1946.

**Spelman Fund of New York:** see SOCIETIES AND ASSOCIATIONS.

**Spices.** Because India's price for black pepper is about 21 cents per lb. landed in the U.S. and the U.S. government maintained the ceiling price of 8½ cents, the only importer was the U.S. government which acquired pepper for the armed services. Since little had been consumed up to V-J day, the problem of distributing the unused portion arose. Eventually the ceiling was raised to 10 cents per lb. at which spice grinders were permitted to buy.

War delayed reconversion in the Netherlands East Indies. Rationing of Java and Sumatra spices was expected to continue.

Unfavourable 1945 weather reduced the U.S. crop of mustard seed. Imports from Europe were expected to offset some of the shortage. The next crop in the U.S. would mature in Sept. 1946.

Cinnamon is obtainable only in Ceylon where sale is controlled by government monopoly. In Sept. 1945, the commissioner in charge advanced prices about 30%. This revision stopped imports since costs exceeded OPA ceilings.

Another monopoly spice is Jamaica pimento or allspice. Jamaica is the world's sole producer. The decision of the "competent authority" there to hold allspice 15% above the price of cloves illustrated a defect in autocratic action. Since the two spices are similar, the use of cloves increased; demand for

pimento dropped sharply.

Even during prewar years consumption of mustard in the U.S. exceeded that of any other spice. This leading position was further strengthened by general scarcity of condiments. Unsettled conditions in Java and Sumatra meant further delay in obtaining pepper (black and white), cinnamon, nutmeg, mace and Amboina cloves. Production of sesame seed in Central America increased during 1945. News from Yugoslavia of the sage grown there was favourable, indicating that imports might be landed in time for U.S. autumn demand in 1946.

The war cultivation of spices in the U.S. was unsuccessful with the exception of mustard seed and red peppers. Both had been profitable crops after 1935. Acreage was easily expanded as demand increased.

When the Dutch again took the Netherlands they found thousands of bags (110 lb. each) of caraway seed. Against a normal price of 12 cents per lb., trading opened at 65 cents delivered in New York. They were also shipping blue poppy seed. Denmark was expected to ship some mustard seed.

Liberated Hong Kong announced that it had cinnamon (China cassia) for sale. The prices were to be adjusted to U.S. ceilings. Mid-Africa and Madagascar continued to offer cayenne peppers, ginger, cloves and vanilla beans. Inflation hampered trade with France and Turkey, North Africa and the Levant from which coriander and cumin seeds were obtained prior to World War II.

Imitation ground pepper, cinnamon and nutmeg came on the market in large volume. These consisted of a cereal base (corn meal, wheat material, buckwheat hulls, etc.) in which were incorporated imitation essential oils with or without small percentages of true spices, in order to simulate the appearance and flavour of pure material. Such products complied with state and the national food laws by declaring the ingredients on the labels.

The spice business in the U.S. faced no reconversion problem. Increase in demand for chili powder was noted, partly as a result of tourists' visits to Mexico where a national dish is chili con carne. The chillies (red peppers) used are a large variety; not too hot, and of rich flavour. These are ground with spice seeds and a dash of garlic.

(C. A. T.)

**Spirits:** see LIQUORS, ALCOHOLIC.

**Sports and Games:** see ANGLING; ARCHERY; BADMINTON; BASEBALL; BASKETBALL; BILLIARDS; BOWLING; BOXING; CHESS; CRICKET; CURLING; CYCLING; FENCING; FOOTBALL; GLIDING; GOLF; GYMNASTICS; HAND-BALL; HORSE RACING; ICE HOCKEY; ICE SKATING; LACROSSE; MOTOR-BOAT RACING; POLO; ROWING; SHOWS; SKIING; SOCCER; SOFTBALL; SQUASH RACQUETS; SWIMMING; TABLE TENNIS; TENNIS; TRACK AND FIELD SPORTS; TRAP-SHOOTING; WRESTLING; YACHTING.

**Spruance, Raymond Amos** (1886- ), U.S. naval officer, was born July 3. He entered the navy in 1903 and was promoted through the ranks to rear admiral in Oct. 1940. He was sent to the Pacific theatre of operations at the outbreak of war with Japan in Dec. 1941, and was in complete charge of operations during the landings of the U.S. marines on the Gilbert Islands of Makin and Tarawa, Nov. 20-23, 1943. At that time it was also disclosed that he had been made chief of a newly created Central Pacific command. He was in over-all command of the invasion of the Marshall Islands on Jan. 31, 1944, and of the naval action against Truk on Feb. 16-17. He was promoted to full admiral in Feb. 1944, and in April was designated commander of the U.S. 5th fleet. He commanded the naval assault on the Marianas Islands which preceded U.S. landings there in June, and his 5th fleet won a decisive victory over a large

Japanese fleet in the waters between the Marianas and the Philippines on June 18-19. Spruance also directed naval operations in the Okinawa landings, April 1, 1945, and declared (June 2) that the Okinawa operation "resulted in the greatest naval casualties encountered in any of our operations." In the command shifts announced by the navy department, Nov. 20, Spruance was moved up to the post of commander in chief of the Pacific fleet vacated by Adm. Chester W. Nimitz. Secretary of the Navy James Forrestal said, Dec. 4, that Adm. Towers would "eventually" replace Spruance in this post.

**Squash Racquets.** For the fourth straight year, national competition in squash racquets was cancelled and almost all tournament play was restricted to New York city. Andrew C. Ingraham of the Harvard club was ranked No. 1 in the metropolitan area on his sweep of ten inter-club matches and the Red Cross handicap tournament. He won the University club championship with a final decision over John Smith, victor in the 1944 Red Cross tournament. The Metropolitan doubles was won by Cliff Sutter and J. B. Maguire. J. Dudley Pope won the Chicago district championship. The United States won the inaugural Alastair Grant trophy, contested on a doubles basis, with a 10-1 victory over Canada.

Squash tennis, also restricted because of the war, brought a repeat to H. J. Rose of the Princeton club as veterans' champion. He defeated Capt. Frank R. Hanson of the Columbia club, 15-11, 15-4. (M. P. W.)

### Stabilization Administrator, Office of.

This office was established as the Office of Economic Stabilization within the Office for Emergency Management on Oct. 3, 1942, by executive order 9250, to control as far as possible inflationary tendencies which would impede prosecution of the war and the operation of the domestic economy in the U.S. The same order established the Economic Stabilization board to advise the director of the office.

The director was authorized to formulate and develop a comprehensive national economic policy for the control of civilian purchasing power, prices, rents, wages, salaries, profits, rationing, subsidies and related matters.

The stabilization program had the purpose of preventing avoidable increases in the cost of living, co-operating to minimize unnecessary migration of labour from one business, industry or region to another, and facilitating the prosecution of the war. Executive order 9328, of April 8, 1943, provided for regulations to stabilize the national economy by controlling price, wage and salary increases. With the ending of the war, the program called for control of both inflationary and deflationary tendencies which might impede the orderly transition to a peacetime economy.

Under executive order 9620, Sept. 20, 1945, the Office of Economic Stabilization was abolished and all functions and authority were transferred to the Office of War Mobilization and Reconversion. Within the Office of War Mobilization and Reconversion was established the Office of Stabilization Administrator. The functions and authority of the director of economic stabilization, transferred under executive order 9620 to the director of the Office of War Mobilization and Reconversion, were delegated to the stabilization administrator. (See also WAR MOBILIZATION AND RECONVERSION, OFFICE OF.)

(J. C. C.)

**Stainless Steel:** see METALLURGY.

**Stalin, Joseph Vissarionovich** (1879- ), Russian statesman, was born



"MR. RED CHIPS GOES TO TOWN." Plöschke of the *Chicago Herald American* illustrated one view of Stalin's foreign policy in 1945

in Georgia in Transcaucasia and succeeded Lenin as virtual dictator of the soviet union in 1924 (see *Encyclopædia Britannica*). On May 6, 1941, shortly before the German invasion, Stalin assumed the premiership of the U.S.S.R. after the resignation of Vyacheslav Molotov from that office.

Throughout 1942 and 1943, Marshal Stalin repeatedly appealed to the Allies to open a second front and asserted on several occasions that Allied aid was not commensurate with Russia's contribution in engaging the greater bulk of the nazi army. At the historic Tehran conference in Nov. 1943, Stalin and Roosevelt met for the first time, Stalin and Churchill for the second. The three United Nations chiefs agreed on a master plan to destroy German military power. Stalin acknowledged (April 30, 1944) the Anglo-American contribution in material aid, and on June 13 he hailed the invasion of France as a "grandiose" and "masterly" achievement. At Yalta, Stalin again conferred with Roosevelt and Churchill (Feb. 4-11, 1945); they agreed on final measures for the defeat of Germany and on policy regarding liberated countries. After the death of Roosevelt, Stalin paid tribute to the U.S. leader (April 13) as a "great organizer of the struggle of the freedom loving nations against the common enemy. . . ." In a victory speech, May 9, commemorating the defeat of the reich, Stalin said that although the soviet union was victorious, it did not intend "either to dismember or annihilate Germany." He attended the Berlin conference where the Big Three made public their agreement on the final decisions for the rule of Germany and settlement of other European problems (Aug. 2), and seven days later (Aug. 9), Russia entered the war against Japan. Some time after Japan formally surrendered on Sept. 2, Stalin took an extended vacation in the Caucasus, which caused considerable speculation on the state of his health. However, he reappeared in Moscow during the conference of foreign ministers (Dec. 16-26) and some of the visiting diplomats said he was in excellent spirits and health. (See also UNION OF SOVIET SOCIALIST REPUBLICS.)

**Stamp Collecting:** see PHILATELY.



**Standards, National Bureau of.** This bureau was established by act of the U.S. congress March 3, 1901. During the year 1945 it was made up of nine scientific and technical divisions, three divisions dealing with commercial standardization, a special division set up as a World War II measure and concerned wholly with military problems, and three divisions charged with the administration of internal affairs. The scientific and technical divisions, and those engaged in commercial standardization were: electricity, weights and measures, heat and power, optics, chemistry, mechanics and sound, organic and fibrous materials, metallurgy, clay and silicate products, simplified practice, trade standards and codes and specifications.

The bureau's effort continued to be concentrated mainly on problems connected with the war. Its regular appropriation of \$2,924,500 was supplemented by transferred funds totalling nearly \$6,582,881 from the army, navy, Office of Scientific Research and Development, National Advisory Committee for Aeronautics, War Production board and other agencies. The staff throughout the year averaged 2,000; in addition 54 research associates were working in the laboratories as representatives of 14 national engineering societies and trade associations.

The chief of the weights and measures division represented the department of commerce at a screw thread conference held in Ottawa, Ont., Can., during Sept. and Oct. 1945. Co-operative research was started, which it was hoped would lead to a unified system of screw threads in Great Britain, Canada and the United States.

The bureau assisted various agencies that were concerned with the assignment of postwar radio frequencies. As the result of its extensive research on radio propagation, the bureau was able to suggest allocations best suited to different purposes.

A great deal of attention was given to all phases of the automotive fuel situation. There is a growing interest in possible substitutes for gasoline for use in countries that have no petroleum of their own. Many tests have been made of nonhydrocarbon fuels, including alcohol and various gases.

Adsorbents, which are important in the sugar and other industries, were studied in a co-operative project supported by several refineries in the United States and in Canada. An extensive bibliography of the scientific literature on bone chars and other adsorbing materials was published.

In co-operation with the war department, a painting schedule and colour scheme was developed for army hospitals. For the interiors, soft-toned, bright, cheerful pastel colours that create a restful effect were selected. Various kinds of paint—flat oil, flat emulsion and enamels—were recommended, depending upon the location. A representative of the bureau visited the post engineers and instructed them in carrying out the work.

Many improvements in aeronautic instruments were made as the result of co-operative work with the navy department. An example was the development of a new and easily constructed flow meter to serve as part of the field test sets used to check oxygen equipment on aircraft.

The mass spectrometer was successfully employed in analyzing samples of the liquid and gaseous materials that constitute the basis of synthetic rubber manufacture. This elaborate and highly specialized instrument enabled the bureau to make quick, complete and accurate analyses of butadiene, styrene and other monomers submitted by plant operators through the Rubber Reserve company.

A new 6 x 42 service binocular, the body of which was made entirely of plastic, was designed for the Army-Navy Munitions board and placed in production. As it was without adjustments, was waterproof, and lighter than conventional instruments, it

was considered specially suitable for combat service in the tropics.

Outdoor corrosion tests of aluminum, magnesium and various light alloys used in aircraft construction were continued at a new location on Chesapeake bay. Full-size magnesium wings were subjected to the combined action of tide water and a marine atmosphere. It was hoped that through these tests the corrosion-resistance of this popular metal could be increased; its rapid deterioration is one of its principal drawbacks.

A new furnace was designed and constructed for annealing optical glass in the bureau's glass plant. Through the use of a powerful electrically-driven heat-resisting fan, the temperatures throughout the furnace were equalized much more rapidly than in the ordinary type. It was found possible to anneal optical glass pressings in three days, thus saving a full week in making elements for fire-control instruments.

The limitation orders of the War Production board, issued during the early part of 1945, often included requirements for the simplification of sizes and varieties of goods produced for civilian use. Although the majority of these orders were later revoked, many of the affected industries were anxious to retain the benefits of the simplified schedules. The bureau continued to assist all interested groups in the development of voluntary simplified practice recommendations to go into effect when normal conditions would again prevail.

As an aid in the development of export trade, various commercial standards were developed for products to be sold abroad, and particularly in Latin America. Typical of these standards is one covering diesel engines. Its object is to overcome the difficulty experienced by U.S. manufacturers in exporting their product because of the favourable horsepower ratings of engines built outside the United States.

The *National Directory of Commodity Specifications* was revised and placed on sale. It was the only complete, up-to-date compilation of standards and specifications having national recognition.

The results of the year's work, insofar as these were not confidential, were made available through 111 publications in the bureau's own series and 63 articles in the technical press. The list of publications was brought up to date through the issuance of a new supplement. The special series of mathematical tables, of which the director of the bureau is the sponsor, was made up of 53 tables available to the public, 32 of which were obtainable through the bureau.

(L. J. BR.)

**Stanford University** (THE LELAND STANFORD JUNIOR UNIVERSITY), an institution of higher education near Palo Alto, Calif.

The year 1945 was marked by gifts to the university totalling \$3,400,110, and by development and then decline of various army and navy units, particularly those for training in the languages, culture and geography of the Pacific area. A special naval unit to go on into the period of peace was established and housed in Toyon hall. Some 200 officers from all services were enrolled in the civil affairs training school preparing for immediate assignment in the conquered areas.

There was a shortage of students in the scientific laboratories and a reduction of research, since men of student age were in combat service and many faculty members in war work elsewhere. Turkey sent a number of geology and mining students, and Professor George S. Myers brought from Brazil students in ichthyology, following his years of study there on the fishes of South America.

Notable among honours received by faculty members was the 1945 American Society of Mechanical Engineers medal to Dr. William Frederick Durand, who was also presented the

John J. Carty gold medal of the National Academy of Sciences. Dr. Frederick Emmons Terman was appointed dean of the school of engineering, returning from his leadership in research in radar defense. Dr. Merrill Kelley Bennett, of the Food Research Institute, was appointed dean of the school of social sciences. Dr. John M. Stalnaker was appointed dean of students; Dr. H. Donald Wimbler advanced to registrar (vice Dr. John Pearce Mitchell, retired); and Dr. Harold H. Fisher became chairman of the directors of the Hoover Library (vice Dr. Ralph H. Lutz).

The third conference on the humanities was held under the leadership of Dean John W. Dodds; also in this school, through a grant of \$25,000 from the Rockefeller foundation, was established a program of Pacific, Asiatic and Russian studies. (For statistics of enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (R. L. W.)

**Stars:** see ASTRONOMY.

**Stassen, Harold Edward** (1907— ), U.S. politician and naval officer, was born April 13 in West St. Paul, Minn. He studied at Minnesota university and law school, Minneapolis, Minn., 1925-29, and was admitted to the Minnesota bar in 1929. He first ran for political office in 1930 when he was elected county attorney, a post he held for eight years. He was elected governor of Minnesota on the Republican party ticket in 1938 and was inaugurated in Jan. 1939, one of the youngest governors in the U.S. He was re-elected governor for the 1941-43 term. Stassen was temporary chairman and keynoter of the Republican national convention in 1940 and was national chairman of the Governors' conference and of the Council of State governments, 1940-41. He resigned as governor in 1943 to join the U.S. navy. A commander and flag officer to Adm. Halsey, Stassen saw action in four battles. On Feb. 20, 1945, Stassen accepted Pres. Roosevelt's appointment as delegate to the San Francisco conference of the United Nations. At the annual conference of governors at Mackinac Island, Stassen declared, July 2, that U.S. acceptance of the United Nations security charter and adoption of a flexible foreign policy could give the world a minimum of 50 years of peace. Stassen, who was promoted to the rank of captain in October, was released from the navy on Nov. 15, at which time he said that he intended to return to public life in an endeavour "to strengthen the liberal and progressive elements in the Republican party." Toward the end of 1945, his name was frequently mentioned as one of the ranking G.O.P. candidates for the presidential nomination in 1948.

**State, U.S. Department of:** see GOVERNMENT DEPARTMENTS AND BUREAUS.

**State Guard:** see NATIONAL GUARD.

**Steam Turbines:** see POWER ENGINEERING.

**Steel:** see IRON AND STEEL.

**Stellar System:** see ASTRONOMY.

**Stettin.** Stettin, formerly a city in Germany, pop. 270,747 (1933), was the capital of the Prussian province of Pomerania and the busiest German port on the Baltic sea at the mouth of the Oder river. Four-fifths of the city lies west of the river. The provisional frontier between Poland and Germany was fixed in Sept. 1945 in such a way as to include the whole of Stettin and an additional strip of land west of the Oder river within Poland. The strip of land includes the town of Swinemunde on the Baltic sea. The name of Stettin was changed to "Szczecin" and a Polish mayor, Peter Zaremba, was appointed. Stettin was intended to become Poland's largest seaport on the

Baltic because it forms a natural outlet for the coal and the industrial products of the former Prussian province of Silesia which was incorporated into Poland after World War II. The Russians retained occupation rights in the Polish territory west of Stettin for five months by an agreement of Oct. 1, 1945. That territory includes important electrical works, an oil plant and in addition one of Germany's principal experimental stations in the development of the flying bomb. (H. Ko.)

**Stettinius, Edward R., Jr.** (1900— ), U.S. statesman, was born in Chicago Oct. 20, son of Edward R. Stettinius, partner in the firm of J. P. Morgan and company. He studied at the University of Virginia, and in 1934 he became vice-chairman of the finance committee of the U.S. Steel corporation; by 1938 he had become chairman of the board of that corporation. In May 1940, he was appointed a member of the advisory commission to the Council of National Defense, and a few days later he resigned all his offices with the U.S. Steel corporation. Stettinius served as lend-lease administrator from Aug. 28, 1941, until Sept. 25, 1943, when Pres. Roosevelt named him as Sumner Welles' successor as undersecretary of state. When Cordell Hull resigned as secretary of state because of ill health, Stettinius was named to succeed him on Nov. 27, 1944. Early in December, in his first declaration of foreign policy in his new post, Stettinius told Britain that European peoples should be allowed to work out their own governments without interference. His statement was believed to apply specifically to Britain's opposition to Count Carlo Sforza's appointment as Italy's foreign secretary. Stettinius attended the Yalta conference (Feb. 4-11, 1945) and the Inter-American Conference on War and Peace at Mexico City (Feb. 21-March 8). He welcomed the delegates at the opening of the San Francisco conference of the United Nations, April 25; his subsequent espousal of Argentina as a United Nations candidate was criticized widely at home and abroad because of that country's unmistakably totalitarian form of government. His resignation as secretary of state was accepted June 27, by Pres. Truman; the president thereupon appointed him U.S. member on the security council and chairman of the U.S. delegation on the general assembly of the United Nations.

**Stilwell, Joseph W.** (1883— ), U.S. army officer, was born March 19 at Palatka, Fla. He was graduated from West Point, 1904, and served with the A.E.F. in France during World War I. After Pearl Harbor he was promoted to lieutenant general, Feb. 1942. He served a month as General Chiang Kai-shek's chief of staff and in March 1942 Chiang gave him command of the 5th and 6th Chinese armies fighting the Japanese invading Burma. Beaten by stronger and better-equipped Japanese, Stilwell retreated toward India. Following the fall of Burma in May 1942, he said: "I claim we got a hell of a beating. We got run out of Burma and . . . I think we ought to find out what caused it, go back and retake it." During 1943, as U.S. commander in southeastern Asia under Lord Louis Mountbatten, he was busy preparing to do so.

His efforts were abruptly interrupted Oct. 28, 1944, when he was relieved of his China-Burma-India command and recalled to Washington. His removal was attributed to growing friction between himself and Generalissimo Chiang Kai-shek over disposition of Chinese troops as well as strategic and political problems. Prior to his recall Stilwell was made a full general, in Aug. 1944. Secretary Stimson announced (Jan. 25, 1945) that Stilwell had succeeded Lt. Gen. Ben Lear as commander of the army ground forces in the U.S. Stilwell was named, June 22, as commander of the U.S. 10th army on Okinawa. He took over

the command on June 28, and on Sept. 7 he accepted the surrender of some 105,000 Japanese troops scattered throughout the Ryukyus. On Nov. 14, Stilwell was named president of an army board to study equipment needed by postwar ground forces.

**Stimson, Henry Lewis** (1867— ), U.S. statesman, of whom a biographical sketch appears in *Encyclopædia Britannica*. A Republican, he became an ardent admirer of Cordell Hull's policies as secretary of state (the office Stimson had held in Pres. Hoover's cabinet) and was always quick to defend Hull's actions against criticism. He favoured in particular a strong stand for the United States against Japan, Germany and Italy. Pres. Roosevelt appointed him secretary of war on June 20, 1940. In Jan. 1944, Stimson recommended enactment of labour draft legislation to "extend the principles of democracy and justice more evenly" between civilian and soldier. Stimson endorsed, April 8, 1945, a proposal for merging the army and navy into a single department with a single secretary; he also advocated universal peacetime



HENRY L. STIMSON, who retired as U.S. secretary of war in Sept. 1945, bade farewell to Gen. George C. Marshall, army chief of staff, at Washington, D.C. Beside him is Mrs. Stimson, and first among the line of high ranking officers is Gen. H. H. Arnold

military training (June 15). On returning from the Berlin conference, he issued a statement (Aug. 6) on the atomic bombing of Hiroshima and the history of the new weapon. Stimson resigned as secretary of war, Sept. 18, and was succeeded by Undersecretary Robert P. Patterson. In a farewell statement the following day, he said that the U.S. should preserve its leadership and influence by maintaining its military and naval power.

**Stock Exchanges:** see STOCKS AND BONDS.

**Stocks and Bonds.** **Stocks.**—Compared especially with 1944 and 1943, the 1945 stock market in the United States was decidedly different with respect to (1) much greater activity, (2) a much higher price level, (3) a much greater continuity of trend, and (4) an extension of the bull market to all leading classes of stocks. In fact, the 1945

market may be described as an active bull market throughout the year, with only one brief period of moderate decline in the middle of the year. At the end of December, industrial stocks showed an appreciation of 38.2%, railroad stocks 17.4%, public utilities 28.1% and copper stocks 41.5%. For all of the first three leading groups, the appreciation amounted to 33.6% as compared with a rise during the same period of 1944 of only 6.2%.

Briefly summarized, the 1945 stock market experienced three distinct price trends, namely, (1) a rise from January to June with monthly averages rising from 107.1 to 119.8, or 11.8%, (2) a moderate decline during July from 119.8 to 117.4, or 2%, and (3) a rise from August to December, inclusive, from 117.4 to 137.6 or 20.2%. With the exception of a 2% decline during July, the market of 1945 may thus be characterized as a substantially continuous bull market.

Market factors influencing the stock price levels were numerous. On the bull side ten considerations seemed to have been stressed by the speculative community, namely, (1) a strong undercurrent of inflation thinking, (2) an enormous pressure of idle funds seeking investment, with outright purchases the general rule, (3) a diminution of investment bond issues owing to large refunding operations, (4) continued low interest yields on choice bonds with a much larger yield obtainable from stocks, (5) favourable corporate earnings and increased dividend declarations, (6) federal tax legislation reducing corporate taxes materially, (7) better prospects for utility shares, resulting partly from tax reductions and partly from a likelihood of more liberal recapitalization plans for common stockholders, (8) a belief by many in a huge postwar boom to meet the needs of foreign nations as well as domestic depleted backlogs of goods, repairs and badly needed new construction, (9) the hope of abolition of price and other economic restrictions with the close of hostilities, and an expected stimulation of private enterprise, and (10) a feeling that stocks were not too high, despite their rise, in view of the devalued dollar (devalued by nearly 40% in 1933).

Unfavourable market factors were also plentiful, such as (1) continued heavy government deficit spending, (2) a substantial business reaction from excessive war activity, (3) a faltering reconversion of business to peacetime conditions, (4) a substantial increase in production costs as well as a distinct trend toward higher living costs, and (5) an enormous increase in strikes throughout the nation, with the automotive industry paralyzed, and with a threatened stoppage at the end of the year of the iron and steel, electrical and aluminum industries of the nation. All of these ominous factors, however, seemed to be ignored by the stock market.

Bad news of the above character, especially strike news, seemed to be greeted with an appreciation in stock values. Increasingly the inflation and boom psychologies seemed to brush all unfavourable factors aside and more and more to hold the market within their grip.

Using the Standard & Poor's barometric figures (average for each month based on daily closing prices), the average monthly price of 20 representative railroad stocks stood at 49.3 for Jan. 1945, as compared with 46.6 and 32.3 for December and January of 1944, respectively. Thereafter in 1945 a rise occurred until June, when the monthly average stood at 58.6. The gradual nature of the rise for railroad shares was indicated by the monthly averages of 50.4 for February, 50.5 for March, 52.5 for April, 54.7 for May and 58.6 for June. Following June the monthly average declined slightly to 53.4 for August. Thereafter a moderate increase occurred which brought the monthly average back to 56.2 for September, 59.0 for October, 62.7 for November and 64.0 for December.



Table I.—U.S. Security Market Prices

	Railroads 20 stocks		Industrials 50 stocks		Public Utilities 20 stocks		Copper 7 stocks		Stocks 50 stocks	
	1945	1944	1945	1944	1945	1944	1945	1944	1945	1944
Jan. . . . .	49.3	32.3	131.8	117.4	57.7	50.2	91.2	75.2	107.1	94.1
Feb. . . . .	50.4	39.2	135.8	115.8	61.3	50.5	94.9	74.1	110.7	93.5
March . . . . .	50.5	40.4	135.8	115.0	61.2	51.8	92.7	76.3	110.6	96.1
April . . . . .	52.5	39.8	138.8	117.1	63.5	50.8	95.0	74.6	113.4	94.4
May . . . . .	54.7	40.2	143.9	119.4	66.5	51.0	95.9	75.2	117.7	96.1
June . . . . .	58.6	41.2	145.2	125.3	67.9	52.9	97.2	76.3	119.8	100.6
July . . . . .	56.6	42.7	141.7	123.5	71.2	54.3	94.3	80.2	117.4	103.2
Aug. . . . .	58.4	41.7	143.3	126.2	69.8	55.4	91.3	77.7	117.7	101.8
Sept. . . . .	56.2	40.3	153.7	124.2	72.9	54.6	99.6	77.5	125.8	100.0
Oct. . . . .	59.0	42.1	159.7	127.1	77.3	55.9	110.6	82.3	131.0	102.5
Nov. . . . .	62.7	42.7	163.5	126.2	82.4	54.9	120.7	82.0	135.3	101.8
Dec. . . . .	64.0	46.6	166.7	123.5	83.2	55.1	126.3	84.8	137.6	104.0

\*Copper figures use 1935-39 as a base period. All other figures use 1926 as a base period.

The above figures are an average for the month based on daily closing prices, except for copper, which are weekly closing prices.  
(Source of data—Standard & Poor's Trade and Securities, Current Statistics.)

In the field of industrial stocks, using Standard & Poor's averages for 50 leading issues, the average monthly price stood at 131.8 for Jan. 1945, as compared with 128.5 and 117.4 for December and January of 1944, respectively. From January to June of 1945 this monthly average rose from 131.8 to 145.2, or an increase of 10.1%. Following June the average monthly price level declined to 141.7 for July. Thereafter the monthly averages increased to 143.3 for August, 153.7 for September, 159.7 for October, 163.5 for November and 166.7 for December.

Similar price movements by months occurred in the public utility group of stocks, although on a somewhat larger scale. For 20 public utility stocks the Jan. 1945 average stood at 57.7, as compared with 55.1 and 50.2 for December and January of 1944, respectively. Following Jan. 1945 the average monthly price increased from 57.7 to 71.2 for July, an increase of 23.4%. Thereafter the price level declined slightly to 69.8 for August, followed by an increase to 72.9 for September, 77.3 for October, 83.4 for November and 83.2 for December. The copper stocks monthly average price stood at 91.2 for Jan. 1945, as compared with 84.8 and 75.2 for December and January of 1944, respectively. By June 1945 this average stood at 97.2. Then followed a decline to 91.3 for the month of August. Thereafter a substantial increase occurred, the rise extending to 99.6 for September, 110.6 for October, 120.7 for November and 126.3 for December.

Combining the 50 stocks used by the Standard & Poor's index for railroads, industrials and public utilities, the market showed an increase from 107.1 for January to 119.8 for June, or about 11.8%. Subsequently the price level declined slightly from 119.8 to 117.4 for July. Following July the monthly price level again rose to 137.6 for December, the averages for August, September, October and November being 117.7, 125.8, 131.0 and 135.3 respectively.

On Nov. 1, 1945, the market value of all listed shares on the New York Stock exchange stood at \$69,560,969,000, with an

average market price per share of 80.2. On Nov. 1, 1944, this market value stood at \$53,087,000,000, with an average price of 69.7. An appreciation in value of approximately 15.1% was thus shown for 1945.

**Number, Volume and Amount of Stocks.**—According to the New York Stock exchange's compilation, the total stocks listed on that exchange on Nov. 1, 1945, stood at 1,572,812,000

shares, with a total market value of \$69,560,969,000. This value compared with \$53,087,000,000 and \$45,101,000,000 on Nov. 1 of 1944 and 1943, respectively. Of the 1945 total (as of Nov. 1), U.S. stocks aggregated 1,531,385,000 shares, valued at \$68,315,517,000 and stocks of other countries 41,426,000 shares, valued at \$1,245,451,000. The total of shares was distributed over 1,249 separate United States issues and 18 issues of other countries, representing a total of 906 issuing corporations.

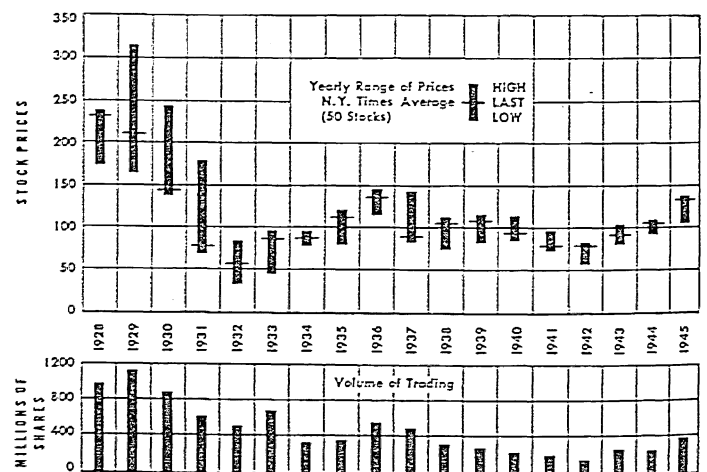
Total shares traded on the New York Stock exchange during 1945 amounted to 377,563,575 shares, as compared with 263,074,018 shares during 1944, 278,741,765 during 1943, 125,677,963 during 1942, 170,534,363 during 1941, 207,605,359 during 1940 and 1,124,991,000 during 1929, the largest yearly total on record. The 1945 market, contrary to that of 1944 and 1943, was much more active, there being an increase in transactions in 1945 of nearly 44% over the volume recorded for 1944. January, June, October and November were the largest months for volume on the New York Stock exchange during 1945, with 38,995,195, 41,310,246, 35,476,347 and 40,405,573 shares, respectively, while July was the smallest with 19,977,030 shares. The New York curb market had sales during 1945 of 143,337,205 shares, as compared with 71,061,783 shares during 1944 (a doubling), 71,382,463 during 1943 and 22,327,822 during 1942.

**Bonds.**—Using the Standard & Poor's barometer figure for composite bonds (average for each month based on daily closing prices), the average high price stood at 117.6 for Jan. 1945. Thereafter the monthly high average price rose to 118.3 for April. Subsequently the price varied between 117.4 for September and 119.4 for December. The bond market was thus remarkably stable for the year, and at an exceedingly high price level. Monthly fluctuations between high and low were also very small, the largest fluctuation occurring during February and December, when the range between high and low, however, amounted to only 0.90 points.

According to the New York Stock exchange's record, bond

Table II.—1945 Price Range of 25 Representative U.S. Common Stocks

Stock	Close 1944	High 1945	Low 1945	Close 1945
Allied Chemical & Dye . . . . .	152	194	153 1/4	186
American Car & Foundry . . . . .	39 1/2	67 1/2	39	64
American Smelting & Refining . . . . .	40 1/4	68 1/4	40 1/4	64
American Telegraph & Telephone . . . . .	163 1/2	196 1/2	157	191
American Tobacco . . . . .	65	90	65 1/4	89
Anacosta Copper . . . . .	29 1/4	49	29 1/4	44 1/2
Bethlehem Steel . . . . .	65 1/2	92 1/2	65	96
Chrysler Corporation . . . . .	95 1/4	140 1/4	91 1/2	131 1/2
Douglas Aircraft . . . . .	70	100 1/2	65	97 1/2
E. I. du Pont de Nemours . . . . .	155 1/2	192 1/2	155	186 1/4
General Baking . . . . .	8 1/4	14 1/2	8 1/4	13
General Electric . . . . .	39 1/2	49 1/2	37 1/2	47 1/2
General Motors . . . . .	64	77 1/2	62	75 1/2
Goodyear Tire & Rubber . . . . .	51 1/2	63 1/4	48	60
Great Northern Ry. (pf.) . . . . .	48 1/4	65 1/4	46	59
Illinois Central Railroad . . . . .	22	44	19 1/2	43
International Harvester . . . . .	80 1/4	100 1/4	74 1/4	95
Montgomery Ward . . . . .	51 1/2	76	47 1/2	72 1/2
National Dairy Products . . . . .	25 1/4	38	24 1/2	35 1/4
New York Central Railroad . . . . .	23 1/4	35 1/4	21 1/4	33 1/4
Pennsylvania Railroad . . . . .	33 1/4	46 1/2	33 1/4	42 1/4
Standard Oil of Indiana . . . . .	33 1/4	44 1/2	33 1/4	40 1/2
Standard Oil of New Jersey . . . . .	56 1/4	68 1/2	56	66 1/2
Union Pacific Railroad . . . . .	114 1/2	151	109 1/4	139 1/2
United States Steel . . . . .	60 1/4	85 1/4	58 1/4	81 1/2



TRADING IN STOCKS on the New York Stock exchange: yearly range of prices and number of shares sold, exclusive of odd-lot and stopped sales

Table III.—U.S. Bond Prices for 1945

Composite Bonds Dollars per \$100 (Standard Statistics Company)		
Month	High	Low
Jan.	117.6	117.0
Feb.	117.9	117.0
March	118.2	117.8
April	118.3	118.1
May	118.0	117.7
June	118.4	117.8
July	118.2	117.5
Aug.	117.6	116.9
Sept.	117.4	116.8
Oct.	118.1	117.3
Nov.	118.6	118.1
Dec.	119.4	118.5

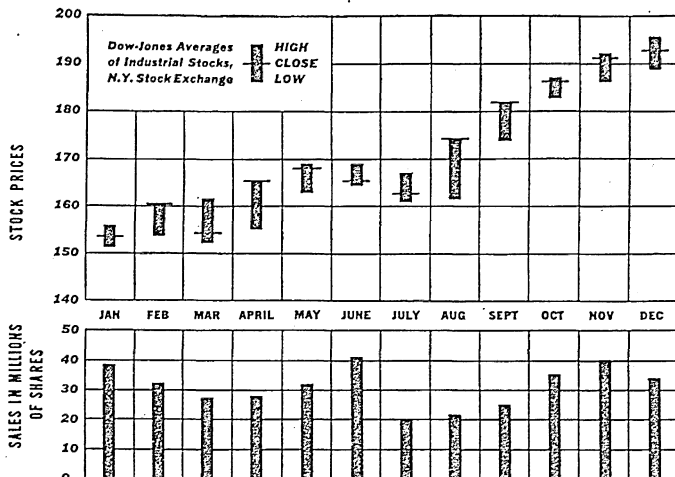
and note flotations of United States corporations during 1945 totalled \$4,884,508,000; but exclusive of refunding issues, investment trusts and holding companies, the total flotation amounted to only \$1,161,079,000. These figures compared with similar totals during 1944 of \$2,602,863,000 and \$551,992,000, respectively.

**Number, Volume and Amount of Bonds.**—According to the New York Stock exchange's compilation, the total par value of bonds listed on that exchange at the end of December 1945 stood at \$138,085,021,000, with a market value of \$143,110,516,000. These figures compared with \$111,115,884,000 and \$112,620,709,000 for the corresponding date of 1944. The increase in the par value of bonds during 1945 was largely attributable to the issue of large amounts of United States government securities. Of the 1945 total, United States corporation bonds (at the end of December) amounted to \$13,944,169,000, with a market value of \$14,118,929,000; company bonds of other countries with a par value of \$681,437,000 and a market value of \$685,807,000; United States government bonds (inclusive of corporations and subdivisions) with a par value of \$121,585,200,000 and a market value of \$126,879,314,000; and other governments (inclusive of subdivisions) with a par value of \$1,874,217,000 and a market value of \$1,426,465,000. The total listed bonds of United States corporations were distributed over 648 issues with 336 issuers; of United States government bonds with 84 issues and 3 issuers; and other governments with 210 issues and 51 issuers.

Total bonds traded on the New York Stock exchange during 1945 amounted to \$2,261,985,110, as compared with \$2,694,703,700 during 1944; \$3,254,716,525 during 1943; \$2,182,625,800 during 1942; \$2,114,098,550 during 1941; and \$1,671,598,875 during 1940.

**Stock Exchanges.**—The 1945 chronology of the New York Stock Exchange's alterations in its rules and practices, either actual or proposed, was confined to a comparatively small range of subjects. The following may be listed as the most important:

**Proposed Ban on Floor Trading.**—In January the Trading and Exchange division of Securities and Exchange commission made public its report on a proposed rule to prohibit floor trading by members of the



SALES AND PRICES on the New York Stock exchange, 1945

New York Stock exchange and the New York Curb exchange. In reply the president of the New York Stock exchange requested that consideration be given by the SEC to plans which the exchange had perfected for the control of floor trading. He also called attention to the exchange's study of the problem in agreement with the SEC and declared that "adoption of the rule might amount to a major surgical operation upon one of the most delicately adjusted segments of our national economy." On Feb. 8 the SEC announced that a public hearing would be held on April 9. At this hearing the exchange opposed the proposed ban on the ground that the proposal "was based on inadequate data and would dislocate delicate market machinery and impair its usefulness." An objective study and a report of findings by Cole, Hoisington and company, economic consultants, were submitted in opposition to the proposal.

**Raising Margin Requirements.**—The Federal Reserve board announced on Feb. 2 that effective Feb. 5 margin requirements for the purchase of registered securities would be increased from 40 to 50%, the 40% requirement having been in effect from Nov. 1, 1937. Early in March 1945 the board of governors of the New York Stock exchange amended its margin requirements "to provide for 100% margin on securities selling at or below 10; a minimum of \$10 a share on stocks selling above 10, 10% of the principal amount of any bond selling above 10% of its principal amount and a minimum margin account equity of \$1,000. The change in the minimum maintenance requirement was from 30% of the debit balance to 25% of the market value." Member firms were also requested (March 23) to report, as of the last business day of each month, "the amount of credit extended on securities to customers carrying margin accounts; the amount of such credit extended on U.S. government obligations; the amount of customers' free credit balances, and the amount of cash firms have on hand and in bank deposits." On July 5 the Federal Reserve board again increased margin requirements for the purchase of registered securities from 50% to 75%, and also applied this same increase to short sales. The board further ruled that proceeds of sales of stocks in undermargined accounts should be used to the extent necessary to increase the margin on the securities remaining in the account up to 75%. It is interesting to observe from the replies to the New York exchange's questionnaire on the subject that "as of June 30, member firms carried a total of 137,752 open margin accounts for customers, compared with 256,504 open margin accounts as of Nov. 30, 1938."

**Miscellaneous.**—Four other alterations or proposals for alterations are deserving of special mention:

(1) A proposal from the chairman of the board of the Federal Reserve system (Feb. 20) to the Senate Banking committee "that gain from speculation in stocks be taxed in addition to the capital gains tax, as a measure to combat inflation."

(2) Revision of the New York state stock transfer tax rates, effective July 1, "to eliminate emergency rate and to provide a graduated scale of charges of from 1 cent to 4 cents a share depending on the selling price. Previous rates provided for a charge of 3 cents a share for stocks under \$20 and 4 cents for stocks \$20 and over. Those rates included a 1½ cent and 2 cent per share emergency rate, respectively."

(3) Adoption of additional rules by the New York Stock exchange relating to trading by members for their own account on the floor and providing that "a floor member's own bid or offer to establish or increase a position in a stock which he has an interest in does not have parity with an order originating off the floor, nor does his bid or offer have precedence, based on size, over an order originating off the floor." Further provision was made to the effect that "a floor trader cannot 'stop' stock in which he has an interest; nor can he, for his own account, buy at a higher price than the last sale (a plus tick), or at the same price as the last sale if that price is above the next preceding different price (zero plus tick), or sell, except at a loss, until the second succeeding trading day." However, exceptions were made to meet special circumstances, as well as for specialists and odd lot dealers.

(4) Undertaking by the New York Stock exchange of a study "to consider the advisability of permitting member firms to do business in corporate form. On Nov. 15, the president of the New York exchange transmitted to members an outline of the restrictions and conditions which the exchange would impose if member corporations were permitted." (See also BUSINESS REVIEW.) (S. S. H.)

**Stomach Disorders:** see ALIMENTARY SYSTEM, DISORDERS OF.

Table IV.—1945 Price Range of 25 Leading U.S. Domestic Bond Issues

Name	High	Low	Last (Dec. 31)
American Telegraph & Telephone 2½s 80	103½	100	103½
American Tobacco 3s 62	105¾	101½	105
Atchison, Topeka & Santa Fe 4s 95	133¾	127½	132
Bethlehem Steel 2½s 70	102½	101½	102½
Chesapeake & Ohio railroad 4½s 92	145½	137	143
Chicago, Burlington & Quincy gen 4s 58	119½	111	116¾
Commonwealth Edison 3½ cv 58	134½	116	134½
Erie 3½s 64	105½	102	105½
Firestone Tire & Rubber 3s 61	105½	104	105
Goodrich 2½s 65	102¾	100¼	102¾
Great Northern railway 5½s 52	123	118¾	121½
Louisville & Nashville 3½s 2003	111¼	106¾	110½
National Steel 3s 65	106¾	104	106
Northern Pacific 4s 97	120½	108¾	120½
New York Edison 3½s 65	107½	103	105
Norfolk & Western 4s 96	136¾	133½	136¾
Pennsylvania railroad gen 5s 68	134½	126½	133¾
Reading Jersey Central 4s 51	107½	102¾	106¾
Southern Pacific 4½s 81	106½	84	105½
Standard Oil of New Jersey 3s 61	106¾	103	104¾
Tex. Corp. 3s 65	108½	105¾	100¾
Union Pacific 1st 4s 47	106¾	104	104¾
Standard Oil of Cal. 2½s 65	105¾	103½	105¾
Western Union 5s 51	108	105	107¾
Westinghouse El. & Mfg. 2½s 51	103¾	101¾	102¾

**Stone.** The table lists the production of the various types of stone in the United States in 1943 and 1944.

*Production of Stone in the United States*  
(In thousands of short tons or thousands of dollars)

Name of Stone	1944			1943		
	Dimension	Crushed	Total	Dimension	Crushed	Total
Basalt . . . . .	18	14,025	14,043	125	14,260	14,385
Granite . . . . .	284	7,112	7,395	284	8,956	9,240
Limestone . . . . .	162	115,344	115,506	237	128,753	128,980
Marble . . . . .	52	101	153	43	125	169
Sandstone . . . . .	74	6,352	6,427	101	7,307	7,408
Others . . . . .	29	12,027	12,055	41	11,120	11,160
Total . . . . .	619	154,961	155,580	832	170,512	171,343
Value . . . . .	\$14,855	\$160,787	\$175,642	\$13,367	\$170,953	\$184,320

**Dimension Stone.**—Sales of dimension stone in 1944 declined 25% in quantity but increased 8% in value. The reduction in construction work resulted in a drop in sales that had amounted to 73% after 1939. In addition to the items shown in the table, 60,950 tons of slate were sold as dimension stone in 1944, against 73,310 tons in 1943.

**Crushed Stone.**—Sales of crushed stone in 1944 declined 21% in both quantity and value. The 1944 tonnage reported above does not include: 24,148,000 tons of limestone used in making cement and 12,947,000 tons used in making lime; 416,890 tons of slate granules and flour; 740,454 tons of asphaltic stone. Including these additional items and dimension stone, the total stone output was 193,832,000 tons in 1944, against 221,634,000 tons in 1943.

**Canada.**—Stone production in Canada was as follows, in short tons, 1944 figures being given first, followed by (1943): granite 269,879 (780,422); industrial limestone, not including that used for lime or cement, 5,560,989 (6,256,181); structural limestone 12,180 (9,328); marble 11,829 (11,848). The preliminary estimate of mineral production for 1945 gives a total of 5,884,718 tons, against 5,994,992 tons in 1944. (G. A. Ro.)

**Straits Settlements.** A British crown colony, under Japanese occupation from Feb. 1942 until Aug. 1945, when it was returned to British rule, one of the three principal divisions of British Malaya, the others being the Federated and Unfederated Malay States (*qq.v.*). Area of Straits Settlements, 1,356 sq.mi.; pop. (1941) 1,435,895, racially divided as follows: Europeans 18,101, Malays 315,629, Eurasians 13,540, Chinese 927,003, Indians 148,851, others 12,771.

The capital is Singapore, located on an island at the tip of the Malay peninsula and separated from the mainland by the narrow strait of Johore. It was founded as a trading post by Sir Thomas Stamford Raffles, pioneer of British enterprise in this part of Asia, in 1819, and developed into one of the great cities and ports of the orient. The limited territory of the Straits Settlements also includes the second largest city in Malaya, Penang, located on an island off the west coast of the peninsula.

**Education, Finance, Communications.**—There were 420 schools, with 83,078 students and pupils, in 1940. The unit of currency before the Japanese occupation was the Straits dollar, equivalent to 47.51 U.S. cents in 1941. The pound sterling was often used in financial estimates. Revenue in 1941, the last year for which figures were available, was £5,501,790 and expenditure was £7,056,729. At the end of 1940 there were 1,073 mi. of metalled roads and 133 mi. of gravelled roads in the colony. There were radio broadcasting stations at Singapore and in Province Wellesley for Penang. (W. H. CH.)

**Strategic Mineral Supplies.** During the early stages of World War II, in what was then called the defense program, and before the United

States became an active belligerent, it was becoming evident that previous conceptions on strategic mineral supplies were inadequate, and long before the war was over it had been effectively demonstrated that the U.S. could maintain self-sufficiency in few of the many minerals and metals that are required in such enormous quantities by modern mechanized warfare. This being the case, the only safeguard against critical shortage of supply in any future emergency lay in the advance accumulation of stock piles, to supplement the domestic output and such imports as could be maintained.

**Stock-piling.**—Although strong advocacy of stock-piling was made as far back as the early 1920s, no action was taken, and it was not until June 1939 that congress authorized steps in this direction, and then on only a relatively small scale. Before any great progress had been made, the war was under way in Europe, and world markets were so disorganized that purchases from foreign sources were greatly hampered. After a year, so little had been accomplished that the Metals Reserve company was organized to take over the program and speed it up. The results accomplished by Metals Reserve are a part of the war history, and need not be detailed here. The point to be made in this connection is that stock-piling on a large scale had been proved necessary, and had been accomplished under severe handicaps. At the same time it was demonstrated that stock-piling before the war would have resulted in the saving of time, effort, money and lives.

With the war drawing to a close, it became necessary to look to the future, and make plans for the disposal of the surplus stocks on hand at the end of the war. In order to prevent these stocks from disorganizing postwar-markets, and at the same time to start a nucleus of stock-piling for future needs, the Surplus Property act of 1944 provided that all surplus property designated by the Army and Navy Munitions board as suitable for stock-piling purposes should be added to the stock piles authorized by the legislation of 1939.

**Legislation.**—Since the stock-piling provisions of the Surplus Property act were scheduled to expire at the end of 1945, it was necessary that additional legislation be provided if stock-piling were to go beyond this preliminary step. In March 1945 and again in October bills were introduced in congress to provide permanent stock-piling procedure. In the hearings on these bills the chief objections centred on the question as to whether stock-pile purchases should be made from domestic or foreign producers, and the methods proposed for the protection of industry against release of stock-piled material, with consequent bad effect on the current market. In December the former bills were reformulated and passed by the senate in a form acceptable to industry.

**Army and Navy Munitions Board Report.**—In the light of the experience gained in the war, and under the conditions existing at the end of the war, it was necessary to recast the entire basis of strategic mineral supplies. The Surplus Property act provided that the Army and Navy Munitions board should report to congress its recommendations as to the maximum and minimum amounts of each strategic or critical material that should be included in the stock pile. In accordance with this directive the board made a report in which the necessity for stock-piling is the sole criterion in the determination of strategic materials, and the only differentiation between strategic and critical materials lies in the amounts recommended for the stock pile. All materials which war experience showed to be short in supply were divided into three subclasses, depending on the relative desirability and feasibility for stockpiling, as follows:

A. Those commodities for which stock-piling is considered the only satisfactory way of assuring an adequate supply for a future emergency.



B. Materials the stock-piling of which is practicable, acquisition of which is recommended only so far as they are turned into the stock pile as surplus property, on the score that future supply may be secured by stimulating output from North American sources, or by the use of substitutes.

C. Materials not recommended for stock-piling, because difficulties in storage outweigh the advantages of stock-piling.

In its report to congress the board listed 43 items in Group A, 20 items in Group B, and 5 items in Group C, a total of 68 items, of which 24 items are different forms or grades of the same 9 basic materials. The 1940 official list included nine strategics and six criticals in the mineral and metal group; the comparison of this total of 15, against the numbers given above, is a rough measure of the extent to which the status of strategic minerals has been modified by the war. (G. A. Ro.)

**Streptomycin:** see BACTERIOLOGY; CHEMISTRY; CHEMOTHERAPY; UROLOGY.

**Strikes and Lock-outs.** The United States, Canada and Great Britain published, for many years, current statistics of strikes and lock-outs, their causes and results, together with detailed reports upon the more important strikes of each year. After 1942 the strike information gathered by these countries was less complete, because of war conditions.

During the first eleven months of 1945 (Table I) there were 456 less strikes in the United States than in all of 1944, and about 240 less than in the "strike year" of 1937. More workers struck during that period than in any year after 1935 except in 1941. Man-days idle almost equalled the entire year of 1937. The numbers of strikes, of strikers and of man-days lost in-

Table I.—United States: Number of Strikes, Workers Involved and Man-days Lost, 1935–1945

Year	Number of strikes beginning in year indicated	Workers involved in strikes beginning in year	Man-days idle during year
1935 . . . . .	2,014	1,117,213	15,456,337
1936 . . . . .	2,172	788,648	13,901,956
1937 . . . . .	4,740	1,860,621	28,424,857
1938 . . . . .	2,772	688,376	9,148,273
1939 . . . . .	2,613	1,170,962	17,812,219
1940 . . . . .	2,508	576,988	6,700,872
1941 . . . . .	4,288	2,362,620	23,047,556
1942 . . . . .	2,968	839,961	4,182,557
1943 . . . . .	3,752	1,981,279	13,500,529
1944 . . . . .	4,956	2,115,637	8,721,079
1945 (11 mo.) . . . . .	4,500	3,285,000	27,500,000

Monthly Labor Review, United States Bureau of Labor Statistics (Jan. 1946).

C.I.O. OIL WORKERS at the Sinclair Refining Co. in East Chicago, Ind., in a walkout on Sept. 19, 1945, which was joined by oil workers in Texas, Ohio, West Virginia and Michigan. The oil unions demanded a 30% wage increase

creased sharply after September but the official figures for the full year were not available.

Table II.—Analysis by Industries of Work Stoppages Arising from Industrial Disputes in Great Britain: First Ten Months of 1945 and Corresponding Months in 1944

Industry	January-October 1945			January-October 1944		
	Number stoppages beginning in period	Number working people involved	Aggregate number working days lost	Number stoppages beginning in period	Number working people involved	Aggregate number working days lost
Fishing and agriculture . . . . .	4	2,100	10,000	6	700	2,000
Coal mining . . . . .	1,036	204,800*	572,000	1,073	542,400*	2,428,000
Other mining and quarrying . . . . .	10	700	1,000	21	3,400	13,000
Brick, pottery, glass, chemical, etc. . . . .	19	2,500	17,000	22	1,600	4,000
Engineering . . . . .	211	71,800	299,000	214	116,000	565,000
Shipbuilding . . . . .	167	25,900	127,000	169	36,200	326,000
Iron, steel and other metal . . . . .	145	18,100	64,000	125	14,500	58,000
Textile . . . . .	35	3,600	9,000	38	4,500	29,000
Clothing . . . . .	25	6,500	12,000	27	2,500	4,000
Food, drink, tobacco . . . . .	8	1,600	5,000	7	800	3,000
Woodworking, furniture . . . . .	14	1,200	2,000	6	900	1,000
Building . . . . .	33	3,200	5,000	41	4,800	7,000
Transport . . . . .	139	125,300	1,347,000	65	23,500	73,000
Other industries . . . . .	53	6,200	28,000	46	6,200	12,000
Total . . . . .	1,899	473,500*	2,498,000	1,860	758,000*	3,525,000

The Ministry of Labour Gazette, Nov. 1945 (London).

\*Some workers, chiefly in coal mining industry, were involved in more than one stoppage and are counted more than once in totals. The net number of individuals involved in coal mining stoppages in the period under review in 1945 was approximately 100,000 and, in the corresponding period in 1944, was approximately 350,000. For all industries combined the corresponding net totals were approximately 330,000 and 550,000 respectively.

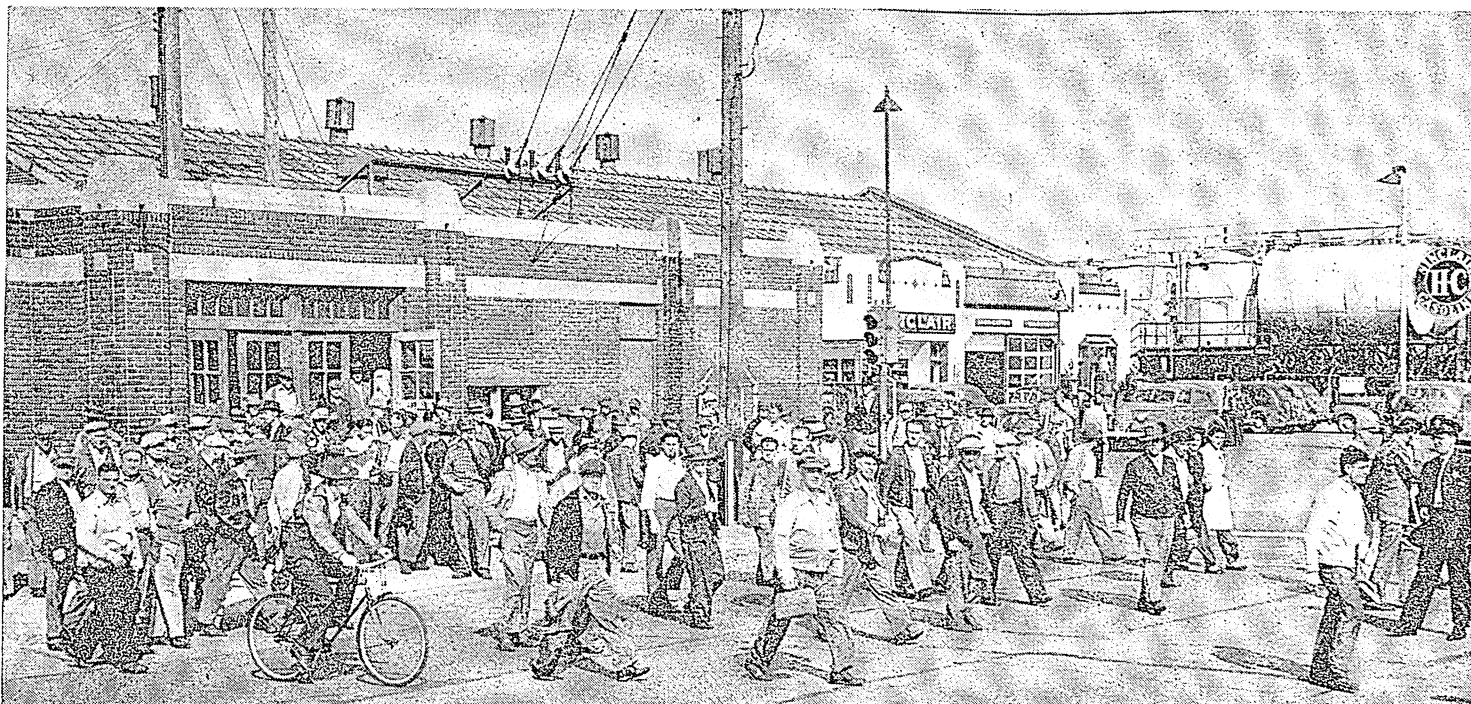
During the first ten months of 1945 there were 1,899 strikes in Great Britain, which compared with 1,860 in the corresponding months of 1944. But only 473,500 workers were idle in the

Table III.—Relative Frequency and Size of Labour Disputes in Great Britain in 1945 and 1944

Month	Number of disputes started in month		Number of work people involved in all disputes during month		Working days lost in labour disputes during month	
	1945	1944	1945	1944	1945	1944
January . . . . .	175	219	32,600	92,000	104,000	236,000
February . . . . .	157	235	27,400	105,300	60,000	273,000
March . . . . .	173	310	74,700	313,300	400,000	1,601,000
April . . . . .	213	152	44,800	206,400	99,000	718,000
May . . . . .	182	158	50,900	28,700	129,000	46,000
June . . . . .	198	118	57,600	24,600	202,000	42,000
July . . . . .	184	75	47,000	20,900	169,000	64,000
August . . . . .	164	176	41,200	34,400	104,000	124,000
September . . . . .	196	197	40,200	51,800	114,000	189,000
October . . . . .	229*	220	92,300	61,300	1,108,000	232,000
November . . . . .	193	193	47,400	...	...	125,000
December . . . . .	139	139	33,500	...	...	65,000

Compiled from The Ministry of Labour Gazette (London).

\*Figures for Oct. 1945 are provisional and subject to revision; those for earlier months have been revised where necessary in accordance with latest information.



strikes of 1945, compared with 758,000 in the 1944 strikes. In man-days lost the 1945 strikes were likewise less serious: 2,498,000 compared with 3,525,000 in 1944.

In Great Britain wage questions accounted for more than one-half both of the total number of stoppages in 1944 and of the workpeople directly involved. The few disputes which arose on questions of hours of labour accounted for only 2.6% of the workpeople directly involved. Disputes in connection with the employment of particular classes or persons, working rules and discipline were responsible for more than two-fifths of the total number of stoppages and for about one-quarter of the workpeople directly involved (Table IV).

Table IV.—Analysis of Principal Causes of Industrial Disputes in Great Britain in 1944

Principal causes	Number begun during 1944		People directly involved	
	Number	Per cent	Number	Per cent
Wage increase . . . . .	339	15.4	78,000	10.9
Wage decrease . . . . .	78	3.6	9,000	1.3
Other wage questions . . . . .	733	33.4	414,000	57.8
All wage questions . . . . .	1,150	52.4	501,000	70.0
Hours of labour . . . . .	57	2.6	11,000	1.5
Employment of particular classes or persons . . . . .	229	10.5	61,000	8.5
Other working arrangements, rules and discipline . . . . .	674	30.7	104,000	14.5
Trade unionism . . . . .	40	1.8	10,000	1.4
Sympathetic action . . . . .	18	0.8	23,000	3.2
Other questions . . . . .	26	1.2	6,000	0.9
Total . . . . .	2,194	100.0	716,000	100.0

Compiled by The Ministry of Labour Gazette, May 1945 (London).

In Great Britain more than 40% of the disputes in 1944 were settled by direct negotiation between the parties or their representatives, while half of the stoppages ended in a resumption of work on employers' terms, without negotiation (Table V).

Table V.—Results of Labour Disputes in Great Britain: Principal Methods of Settlement in 1944

Methods of settlement	Number begun during 1944		People directly involved	
	Number	Per cent	Number	Per cent
By direct negotiation between parties or their representatives . . . . .	918	41.8	418,000	58.3
By conciliation . . . . .	67	3.1	10,000	1.4
By arbitration . . . . .	20	0.9	9,000	1.3
By return to work on employers' terms, without negotiation . . . . .	1,176	53.6	270,000	37.7
Otherwise . . . . .	13	0.6	9,000	1.3
Total . . . . .	2,194	100.0	716,000	100.0

Compiled by The Ministry of Labour Gazette, May 1945 (London).

Table VI.—Number and Time Loss in Canadian Labour Disputes, 1945 and 1944

Month	1945			1944		
	No. of strikes	No. of employees involved	Time loss in working days	No. of strikes	No. of employees involved	Time loss in working days
January . . . . .	16	5,435	32,142	26	8,140	23,658
February . . . . .	17	5,988	6,821	20	8,782	39,888
March . . . . .	21	4,670	8,563	14	1,669	2,834
April . . . . .	9	4,363	25,169	12	14,384	115,994
May . . . . .	9	3,035	6,340	25	22,827	126,386
June . . . . .	12	2,773	4,688	23	5,980	9,528
July . . . . .	28	11,884	45,273	23	9,571	26,023
August . . . . .	31	13,159	41,297	26	12,585	120,283
September . . . . .	17	19,754	185,251	9	1,024	800
October . . . . .	16	22,257	419,210	14	4,260	7,139
November . . . . .	...	...	...	12	1,662	5,080
December . . . . .	...	...	...	11	2,312	12,526
Total . . . . .	176	93,318	774,754	199*	75,290	490,139

Compiled from Canadian Labour Gazette. All 1945 figures are preliminary.

\*These figures relate only to the actual number of strikes and lock-outs in existence and the workers involved during the year, not being a summation in each case of the monthly figures.

Table VII.—Trend of Labour Disputes in Canada, 1931-45

Year	Number of disputes	Number of workers involved	Time loss in man-working days
1931 . . . . .	88	10,738	204,238
1932 . . . . .	116	23,390	255,000
1933 . . . . .	125	26,558	317,547
1934 . . . . .	191	45,800	574,519
1935 . . . . .	120	33,269	284,028
1936 . . . . .	156	34,812	276,997
1937 . . . . .	278	71,905	886,393
1938 . . . . .	147	20,395	148,678
1939 . . . . .	122	41,038	224,588
1940 . . . . .	168	60,619	266,318
1941 . . . . .	231	87,091	433,914
1942 . . . . .	354	113,916	450,202
1943 . . . . .	402	218,404	1,041,198
1944 . . . . .	199	75,290	490,139
1945 . . . . .	176	93,318	774,754

Compiled from Canadian Labour Gazette.

The sharp increase in the number of Canadian workers on strike in Sept. and Oct. 1945 resulted largely from disputes in the automobile industry. (See also LABOUR UNIONS; NATIONAL LABOR RELATIONS BOARD; UNITED STATES; WAR LABOR BOARD, NATIONAL.)

(D. D. L.)

**Stritch, Samuel Alphonsus** (1887- ), cardinal archbishop of Chicago, was born at Nashville, Tenn., on Aug. 17. He was ordained in Rome, May 21, 1910, and at the age of 30 was chancellor of the diocese of Nashville. He was named bishop of Toledo in 1921, being the youngest member of the American hierarchy. He was appointed archbishop of Milwaukee in 1930, and succeeded Cardinal George Mundelein as head of the archdiocese of Chicago in 1939.

Archbishop Stritch early recognized the need of helping the innocent victims of World War II in the ravaged lands of Europe and Asia. As treasurer of the Bishops' War Emergency and Relief committee, he supervised the distribution of large sums raised by U.S. Catholics.

Under his direction the charity program in the archdiocese was vastly expanded. The Sheil School of Social Studies opened in 1943, and measures taken for the training of priests in social work evidenced his interest and awareness of the importance of Catholic action in that particular field. He reorganized the Archdiocesan Council of Catholic Women and took measures to cope with the war-accentuated dangers to Christian family life. He was elected chairman of the administrative board of the National Catholic Welfare conference, Nov. 1945, having served terms as vice chairman and treasurer.

On Dec. 23, 1945, it was announced that Archbishop Stritch was nominated to the Sacred College of Cardinals, along with 31 others. He was created and proclaimed cardinal at consistory, Feb. 18, 1946.

**Strontium.** War demand for strontium passed its peak in 1943, and the United States output of celestite decreased from 7,566 short tons in 1943 to 3,005 tons in 1944. Imports dropped from 16,881 tons in 1943 to 5,793 tons in 1944, and consumption from 13,387 tons to about 6,000 tons. (G. A. Ro.)

**Submarines:** see NAVIES OF THE WORLD; SUBMARINE WARFARE.

**Submarine Warfare.\*** The capitulation of Germany and Japan in 1945 was in large measure the result of two submarine campaigns: First, the failure of the U-boats, in spite of new techniques and renewed vigour; second, the cumulative successes of United States submarines in throttling Japanese loot-lines. The democratic world ended this long and debilitating struggle greatly in debt to the efficacious anti-submarine measures employed by the Allies, and to the aggressive, deadly work of United States submarines.

The end of this most devastating of wars at last brought a rift in the fog of censorship; many hitherto concealed facts were thrust into the glare of publicity and previously hidden items concerning the work of submarines were finally revealed. Hence this article will occasionally cut back to earlier years to bring into focus certain features of the war beneath the sea that have previously been withheld.

**The U-Boat Campaign.**—In 1942 and 1943 the heavy toll of the U-boat threatened to snap the tenuous Lend-Lease lifeline to Britain and the U.S.S.R. Superhuman efforts were re-

\*All assertions or opinions contained in this article are the private ones of the writer and are not to be construed as official or reflecting the views of the U.S. navy department or of the naval service at large.

quired to offset its depredations, and industry, science and naval skill united to encompass its defeat. This collaboration bore ripe fruit in 1944, when sinkings by U-boats were reduced beyond the danger point, and in 1945, despite the fact that, with the advent of the *schmökel* (an underwater breathing device for submarines), U-boat warfare flared into renewed activity, its effectiveness was still further reduced.

In Jan. 1945, total Allied merchant losses were somewhat less than 100,000 gross tons. With the advent of better weather, activity increased, especially in British home waters and on the Murmansk route. Berlin claimed huge successes for its submarines newly equipped with *schmökels*, and for its midge U-boats, asserting the latter had even attacked convoys in the Thames estuary. Total February losses to Allied cargo bottoms totalled about 110,000 tons. Spring witnessed U-boat activity around Britain and the arctic route to Russia—also sporadic attacks off Iceland, Halifax, Gibraltar, Capetown and in the Indian ocean. March merchant losses were approximately 116,000 gross tons from all causes. In April it was ascertained that the islet of Heligoland was sheltering large numbers of U-boats, readying them for a major offensive; this bastion was heavily bombed. Convoys returning from the Barents sea were heavily attacked in a gale by a combined force of U-boats and Norway-based aircraft, but losses were few and the attackers took as much damage as their prey. April losses, however, were the highest after Aug. 1944—126,000 gross tons of Allied merchant shipping; while mostly in British waters, there was a renewal of activity off the east coast of the U.S., and the work of midge U-boats off Belgium was also partly responsible.

While the German armies were rapidly disintegrating in April and May, the U-boats, with morale unimpaired, were slowly recovering their former effectiveness. A steady rate of increase in sinkings was manifested throughout the year and boded no good for the Allies if permitted to continue. In early May a wolf pack attacked a coastwise convoy off the coast of Rhode Island, sinking a large collier, and only two days before the German surrender the U.S. destroyer "Frederick C. Davis" fell victim to U-boat attack. Such growing losses were, however, brought to a timely end by the complete collapse of the nazis. Admiral Doenitz, who succeeded Hitler in control of the government, broadcast to his U-boats on May 4, 1945, orders to cease hostilities and start home. This was superseded by Allied instructions for German submarines to surface, radio their positions, hoist the black surrender flag and await orders.

It was believed about 100 U-boats were then still at large. By late May, 70 of these were safe in British ports, 6 in the United States, and 10 to 12 still at sea. Large numbers were taken in German and Norwegian ports, or were discovered to be scuttled there; 40 were captured under construction or repair at Bremen. By late August only two U-boats remained unaccounted for and these were presumed to be sunk. In the final stages of war Germany had about 450 submarines (excluding midges) but only about one-third of these, largely because of Allied bombing attacks, were operational.

The convoy system again proved its worth. Only one merchantman out of each 1,000 U.S. ships sailing in convoy was lost to U-boats. No similar figures on British losses were available but, due to lack of sufficient escorts, they were probably considerably higher in the early days of the war. At one time 7 escort carriers and 324 destroyers and destroyer escorts of the U.S. navy alone were used in escorting or in indirect protection of the valuable cargo fleets.

In spite of these favourable statistics, the loss of merchant bottoms to U-boats was appalling. At least 440 U.S. ships, of 2,740,000 gross tons, went down under submarine attack; other sources (aircraft, mines, perils of the sea) boosted the U.S. total

to 538 ships of 3,310,000 gross tons; 5,519 U.S. merchant seamen gave their lives. Great Britain lost 2,570 merchant ships aggregating 11,380,000 gross tons, while more than 30,000 British mariners forfeited their lives. Total shipping losses of Allies and neutrals during the entire war amounted to 4,770 cargo carriers of 21,140,000 gross tons—a figure equal to Britain's total prewar merchant fleet!

The battle of the Atlantic had been waged furiously over a 5½-year period. The U-boat was a menace to the bitter end, and at the very last had recovered enough strength to force the tightening-up of the convoy system to an extent unknown after 1943. After the war once again merchant ships could ply the seas in safety except for danger of unswept mines. But the toll of the U-boat had been depressingly heavy and at one time the Allied shipping situation was extremely precarious.

**U.S. Submarines in the Pacific.**—Relentlessly and in increasing numbers the U.S. submarine force continued its deadly operations against the life lines of the tottering Japanese empire. Until the surrender of Japan secrecy concerning this silent service prevailed and the public had to be content with occasional colourless, routine announcements of the "bags" of returning, unidentified boats. These totalled 399 ships sunk during the year 1945, almost 15% of which were naval craft. Losses to submarines were reported by months as follows:

January . . .	72	March . . .	38	May . . . . .	30	July . . . . .	21
February . . .	66	April . . . . .	15	June . . . . .	25	August . . . .	132

It will be noted that, except for August, there was a gradual monthly reduction in sinkings, undoubtedly due to the increasing scarcity of targets as Nipponese ships were being wiped from the high seas and forced into waters ever closer to home. In April, Vice-Admiral Charles A. Lockwood, U.S.N., commander of submarines in the Pacific, publicly deplored the poor hunting and stated that "advances of our air, ground and surface forces are depriving submarines of areas formerly rich in targets." In spite of new bases relatively close to their operating areas, the effectiveness of the undersea boats was falling off purely because of their own previous ability and audacity.

Frequently the routine reports were lightened by inclusion of large combatant ships or of fat, valuable tankers. These were prime targets and the rate at which tankers were destroyed is indicated by the fact that at war's end Japan had only 60,000 tons not under repair left afloat. The construction rate of merchant bottoms was also, thanks to the depredations of U.S. bombers, down to almost nothing; replacement was out of the question. One large carrier, three escort carriers, three light cruisers and numerous destroyers were reported victims of submarine attack. The sinking of the carrier "Chuyo" (22,500 tons), details of which were later released, was particularly notable. The "Sailfish" (formerly the ill-fated "Squalus," raised from a peacetime grave) was battling a typhoon on the surface when its radar showed the proximity of many vessels. Almost rammed by a Japanese destroyer, it sighted the "Chuyo" close aboard just before diving. A hurried attack was conducted and two torpedoes were heard to strike home. The "Sailfish" then rode out a half-hour counterattack by depth charges but when things quieted down she again surfaced. Circling in the murky area the "Chuyo" was discovered disabled and, at long range, two more torpedoes found their target. A hail of fire descended on the "Sailfish" but, ignoring the misplaced salvos, she sailed resolutely into close quarters and, with another two torpedoes, delivered the *coup de grace*.

In May, Japan protested via diplomatic channels the sinking of the relief ship "Awa Maru" by a U.S. submarine, later identified as the "Queenfish," with a loss of about 1,000 including many Allied prisoners. In July, after thorough investigation, the United States assumed responsibility and informed Japan that



disciplinary action was being taken. It developed that the "Awa Maru" was proceeding at night in a fog and that, although proper lights were shown, recognition was impossible. The attack was made by "means other than visual" (radar or sonar), which indicated that intent was lacking.

By early summer 1945, 240 U.S. submarines were in action and most of these, in relays, were pitted against the remaining enemy. Their area of operations contracted as rapidly as did their targets. As early as April, Fleet Admiral C. W. Nimitz, U.S.N., commander in chief of the Pacific fleet, reported that submarines were working freely in the South China sea, cutting the vital lifeline from Japan to Indonesia. This was verified by Radio Tokyo, which agreed that the submarine blockade of Japan was particularly effective, the food shortage having reached "catastrophic proportions." In July, Japanese sources again admitted that U.S. submarines were boldly operating in force in the sacrosanct waters of the sea of Japan, interrupting the continuous stream of valuable light traffic with mainland ports. Vice-Admiral Lockwood, in confirmation, told an amazing tale of "one of the most dangerous deeds of the war." Eight submarines, working in conjunction, entered these perilous waters with but little navigational data and succeeded in sinking at least 100,000 tons. Although impeded by destroyer attacks and the ubiquitous fishing vessels, all contrived after hair-raising experiences to make good their escapes. Most of their 50 victims were small, but they were essential to the maintenance of the home islands. The net was closing. The days of the Greater East Asia Sphere were numbered. Submarines were still playing a stellar role in the debacle.

It will be recalled (above) that the month of Aug. 1945 showed an increase in Japanese shipping losses to 132 vessels. This was due to two reasons: first, the 50 ships garnered in the invasion of the sea of Japan; second, the clean-up of all hitherto unreported losses by submarines returning to their bases at war's end.

The phenomenal success of U.S. submarines may be partially attributed to two previously unknown factors: first, the breaking of Japan's supersecret code before the war, of which it remained ignorant until the end; second, the formation in China of an underground, the Sino-American Co-operative Organization (S.A.C.O.) under direction of Rear Admiral M. E. Miles, U.S.N., made it possible to obtain detailed information about Japanese ship movements originating in China. These, of course, were but auxiliary aids. Numbers, training, superior material and *esprit de corps* remained the deciding factors.

At war's end Japan admitted having lost more than 2,000 merchantmen, aggregating 7,600,000 gross tons—more than the total prewar Japanese merchant marine. They had remaining 1,200,000 gross tons, of which only 720,000 tons were usable. According to navy department figures, U.S. submarines sank more than 5,000,000 tons and damaged another 2,500,000. Fleet Admiral E. J. King, U.S.N., chief of operations, gives the submarine force credit for 63% of all Japanese ship losses—a remarkably high figure.

The official Japanese compilation of combatant ship losses is no less interesting. U.S. submarines again polled a high score—but most astoundingly they were credited with 23 Nipponese submarines whereas they had modestly claimed only 2. The table follows:

Japanese Naval Losses

Type	Original strength	Lost	Sunk by submarines
Battleships . . . . .	12	11	1
Large Carriers . . . . .	21	15	4
Escort Carriers . . . . .	5	5	4
Cruisers . . . . .	43	38	12
Destroyers . . . . .	177	134	43
Submarines . . . . .	193	131	23

In commendation of the submarines' work Fleet Admiral King remarked:

They operated aggressively against enemy combat ships and commerce. No waters of the Pacific were too remote . . . and their patrols carried them to the interior lines of Japanese sea communication, where they littered the bottom of the ocean with the sunken wrecks of a large part of Japan's once great merchant fleet, as well as many naval vessels. Their contribution to the success of our advance in the Pacific is noteworthy.

**Japan's Submarine Effort.**—Japan, with a total of about 200 submarines (excluding midgets) in operation during the war, exhibited little facility in their use. At no time were they brought into effective play against the long and vital U.S. supply lines. Their efforts were diffused and abortive; they were used to supply isolated garrisons, to transport troops to outlying bastions, and to attempt to run the blockade to German-held ports. Only a scattered few were employed in their proper role. There seemed to be in the higher echelons of their naval hierarchy no true conception of their proper employment.

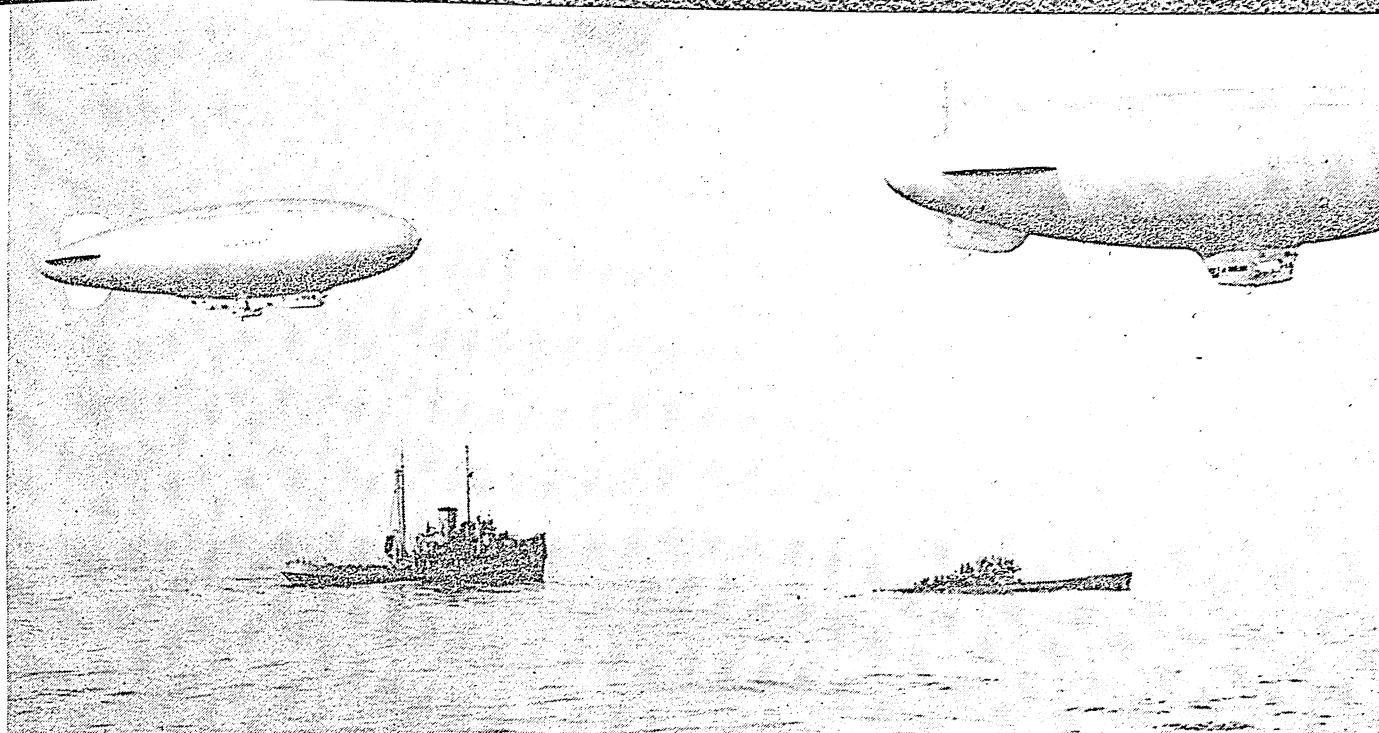
In late July, shortly before war's end, the U.S. heavy cruiser "Indianapolis," while proceeding from Guam to Leyte, was sunk by an enemy submarine in about 15 minutes, with a loss of more than 800 men. Within a few days the U.S. destroyer escort "Underhill" engaged a pack of midget submarines which were stalking a convoy in Philippine waters. After sinking one midget the "Underhill" rammed a second, this time setting off the midget's torpedoes and sinking both the submarine and itself. On these occasions, at least, one has positive evidence of aggressive Japanese submarine action.

During the war's later stages Japanese naval officials emphasized the construction of midgets and one-man suicide torpedoes. Despite splendid opportunities to use these weapons of desperation at Okinawa, they accomplished but little, probably because hampered by lack of range and the multitude of off-shore picket ships. As peace was signed, all that remained of the once-vaunted Japanese submarine fleet was a handful of big I-boats and numerous untried midgets.

**British Submarines in Action.**—With the advent of 1945 there was little left for British submersibles to do in the Atlantic and Mediterranean; accordingly many were transferred to the Far Eastern Fleet where, based on Indian ocean ports, they continued their depredations, this time against Japan. Some were placed under operational control of U.S. commands. Although detailed reports were lacking, an indication of their effectiveness was apparent in the admiralty's statement that in eight months they accounted for 274 Japanese vessels of all classes.

An unusual incident occurred in March when H.M.S. "Graph," formerly a captured U-boat, after a 36-hour chase followed its quarry into port and complacently sank it there. Probably the best over-all performance was achieved by H.M.S. "Storm." During one year in the Pacific this gallant vessel sank 20 Japanese supply ships, 1 destroyer and 4 escorts, with a record of 9 victims in one day. To cap its audacious career it entered Port Owen's tortuous channel on the surface in full daylight. Opening fire before discovery, it sank two gunboats, then calmly, in a superb piece of seamanship, turned around and made its getaway. The most important kill was made by H.M.S. "Trenchant" when it sank a heavy cruiser of the "Haguro" class in the Southwest Pacific.

In July, four British two-man midget submarines cut the Singapore-Hong Kong cable, forcing the enemy to use radio which was intercepted to the Allies' advantage. Another was successful in destroying a Japanese vessel in port by means of underwater demolition charges. British submarines, as well as surface craft, were a real factor in bringing the war against Japan to a speedy termination. As they did against the axis powers, once more they performed splendidly.

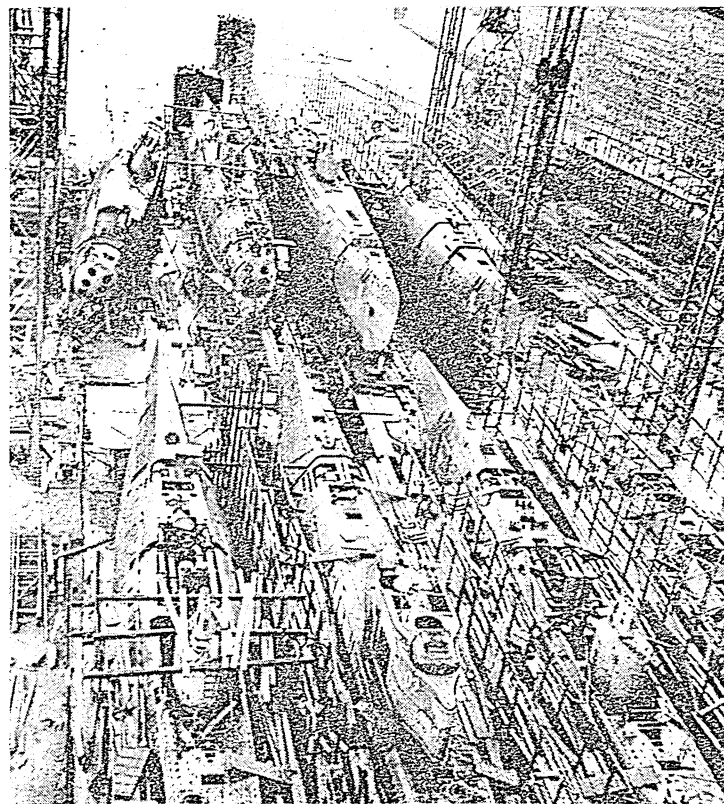


Above: THE U-858, first German submarine to surrender to U.S. forces after V-E day, proceeding under escort to Cape May, N.J., where formal surrender took place on May 14, 1945

Right: TORPEDOES being taken from a submarine tender to replenish the supply of a U.S. submarine operating against Japanese shipping in 1945. Such supply services cut down the submarine's "dead" time by reducing the number of trips to rear area bases

Below, left: A TENSE MOMENT in the control room of a U.S. submarine during 1945, as the men worked on a problem while a Japanese ship dropped depth charges near by. They could only shut off their motors and hope the enemy would not find their range

Below, right: GERMAN SUBMARINES on the ways at Bremen harbour where they were captured in 1945 by the Allies. About 40 vessels were found in various stages of construction and repair



**Russia's Submarine Record.**—The capitulation of its enemies failed to lift the heavy blanket of secrecy from Russian submarine operations. As far as is known its large force of submersibles added little to eventual victory. While this was partly due to lack of opportunities, one doubts if the soviet submarine arm had yet reached sufficient maturity to be fully effective. With Russia's entry into the Japanese war much was expected of the many Red submarines supposedly based at Vladivostok. That no action materialized was probably due to the few days elapsing before Japan's surrender.

**Submarines of Other Nations.**—The few submarines belonging to other Allied nations were employed under control of either Britain or the United States and their work is included with the records of those nations. In no reported case was any of these craft engaged in unusual or spectacular exploits during 1945.

**Submarine Losses.**—*United States.*—U.S. submarines were lost at the rate of 2 per month in 1945, an increase over the 1944 rate, which was 1½ monthly. This was expected. More submarines were operating in more restricted waters, because of the paucity of targets more daring chances were taken, and one can assume that Japanese anti-submarine technique was steadily advancing.

A total of 15 U.S. submersibles, all modern 1,500-tonners, failed to return from their missions in 1945 and were accounted lost. In chronological order these were the "Harder," "Growler," "Tang," "Escolar," "Shark," "Barbel," "Albacore," "Scamp," "Swordfish," "Kete," "Trigger," "Snook," "Lagarto," "Bonefish" and "Bullhead." Thus the total submarine losses of the United States were brought to 49 for the entire war. Compared with the huge percentage of loss to both the German and Japanese flotillas this is an outstanding record. But when one considers that fewer than 250 U.S. submarines were employed throughout the war the percentage of loss (about 20%) is unquestionably higher than for any other class of U.S. combatant vessel.

Of those lost in 1945 two had achieved remarkable records. The "Harder" so distinguished itself that its skipper won the distinguished service cross and four navy crosses, while the ship itself received the presidential unit citation. The "Trigger" also held the latter honour for "an exceptionally notable record of severe damage inflicted on hostile shipping."

With the release of Americans from Japanese prisons, survivors related the fate of six submarines previously lost. The "Tang" was sunk off Formosa in Oct. 1944, after a record of 100,000 tons of enemy shipping. Struck by a mine, or by its own circling torpedo, it went down in 30 fathoms; 18 men managed to escape, some using the Momsen lung, but only nine survived the night to be rescued by enemy destroyers. The "Perch," in March 1942, was depth-charged by destroyers in the Java sea; diving in 200 ft. of water, it stuck in the bottom mud. It struggled to the surface but, damaged beyond possibility of diving again, it was scuttled to prevent capture. The entire crew was made prisoner. The "Sculpin" was sunk in a surface battle with a destroyer near Truk in Nov. 1943. The "S-44" was likewise a destroyer victim off the Kuriles in Oct. 1943. The "Grenadier" went down under the bombs of enemy planes in April 1943, near Malaya. The "Tullibee" was lost off Palau in March 1944 with a sole survivor.

**Great Britain.**—Following the German surrender the admiralty announced that 69 British submarines (excluding midgets) were lost throughout the war. Ten of these losses were made known in 1945. Of these the "Porpoise" had probably the outstanding record; it was prominent in running supplies to beleaguered Malta and had more than 35,000 tons of enemy shipping to its credit.

Details of the loss of the "Stratagem" became known from survivors.

Depth-charged in the Malacca straits in Nov. 1944, it sought refuge on the bottom but was rent asunder by explosives; eight men made good their way to the surface, to fall into enemy hands.

**Germany.**—The final report on U-boat losses was made by Fleet Admiral King in December. Based on both Nazi and Allied figures he stated that a heavy toll, 153 U-boats, was taken in 1945 alone. During the entire war 782 German submarines were lost, the nature of the fate of about 700 being known. More than 600 were sunk by Allied navies and the aircraft under their control, 60 were destroyed in port by strategic bombing and 25 more were sea victims of non-naval aircraft. Of those sunk by naval forces, 151 were credited to the United States, a few were Russian casualties, but the lion's share (464) fell prey to the royal navy. As an interesting sidelight, at least 26 U-boats were sunk by Allied submarines; only one of these is credited to U.S. submersibles as these were not active in numbers in the Atlantic. The above figures exclude midget U-boats, of which 81 were sunk or captured in the North sea alone.

A grave loss to Germany was the accidental sinking of a U-boat near Bergen, Norway, while conducting experiments with rocket launching apparatus and other new techniques. In addition to the crew, 23 foremost Nazi submarine experts went down with this craft.

It was disclosed in 1945 that in June 1944 Germany suffered the embarrassment of having one of its submersibles, the U-505, captured intact by U.S. forces off the coast of West Africa. A search group consisting of an escort carrier and several destroyer escorts attacked and damaged the U-boat, then boarded and towed it to port.

**Japan.**—The U.S. navy was extremely modest regarding Japanese submarine losses—at the beginning of Aug. 1945 it laid claim to only 13 sure kills. With the surrender of Japan, however, the truth became known and the anti-submarine effectiveness of U.S. warships was proved to be of high quality. Nipponese authorities admitted they lost 131 of their undersea fleet and had 59 left, only 50 of which were usable. Midgets are excluded in these figures, but the losses in this category were also high. Astonishingly, Allied submarines were credited with 23 of the 131 kills.

**Other Nations.**—From a final compilation of figures the admiralty stated it had proof of sinking 65 Italian submarines during the course of the war. The Greek navy announced that it sustained the loss of 4 of its small submarine force during hostilities.

**New Construction and Developments.**—*United States.*—Such new submarines as were built in U.S. shipyards in 1945 followed the pattern of the successful 1,500-ton class, with improvements as indicated by war service. Deck guns were placed forward of the conning tower and anti-aircraft armament was stepped up. There were 211 submarines built after 1939 but, since losses were fewer than expected, the building rate had been considerably decreased.

Radar was in use on submarines early in the war, but the secrecy pertaining to such devices only lately was lifted. These devices were developed for use both surface and submerged, the latter on a telescopic mast extended above the waves. Radar was also indispensable to aircraft in detecting enemy submarines and was a vital factor in conquering the U-boat.

The use of electric torpedoes by submarines was announced in 1945. Although slower than steam torpedoes they had the valuable feature of showing no wake, hence lessening the chance of evasion by the target.

**Great Britain.**—Although exact information was lacking, it seemed likely that Britain constructed only sufficient submarines to replace those lost and that these included no sensational developments. The royal navy, a pioneer in the use of radar, undoubtedly took full advantage of this scientific advance. The admiralty announced that six submarines were fitted as minelayers and that these were highly successful—despite the fact that five were lost by enemy action. Patrol-type submarines were also fitted to eject ground mines from torpedo tubes.

**Germany.**—Authoritative reports after the surrender said that 1,174 U-boats, exclusive of midgets, were constructed during the war. So great was Nazi dependence on this weapon that submarine construction usually held top priority and unlimited funds were thrown into new and radical developments. The most effective of these was the *schnörkel*, or "air mast," reported in 1944. This device permitted the U-boat to use its diesel engines for submerged propulsion, thus obviating the necessity of periodic visits to the surface for recharging batteries. In the spring of 1945 *schnörkel*-equipped U-boats appeared in numbers on the sea lanes and were more successful than expected, creating new problems for Allied anti-submarine forces. Nazi naval leaders claimed the chief advantages to be (1) avoidance of radar detection, (2) ability to remain in the best hunting areas, (3) ability to remain submerged for weeks. Living conditions were, however, admittedly terrible.

In the final stages of the war Germany, probably as an anti-invasion measure, went in heavily for midget U-boats. They were built in three types, ranging from one-man 29-footers to two-man 39-footers, carrying two torpedoes each but having very low speed. It seemed doubtful that their few successes warranted the effort.

As protection for her flotillas while under repair, the art of building submarine shelters made constant progress. The newest pens, at Bergen, had an outside roof 25 ft. thick, then an inner 11-ft. roof, both of steel-reinforced concrete. The space between was utilized as living quarters for submarine crews. Such pens were impervious to even the heaviest bombs that were used against them.

After the surrender, word of other new developments came out of Germany. First, a new type torpedo, known as a "spider," which trails behind it a length of wire over which radio impulses, sent by the firing station to direct its course, depth and speed, are received. Second, an experimental type submarine with only a small diesel engine for surface propulsion but a tremendously beefed-up storage battery that will permit submerged speeds up to 18 knots for short spurts. Although said to be successful, this type had not gone into production.

Most revolutionary of all, however, was the rumoured development of an entirely new type of propulsion—the Walther cycle engine, using hydrogen peroxide as fuel, and whose exhaust is soluble in sea water. This entirely eliminates the bulky storage batteries. Submerged speed is



said to be 25 knots for indefinite periods, with only 10 knots available on the surface. Experiments were reported successful, but further development was necessary. That the fuel is enormously expensive is one drawback, requiring that a small diesel be added for surface propulsion. Had this astounding craft been developed sooner it might have profoundly affected the course of the war.

**Japan.**—According to their own figures 126 Japanese submarines were constructed after 1941. These were of varied classes: small coastal types under 500 tons, fleet submarines of 1,000-1,600 tons, submarine cruisers up to 2,400 tons and combined cruiser-supply types of 3,000 tons. It was reported that one craft was of 5,500 tons, the largest ever built, and was capable of catapulting aircraft. At the other end of the scale small, crude submarine transports, about 290 tons, 11 knots, and able to carry 50 troops or 50 tons of cargo were constructed for army use. Such diversity of effort failed to produce any standard type with characteristics comparable to U.S. submarines.

In their dire extremity the Japanese resorted to radical measures to increase their submarine and anti-submarine effectiveness. Rubber sheeting was placed on the hulls of their subs to make them invisible to asdic detection; batteries of perforated tubes were mounted on the sheathing to absorb sonar echoes. Decoys designed to give a broad radar echo and hence divert enemy submarines from their convoys were tried out, as were also underwater noisemakers to confuse the issue. All are thought to have been ineffectual.

As might be expected, they went in heavily for midget submarines and human torpedoes. The latter usually consisted of a normal 24-in. torpedo, a pilot's compartment being inserted between the explosive head and the air flask. These had a range of only about 10 mi. and were distinctly suicide weapons; they were frequently carried on decks of submarines as additional armament. It was reported that in July 1945, the home islands had assembled 273 midgets, 203 human torpedoes and 1,499 suicide boats in anticipation of invasion.

**Submarine Tactics.**—As far as could be determined no developments in submarine tactics took place in 1945 other than the use of U.S. submarines in co-operation with "Dumbo" planes to recover downed aviators. The planes not only directed the underseas rescuers to their men but frequently gave real support by strafing and driving off interfering enemy patrol craft. More than 500 airmen were rescued by submarines during the course of the war.

The U.S. and British fleets made admirable use of submarines on scouting and reconnaissance missions. Vital information was often obtained, one instance being the sighting in April 1945, by a U.S. submarine, of a heavy Japanese task force headed to interrupt the Okinawa landings. Although unable to attain attack position, his contact report resulted in the sinking by U.S. planes of the Japanese dreadnaught "Yamato."

Submarines achieved considerable success as blockade runners. It was reported in 1945 that the 3,000-ton "Narwhal" and "Nautilus" were regularly assigned to supply Filipino guerrillas. They landed tons of cargo, technical experts and coast watchers, and brought out intelligence reports and key personnel. Many other U.S. submarines duplicated this work, both in the Philippines and other Pacific islands. One daringly landed a demolition party in the main Japanese islands, destroying a vital bridge together with a crossing train. The admiralty disclosed similar use of British submarines to land royal marine commandos at European points; in one case these succeeded in blowing up a German blockade runner in the Bordeaux roadstead.

Germany also made use of submarines as blockade runners to Japan, carrying highly technical personnel and supplies, and valuable concentrated cargoes. In 1944, 19 submarines started for the far east but 6 were lost enroute. Of the 12 that began the homeward journey 4 were lost and only 3 eventually arrived. The venture proved to be of doubtful value.

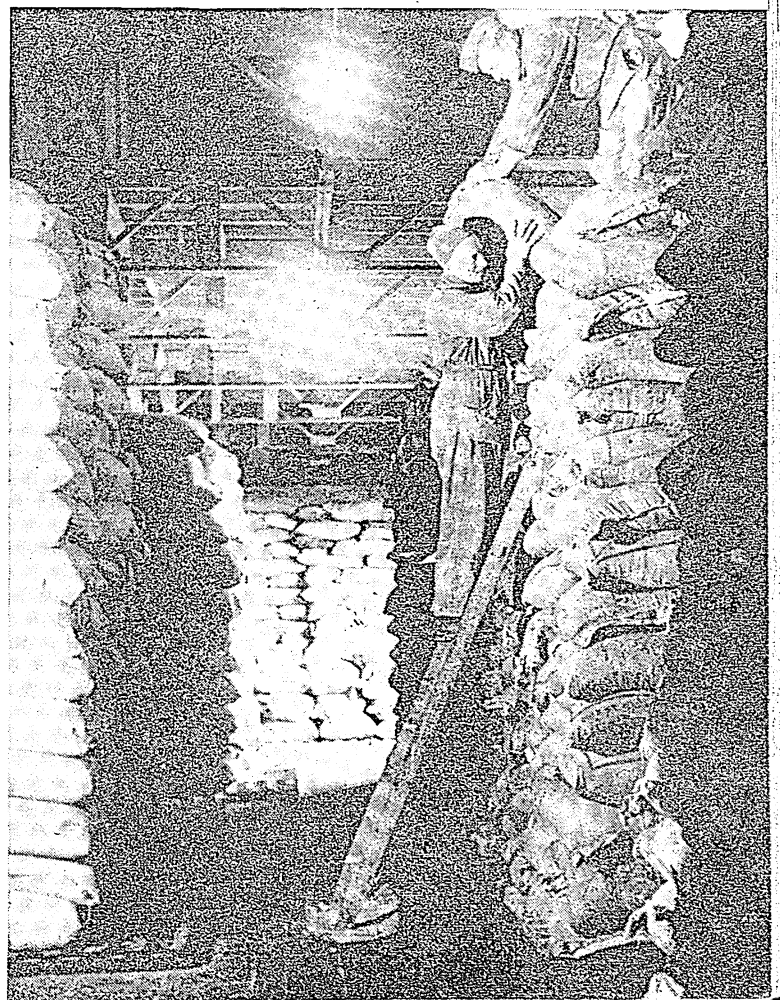
**Conclusion.**—Submarines in World War II proved beyond question their value as combatant arms of the world's navies. U-boats brought defeat dangerously close to the Allies, while the submarine weapon as wielded by the United States played a decisive role in the downfall of Japan. That submarines were expected to continue as a potent force was evident from the U.S. decision to keep 90 in active commission and 110 in reserve.

With the advent of the atomic bomb it seemed probable that the role of underseas craft would take on greatly added importance. One of the developers of the bomb, Dr. Alvin M. Weinberg, predicted submarine fleets, atomic-powered and capable of travelling at present surface speeds while submerged at 1,000 ft. He commented, "The safest place on this tortured planet, should an atomic war break out, will be deep below the surface of the ocean." (See also NAVIES OF THE WORLD; SHIPBUILDING; WORLD WAR II.) (E. E. HA.)

was 718,000 in 1945 compared with 558,000 in 1944 and an average of 808,000 in 1934-43. The acreage was restricted by the shortage of labour for thinning and harvesting. The yield was about 12 tons per acre which is almost the same as that of 1944 and the average. The total of refined sugar was expected to be 1,228,000 tons compared with 987,000 tons in 1944 and an average of 1,407,000 tons, 1934-43. The sugar content of the beets was lower than usual in 1945. The damage due to freezing in the fall was light.

Sugar cane production in 1945 was estimated by the U.S. department of agriculture at 6,668,000 tons compared with 5,700,000 tons in 1944 and an average of 5,196,500 tons 1934-43. The Louisiana crop was 5,648,000 tons compared with 4,920,000 tons in 1944 and the Florida crop 1,020,000 tons in 1945 compared with 780,000 tons in 1944. The total acreage was 281,900 compared with 273,100 a year earlier and an average of 263,900, while the yield was unusually high, 23.7 tons per acre compared with 20.9 tons in 1944 and an average of 19.6 tons 1934-43. The hurricane in Florida did only slight damage to sugar cane. Frosts did some damage in Louisiana. The output of sugar per ton of cane was 156 lb., a little less than the average of 167 lb., while the production of molasses was 48,966,000 gal. compared with an average of 33,864,000 gal. 1934-43.

Maple sugar production was the poorest of record because of the small number of trees tapped and the low yield per tree. This poor season was due to peculiar weather, first an early warm period in February and March that started the sap to running before producers were ready to harvest it and then started growth of buds and checked sap production unusually early. Total production of sugar was estimated at 251,000 lb., less than half that of 1944 and only 70% of the previous low record of 366,000 lb. in 1939. Syrup production was only 991,000 gal., 39% of 1944 production.



**Subsidies:** see AGRICULTURE.

**Sudan:** see ANGLO-EGYPTIAN SUDAN; FRENCH COLONIAL EMPIRE.

**Sugar.** Total sugar production in the United States in 1945 was about 1,900,000 tons (raw basis) compared with 1,500,000 tons in 1944. Both beet and cane sugar crops were larger than in 1944 but not sufficient to meet national requirements.

Sugar beets returned a crop of 8,638,000 short tons compared with 6,755,000 tons in 1944 and 9,644,000 tons average 1934-43. The increased production was due to increased acreage which

BAGS OF SUGAR for Dutch consumption being stacked in 1945 in a civil affairs depot in Holland—one of many such set up by the Allies to feed liberated peoples

Sugar supplies were reduced at the beginning of 1945 and were further reduced the second and third quarters of the year. Household rations were only 62.5% of 1944 levels and only about one-third of prewar years, not including sugar for canning which was 60% of 1944. Institutions received only 75% of the amount allowed in 1944. Total sugar stocks on Jan. 1, 1945, were reduced to 1,200,000 tons, the smallest since records have been available. The slightly larger U.S. crop was not sufficient to relieve the acute shortage.

World sugar production, for that part of the world accessible to the United Nations, was estimated to be about 20,400,000 tons of raw sugar or 5% less than was produced in the same territory in the previous season. The greatest reduction in the 1944-45 season was in Cuba where only 3,900,000 tons were made compared with 5,600,000 tons the previous year. This reduction was due to the severe drought and the fact that there was little two-year-old cane to be ground. This old cane yields more sugar per ton than the younger cane. All of the Cuban crop was purchased by the Commodity Credit corporation from the Cuban Sugar Stabilization institute at a minimum price of 3.1 cents per lb. with certain premiums in case the ceiling price was raised above 4.2 cents per lb. The price paid was .4 cent higher than that paid for the three previous crops but did not cause any increase of price to consumers.

Table I.—U.S. Production of Beet Sugar by States, 1945 and 1944

State	1945 short tons	1944 short tons	State	1945 short tons	1944 short tons
Colorado . . . . .	273,000	230,000	Nebraska . . . . .	88,000	68,000
California . . . . .	216,000	178,000	Utah . . . . .	59,000	55,000
Montana . . . . .	130,000	109,000	Wyoming . . . . .	51,000	40,000
Idaho . . . . .	108,000	80,000	Ohio . . . . .	32,000	17,000
Michigan . . . . .	97,000	73,000	Other states . . . . .	174,000	137,000

The sugar crop of Puerto Rico was estimated to be 950,000 tons, nearly one-third larger than in 1944, but below the average. The U.S. purchased all of the Puerto Rico crop. The sugar crop of European countries was less than in 1944. The British crop was about 15% less than in 1944. Australia's crop was about one-fifth below the prewar average. The crops of India and China were reduced. The Philippine crop was not available and the Hawaiian output below normal. A reserve of about 1,500,000 tons was discovered in Java which was expected to be available in 1946. World supplies as a whole were the smallest after the beginning of the war.

The distribution of sugar was allocated by the Combined Food board and part of the Cuban crop purchased by the U.S. was allotted to Canada, Great Britain and U.S.S.R. and liberated areas.

Table II.—U.S. Production of Cane Sugar, 1945, 1944 and 10-Yr. Average

State	1945 short tons	1944 short tons	Average 1934-43 short tons
Louisiana . . . . .	429,000	369,000	369,000
Florida . . . . .	92,000	68,000	66,000

Sugar consumption dropped to about 72 lb. per capita in 1945 compared with 89 lb. in 1944 and a prewar average of 97 lb. Civilians were restricted by rationing much more than other classes of users, the military ration being about double that of civilians. The total amount of sugar used in households, hotels, restaurants, etc., was about 25% less in 1945 than in 1944. The industrial uses were reduced, including candy and chocolates while more was allotted to ice cream and dairy products. Bottled beverages were restricted also. Sugar consumption was restricted in Europe and Britain below the U.S. level.

Incentive payments were made to growers for beets and sugar cane by price support agreements with processors to assure growers a higher return. Under the Act of 1937 payments in 1945 amounted to about \$51,000,000. Payments for sugar beets

amounted to \$3.00 per ton and for cane \$1.60 per ton. (See also BEEKEEPING; MAPLE PRODUCTS; PRICE ADMINISTRATION, OFFICE OF; SYRUP, SORGO AND CANE.)

FILMS.—*People of Hawaii* (Encyclopædia Britannica Films Inc.). (J. C. Ms.)

**Suicide Statistics.** During 1945, mortality from suicide in the general population of the United States was on about the same low level as that for 1944. This indication is provided by the experience of the millions of industrial policyholders of the Metropolitan Life Insurance company. Their records showed lower death rates from suicide in 1945 than in 1944 for each of the first four months of the year. However, for the period beginning with May 1945, the month of victory in Europe, through September (the latest month with available data), the death rate from suicide was higher than for the same period of 1944. The differences were greatest in May and in September, the first month of peace after the victory in Japan. This situation conforms with experiences found in connection with World War I, when it was observed in a number of countries that mortality from suicide was low during the period of war, but rose after hostilities were over.

There were 13,725 deaths from suicide in the U.S. during 1943 (the latest year with complete records), the death rate being 10.2 per 100,000 population. This may be compared with corresponding figures of 12.0 for 1942, 12.9 for 1941, and 14.3 for 1940. Canada, in 1944, had 730 deaths from suicide and a rate of 6.1 per 100,000; the rate for 1943 was 6.4. In England and Wales, there were reported 3,759 deaths from suicide during 1944, that is, a death rate of 8.9 per 100,000; this may be compared with a rate of 9.1 for the year 1943.

A study of the reasons given for attempted suicide (*Statistical Bulletin* of the Metropolitan Life Insurance company, Feb. 1945) using records for Detroit in 1942 and 1943, showed that among men, nearly 40% of the attempts (whether successful or not) were motivated by ill-health, about 30% by domestic difficulties but only 4% by love affairs. Among women, domestic difficulties caused about 50% of the attempts, ill-health caused about 20% and love affairs somewhat more than 10%. Of the attempts made by men, about half were successful where the motive was ill-health, about one-seventh in cases with family difficulties and about one-tenth in love affairs. The proportions of successful attempts by women were: one-quarter in cases of ill-health, one-fiftieth in cases of domestic difficulties and only one in 114 for love affairs.

Mortality from suicide is much lower among the married than among the single, widowed or divorced (U.S. bureau of the census, *Vital Statistics—Special Report*, Vol. 23, No. 7, Nov. 1945). U.S. data for 1940 show that among males, the single had a death rate 66% greater than the married, while the excess for the widowers was even greater (198%) and the divorced had the greatest excess (292%). The excesses in mortality for women followed the same pattern, but at a lower level.

Single women had a mortality 38% in excess of the married, widows 63% and divorced women 261%.

In 1943, white males in the U.S. had a death rate from suicide of 16.4 per 100,000 population, white females had a rate of 5.9, Negro males 4.8 and Negro females 1.3. There was only one suicide under ten years of age—a white male—but there were 58 suicides of children 10 to 14 years old. The suicide death rate rose continuously with advance in age to a level of 31.3 per 100,000 at ages 75 and over.

BIBLIOGRAPHY.—U.S. Department of Commerce, Bureau of the Census, *Vital Statistics—Special Reports* (issued irregularly) and *Annual Reports of Vital Statistics*; Metropolitan Life Insurance Company, *Statistical Bulletin* (issued monthly). (A. J. Lo.)

**Sulphur.** Mine production of crude sulphur in the United States increased to 3,604,337 short tons in 1944, after having dropped from 3,875,968 tons in 1942 to 2,843,440 tons in 1943. Shipments were 3,308,306 tons in 1943 and 3,941,373 tons in 1944, the excess over production cutting stocks to 3,920,000 tons. In the first three quarters of 1945 both production and shipments continued to increase, the former to 3,079,151 tons and the latter to 3,558,341 tons, increases of 18% and 19% respectively over the same period of 1944.

In Canada the total output, including elemental sulphur and the sulphur content of pyrite concentrates and of sulphuric acid made from them, declined from 257,515 short tons in 1943 to 248,088 tons in 1944. The preliminary estimate of output in 1945 showed a further decline to 245,859 tons.

Production in Sicily, the world's second largest producer in normal conditions, was badly disorganized by World War II. The usual prewar output of 350,000 to 500,000 short tons dropped steadily during the war, to only 10,385 tons in the fiscal year ending July 31, 1944.

World production was estimated by the U.S. bureau of mines at 4,480,000 short tons in 1942, 3,360,000 tons in 1943 and 3,920,000 tons in 1944. (G. A. Ro.)

**Sumatra:** see NETHERLANDS COLONIAL EMPIRE; NETHERLANDS INDIES.

**Sunday Schools.** The World's Sunday School association is a federation of national and international councils of religious education in 52 countries. Its president in 1945 was Sir Harold Mackintosh, one of its vice-presidents Madame Chiang Kai-shek and the chairmen of its administrative committees were J. Arthur Rank in Great Britain and Judge Lewis L. Fawcett in North America. A sponsoring committee for its postwar program of reconstruction was headed by Major Edward V. Rickenbacker.

On Dec. 14 the association issued an appeal endorsed by President Truman, King George VI, President Chiang Kai-shek, Queen Wilhelmina, King Christian X, King Gustav V and King Haakon VII which declared that a just and enduring peace "must rest upon the solid foundations of strong moral and spiritual character. . . . Only if the Church fulfills its teaching mission will future generations be blessed by the peace for which this generation is planning and praying."

The Sunday School board of the Church of Christ in Japan asked for information, literature and religious films, "anything that will show the Japanese children that America is a good friend and neighbour to them, who have been taught in these years by the militarists and nationalists that the Americans were demonic enemies." Active steps were taken toward the rehabilitation of Sunday school work in China and Korea; a Christian Youth movement was organized in South Africa; and a Congress of the Latin American Union of Evangelical Youth, with representation from nine countries, was planned for Havana in Aug. 1946.

The International Council of Religious Education, representing 40 Protestant denominations of the U.S. and Canada, under the presidency of Harold Stassen, authorized a comprehensive revision of the English Bible upon which a committee of scholars had been working from 1937. The revised standard version of the New Testament was scheduled for publication on Feb. 11, 1946. The revision of the Old Testament was to be published in 1949. (See also CHURCH MEMBERSHIP.)

(L. A. We.)

**Superphosphates.** Increased demand for fertilizers raised superphosphate production in

the United States from 6,292,955 short tons in 1943 to 6,692,368 tons in 1944. Sales of phosphate rock to producers of superphosphates in 1944 were 4,123,027 tons, or 69% of the total sales. (G. A. Ro.)

## Supreme Court of the United States.

The cases decided in 1945 were predominantly labour, taxes and business regulation. It was a term characterized by vigorous dissents and numerous five-to-four decisions. The split in the higher court indicated the continuing digressions from the beaten path of conservatism.

The resignation of Justice Owen D. Roberts gave the court a more liberal term. Justice Roberts, long aligned with the majority members of the court, became during the last five years of his 15-year tenure an "extreme dissenter," having written dissenting opinions to some 166 cases. These were in the main based on his view that the majority justices were too liberal in their interpretation of statutory language. His philosophy may be summarized from one of his last dissenting opinions in the Associated Press case (*see below*) in which he said, "For myself, I prefer to entrust 'regulatory legislation of commerce' to the elected representatives of the public instead of freezing in the decrees of courts less responsible to the public will."

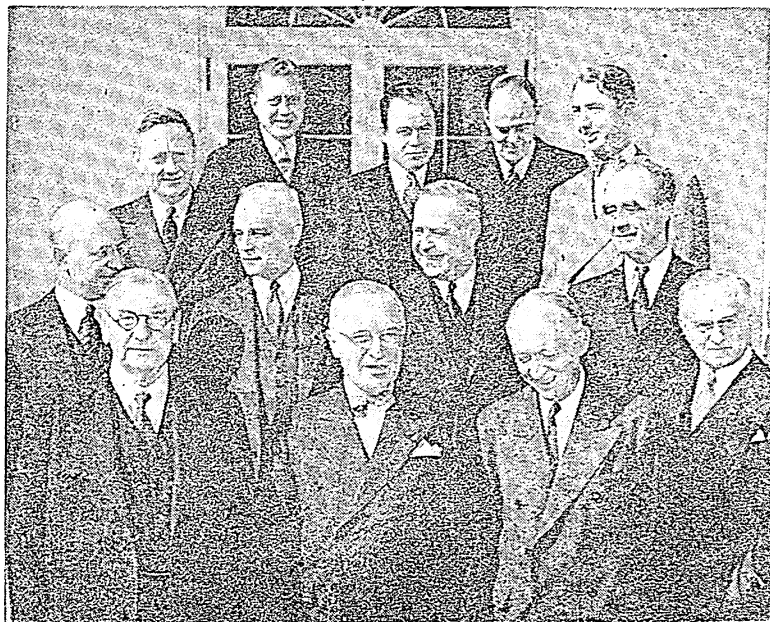
To succeed Justice Roberts, the president appointed the Hon. Harold H. Burton, Republican senator from Ohio. His record in congress, on the whole, favoured a liberal approach toward the continuation of government controls, and at the same time, restricting certain activities of the labour unions (as in his co-authorship of the Burton, Hatch and Ball labour bill).

Justice Robert Jackson, appointed by the president to prosecute the nazi war criminals on behalf of the United States government, took a leave of absence from the bench.

Number of Opinions, U.S. Supreme Court, 1944-45 Term

	Favourable to government	Against government
Federal criminal cases not including those arising out of war . . .	3	6
Federal war cases . . .	4	2
Federal public contracts cases . . .	3	1
Federal miscellaneous cases . . .	5	5
State tax cases . . .	5	2
State regulation cases . . .	5	3
State criminal cases . . .	4	3

President Truman and members of the U.S. supreme court in 1945, during the latter's annual call on the president. Left to right, bottom row: Chief Justice Harlan F. Stone; President Truman; Associate Justices Hugo Black and Felix Frankfurter. Middle row: Associate Justices Stanley F. Reed, Harold H. Burton, Wiley Rutledge and Frank Murphy. Top row: Associate Justice William O. Douglas; Charles Elmore Cropley, clerk; J. H. McGrath, solicitor general; Thomas E. Waggaman, marshal; Attorney General Tom C. Clark. Associate Justice Robert H. Jackson was absent





There was a total of 119 cases decided in the 1944-45 term, 77 favourable to the government and 42 against the government. Federal regulation cases led the list, 20 for the government and 7 against; federal taxes were second, with 17 for the government and 8 against. Labour, a close third, was 11 for the government and 5 against. Other cases are listed in the table.

Outstanding cases of the term are briefly considered below:

**Business Regulation.**—Few organizations can any longer claim immunity from the antitrust laws. The Associated Press was found to have violated the antitrust law by provisions of its bylaws which denied membership to its applicants competing in the same "field" in a city with existing members. The restraints on trade in news by the Associated Press were no less than those considered within the ban of the Sherman act with reference to combinations to restrain trade outlets in the sale of tiles, enamelled iron ware, lumber, women's clothing or motion pictures. (*Associated Press v. U.S.*)

Motion-picture theatre operators were found guilty of violating the antitrust law in connection with the sale of film rights. The court sustained the decree enjoining the exhibitor from making franchises with certain distributors for the purpose of maintaining their theatre monopolies and preventing independent theatres from competing with them. Since congress had declared that the rule of trade and commerce should be competition, not combination, the court could not refuse to sustain the decree merely because "by some other measure of the public good the result may not seem desirable." (*U.S. v. Crescent Amusement Co.*)

Nor would the court sanction the violation of the antitrust law on the pretext of complying with fair-trade laws. Under the guise of these laws, retail dealers in alcoholic beverages agreed to patronize only those purchasers who made price maintenance contracts and supplied products solely to the retailers observing such contracts. Both the federal and state fair-trade acts expressly provide that they shall not apply to price maintenance contracts among producers, wholesalers and competitors. (*U.S. v. Frankfort Distilleries.*)

Major companies in the glass container industry violated the Sherman Antitrust act by restricting their licences to manufacture and use patents controlling glassmaking machinery. The manufacturers were required to license under their patents all applicants on reasonable terms at uniform reasonable royalties and existing licensees were required to remain as such on the reasonable rental and royalty basis as prescribed by the district court or repudiate their leases and their rights against their licensors' receiver appointed by the district court. (*Hartford-Empire Co. v. U.S.*)

The supreme court confirmed the authority of the Federal Trade commission to prohibit basing point pricing systems under which delivered prices of products were based upon an artificial rather than actual-place-of-shipment basis. Under this method favoured customers were permitted to obtain products at old low prices after general price increases had become effective. Since allowances were not due to the differences in cost of manufacture, sale or delivery, they were discriminatory as violations of Robinson-Patman act. (*Corn Products Refining Co. v. FTC; FTC v. A. E. Staley Mfg. Co.*)

The court approved the power exercised by the Federal Power commission in ordering reduction in natural gas rates to determine the company's operating expenses on the basis of its actual costs incurred in producing gas piped by it. There was no abuse of discretion by the commission in refusing to make allocation of costs between the business subject to regulation and that not subject thereto. (*Panhandle Eastern Pipe Line Co. v. Federal Power Commission.*)

**Civil Rights.**—The supreme court ruled that Missouri denied due process

of law to a defendant accused when it failed to advise him as to his right to counsel on trial for a capital offense. The court pointed out that "one who was not protected by counsel, who did not waive his right to counsel and who was ignorant of his right to demand counsel" is one of the class which the law protects. The point was more significant since punishments for murder in the first degree, second degree or manslaughter are different, and the differences are governed by rules of construction meaningful to those trained in the law, but unknown to the average layman. (*Tompkins v. Missouri.*)

It affirmed the death penalty imposed for violation of the federal kidnapping act even though the injuries inflicted upon the kidnapped person were not permanent and had healed at the time sentence was imposed. The act that authorizes the death sentence when recommended by a jury "provided that the death sentence shall not be imposed by the court if prior to its imposition the kidnapped person has been liberated unharmed." (*Robinson v. U.S.*)

It set aside the deportation of Harry Bridges, west coast labour leader, on the ground that there was not sufficient evidence to show that he was "affiliated" with an organization advocating the overthrow of the United States government. By "affiliation," the court explained, is meant "assisting in the enterprises of an organization, securing members for it, taking part in meetings organized and directed by or on behalf of the organization." "The associations which Harry Bridges had with various communist groups seem to indicate no more than co-operative measures to attain objectives which were wholly legitimate." (*Bridges v. Nixon.*)

State police officers who, in connection with the arrest of a Negro, beat the prisoner to death, were held to be subject to prosecution under the federal civil rights law. (That statute makes it a crime for a person under authority of law to deprive a person of the rights, privileges or immunities secured to him by the constitution.) In making the arrest, the court concluded, the officers were acting under the authority of law, since it was their duty under Georgia law to make the arrest. (*Saens v. U.S.*)

The court refused to invalidate a Texas court's conviction of a Negro for murder solely because only one Negro appeared on a grand jury panel of 16. There was no evidence of an attempt, reasoned the court, to discriminate against the Negro, nor did the fact that the number of Negroes on the panel was not entirely proportionate to the eligible white persons in itself show any discrimination. (*Akins v. Texas.*)

The New York civil rights law which provides that no labour organization may deny a person membership because of race, colour or creed was deemed a proper exercise of the states' police power. A federal postal employees association was not denied due process and equal protection of the law when it was included among the labour organizations subject to the law against discrimination. The 14th amendment was adopted to prevent state legislation designed to perpetuate discrimination on the basis of race or colour. (*Railway Mail Association v. Corsi.*)

**Labour.**—Unions were held liable under the antitrust laws when they combined with nonlabour groups to restrain interstate trade. (*Allen-Bradley Co. v. Local Brotherhood of Electrical Workers.*) Such restraints when limited to labour groups, however, still enjoy absolute immunity from prosecution regardless of the extent of the monopoly and the degree of urging their "conspiracy" effects. (*Hunt v. Crumbock.*)

Labour was vastly strengthened when states which sought to curb the activities of union organizers were rebuffed on the ground that such curbs constituted restraints of free speech. (*Thomas v. Collins; Hill v. Watson.*)

In the absence of special circumstances, company rules barring solicitation, distribution of literature and wearing of union insignia on company premises (on the employees' own time) were outlawed on the ground that such restrictions constitute unlawful interference with employees' statutory rights. (*Republic Aviation Corp. v. NLRB; NLRB v. Le Tournau Co. of Georgia.*) Company rules against employee activity on their own time on company property were likewise barred where their effect was to restrain union activity. The National Labor Relations board's cease and desist order was held applicable to "successors and assigns" of a company as well as to the company itself. (*Regal Knitwear Co. v. NLRB.*)

The employer of approximately 5,000 workers, having offered to increase wages without conferring with the bargaining agency representing some 30 bushmen, was found to have violated the Wagner act since its action constituted an attempt to undermine the union. (*May Department Store Co. v. NLRB.*)

In the realm of wage and hour regulation, employees enjoyed an almost perfect score in the application of the law and the computation of overtime. The United States supreme court extended the application of the Fair Labor Standards act to pieceworkers (*U.S. v. Rosenwasser*), building service employees (*Borden v. Borella*), and to warehouse workers of a retail chain store system, even though the employees of the local unit might be exempt (*A. H. Phillips v. Walling*); and it sustained the wage-hour administrator's power to ban homework in an industry in order to effectuate a wage order. (*Gemsco Inc. v. Walling; Maretzo v. Walling; Guiseppe v. Walling.*)

The court broadened the concept of time regarded as having been worked by including, in certain instances, travel time. (*Jewel Ridge Coal Corp. v. Local No. 6167 U.M.W.*) Nor would it permit an employee to be bound by a waiver of his claim to unpaid overtime where no bona fide dispute existed as to liability, but it denied interest on the collectible amount. (*Brooklyn Savings Bank v. O'Neil; Dize v. Maddrix; Arsenal Building Corp. v. Greenberg.*)

The glimmer of hope, entertained by employers, that overtime compensation provisions of the wage-hour law do not prohibit contracts between employees and employer for all-inclusive and regular and weekly salaries, practically vanished in 1945. As a result of two decisions, the possibility of evolving such a plan for computing overtime was severely diminished. The two such plans that reached the supreme court were invalidated. In the first, hourly rates established by contract for overtime purposes did not reflect the amount employees actually received. (*Walling v. Youngerman-Reynolds Hardware Company, Inc.*) In the second, rates fixed by contract with a union failed to consider incentive bonuses, earnings resulting from piecework or higher rates paid for non-incentive work. Extra wages may not be segregated into regular and

overtime portions to create artificial compliance. (*Walling v. Harnisch-Jeger Corp.*) (See also LAW.)

**Members of the Court.**—The United States supreme court was composed in 1945 of the following members (dates indicate year appointment was confirmed by the senate): chief justice, Harlan F. Stone (associate justice 1925, chief justice 1941); associate justices Hugo L. Black (1937), Stanley F. Reed (1938), Felix Frankfurter (1939), William O. Douglas (1939), Frank Murphy (1940), Robert H. Jackson (1941) (on leave of absence 1945), Wiley B. Rutledge (1943) and Harold H. Burton (1945).

**Surgery.** The treatment of burns occupied the attention of surgeons and investigators in 1945 because of the high mortality rate which followed extensive burns. As originally shown by F. A. Collier and his colleagues in an experimental study, whole blood is essential to maintain life in the severely burned animals, although plasma and saline solutions will save those less severely burned. The validity of these experimental observations was substantiated in 1945 by clinical observations in humans. W. E. Abbott and his co-workers showed that, in the severely burned patient, transfusion of blood is necessary to maintain life and that in addition to the administration of whole blood intravenously, the patient should be given salt solution by mouth. E. I. Evans and I. A. Bigger also showed that additional blood is necessary in the severely burned individual. In addition to burns, the importance of whole blood became appreciated in the treatment of the severely injured. Shortly after the outbreak of World War II it was felt that plasma or other blood substitutes might replace blood in the severely injured casualties. It was soon learned that nothing could take the place of blood except as a temporary substitute. Champ Lyons showed that even the chronically ill patient, who because of prolonged infection or other debilitating disease, is in a state of chronic shock, requires whole blood. Many of these patients show normal values for red blood cells and haemoglobin and yet they are actually anaemic because of the marked decrease in the amount of the fluid constituents of the blood, making the cells of the blood appear to be normal. Only by the administration of large amounts of blood can these patients be prepared for major surgical procedures.

In the field of vascular surgery, many advances were made in 1945. In Banti's disease in which the blood pressure within the portal vein is increased, changes occur in the spleen, which give rise to a collection of fluid within the peritoneal cavity. By making an anastomosis between the splenic and the renal veins as suggested by A. O. Whipple the symptoms can be relieved. Of great importance, also, is the relief of symptoms in children who have congenital heart conditions, resulting in cyanosis. The shunting around of these anomalies by anastomosing the pulmonary and subclavian arteries was successfully performed by A. Blalock. R. E. Gross and Blalock also successfully removed an obstruction of the aorta, known as coarctation of the aorta, and reanastomosed the ends of this large vessel.

In order to decrease the acidity in patients with stomach ulcer in whom the acidity plays a very definite causative role, L. R. Dragstedt suggested the division of the vagus nerves above the diaphragm. This is undoubtedly an adjunct in many cases in which stomach ulcers are resistant to other types of treatment, and particularly in the highly strung individual.

In 1945, a great deal was done on the use of substances to control haemorrhage, particularly when an uncontrollable ooze results. Although fibrin was used previously, especially when combined with thrombin which causes clotting of the blood, two other substances were suggested. One is an oxidized cotton or cellulose, which when combined with fibrin acts as a blood controlling tampon. Because it is oxidized it can be left in the body and will be absorbed. V. K. Frantz and her co-workers showed that oxidized cellulose is an excellent haemostatic agent and yet can be left in place. In addition to fibrin foam and oxidized cellulose, an absorbable gelatin sponge when combined

with thrombin is an excellent agent for controlling bleeding. C. Pilcher and W. F. Meacham demonstrated that this substance could be used on the surface of the brain to control bleeding and could be left in place without producing irritation. A new material for dressing of wounds was suggested by N. Owens. Surgical rayon is ideal for immediate contact with burns, granulating areas and surface wounds. It decreases the amount of pain when dressings are changed and permits adequate drainage. It is much preferred to ordinary gauze. A new antibacterial agent, streptomycin, was being produced in sufficient quantities to be used clinically. Its great value was in the control of certain infections which did not respond to the sulfonamides and penicillin, and it was of particular value in the control of certain urinary infections which are resistant to most other types of treatment. Streptomycin was used very successfully in paraplegics who have had spinal injuries and are paralyzed below the point of injury. These individuals are particularly susceptible to kidney infections which resist treatment. Streptomycin controlled the infection satisfactorily. (See also ANAESTHESIA; MEDICINE.)

**BIBLIOGRAPHY.**—C. A. Moyer, F. A. Collier, V. Iob, H. H. Vaughan and D. Marty, "A Study of the Interrelationship of Salt Solutions, Serum, and Defibrinated Blood in the Treatment of Severely Scalded Anesthetized Dogs," *Ann. Surg.*, 120:367-376 (Sept. 1944); W. E. Abbott, A. Pilling, G. Griffin, J. W. Hirshfield and L. Meyer, "Metabolic Alterations Following Thermal Burns," *ibid.*, 122:678-692 (Oct. 1945); E. I. Evans and I. A. Bigger, "The Rationale of Whole Blood Therapy in Severe Burns," *ibid.*, 122:693-705 (Oct. 1945); A. O. Whipple, "The Problem of Portal Hypertension in Relation to the Hepatosplenopathies," *ibid.*, 122:449-475 (Oct. 1945); A. Blalock and H. B. Taussig, "The Surgical Treatment of Malformations of the Heart in Which There is Pulmonary Stenosis or Pulmonary Atresia," *J.A.M.A.*, 128:189-202 (May 1945); R. E. Gross, "Surgical Correction for Coarctation of the Aorta," *Surgery*, 18:673-678 (Dec. 1945); L. R. Dragstedt and P. W. Schafer, "Removal of the Vagus Innervation of the Stomach in Gastroduodenal Ulcer," *Surgery*, 17:742-749 (May 1945); V. K. Frantz and R. Lattes, "Oxidized Cellulose-Absorbable Gauze (Cellulosic Acid)," *J.A.M.A.*, 129:789-801 (Nov. 1945); C. Pilcher and W. F. Meacham, "Absorbable Gelatin Sponge and Thrombin for Hemostasis in Neurosurgery," *Surg., Gynec. & Obst.*, 81:365-369 (Oct. 1945).

**Surinam** (DUTCH GUIANA). A Netherlands colony in north-eastern South America between British Guiana and French Guiana. Area, 54,291 sq.mi. Pop., Jan. 1, 1944, 189,484, including approximately 1,000 Dutch, 1,000 other Europeans and Americans, 50,000 British Indians, 35,000 Javanese, 2,400 Chinese, 19,000 bush Negroes and 2,600 aboriginal Indians. The chief cities are the capital, Paramaribo (pop., 60,723), Nieuw Nickerie (5,000), Coronie (4,500), Moengo (1,400). The governor is appointed by the queen but a measure of self-government had existed from 1866. Dutch is the official language. Governor (1945): Dr. J. C. Brons.

**History.**—The colony's chief problems in 1945 were those of reconversion from the World War II period. It was announced late in the year that a committee headed by a former governor would arrive in Surinam early in 1946 to study financial and economic conditions for the Netherlands government; one of the chief problems to be discussed was that of a possible adjustment in value between the Surinam and Curaçao guilders. The colonial government late in 1945 studied plans for the expenditure of 15,000,000 florins for public works over a five-year period.

**Education and Religion.**—In 1943 there were 43 public schools with 5,583 enrolled, and 72 private (mostly denominational) schools with 12,666 enrolled.

All religious sects are free. Church memberships were reported Jan. 1, 1944, as follows: Mohammedan, 43,861; Hindu, 36,255; Moravian Brethren, 34,869; Roman Catholic, 32,539; Reformed and Lutheran, 13,578.

**Finance.**—The monetary unit is the florin (or guilder), valued in 1942 at approx. 53 cents U.S. The position of the florin tended to be weakened in mid-1945 because of devaluation in the Netherlands with respect to the pound sterling. Prior to

1941 the home government had to subsidize the colony and hence reserved the right to review its budget; during and after that year the budget had been balanced. Estimated revenues for 1945 were 8,171,000 florins (1944: 11,619,000) and expenditures were 8,166,844 florins (1944: 11,602,000). Actual revenues in the first half of 1945 were 4,656,929 florins, the chief items of which were import duties and income taxes. The debt in 1941 was 927,500 florins. Notes in circulation Jan. 1, 1945, totalled 11,735,000 florins. The reserve of gold coin and bullion June 30, 1945, was 6,622,395 florins. A serious shortage of dollar exchange existed early in 1945.

**Trade.**—Exports and imports for 1944 were valued at 6,880,780 and 15,645,344 florins, respectively; corresponding figures for 1943 were 14,173,267 and 22,268,102 florins. Exports of bauxite (the most important product) for the first 11 months of 1945 were 625,000 metric tons; the future of bauxite exports was uncertain because of the end of World War II; large stock piles existed at Paramaribo. Wartime trade had shifted largely to the U.S. because of the disruption of the previously normal trade with the Netherlands.

**Communication.**—Steamship connections exist with the United States, Venezuela and the West Indies, although sailings continued irregular through most of 1945. Air service is supplied by Pan American Airways and K.L.M. (Royal Dutch Air Lines). Pan American Airways curtailed certain of its services in 1945 but K.L.M. was understood to be planning a considerable postwar expansion, partly based on Surinam. Approximately 107 mi. of railway exist, although service on a portion of the lines was abandoned in 1945 because it was not self-sustaining. The colony has 211 mi. of improved roads. The 1945 road budget was 320,000 florins. Communication in the interior depends largely on the rivers; dredging projects in the lower reaches of the rivers were being planned or considered for the Surinam and other streams in 1945.

**Production.**—Aside from the mining of bauxite and gold, agricultural and forest products are the chief items in Surinam's economy. The cultivated area is estimated at only 65,000 ac. Bauxite production in the first quarter of 1945 was 131,696 metric tons, of which 128,257 tons were exported. Gold production in the first half of 1945 was 83,561 grams as against 69,304 grams for the same period of 1944 and 177,943 grams for all of 1944. Sugar and rice production were both expected to increase in 1945; production of paddy rice for 1945 was estimated at 35,200,000 kg. and the total crop at 40,905,000 kg. Paddy rice production in 1944 totalled 34,580,000 kg. Sugar production in the first half of 1945 was 1,932 metric tons (all of 1944: 3,567 metric tons). Balata production in the first ten months of 1945 was 275,531 lb. as against 325,150 lb. for the corresponding period of 1944. Timber resources include mora, possum, cedar and greenheart but these are not exploited commercially.

**BIBLIOGRAPHY.**—*South American Handbook* (1945); *Foreign Commerce Weekly*. (R. H. FN.)

**Surplus Property Administration:** see SURPLUS PROPERTY DISPOSAL; WAR MOBILIZATION AND RECONVERSION, OFFICE OF.

**Surplus Property Disposal.** Preliminary estimates at the end of 1945 indicated that, with the coming of victory, the U.S. government had entered into what was probably the world's largest merchandising enterprise. By the end of the year a total of nearly \$13,000,000,000 (original cost) of aircraft, industrial plants, machines, raw materials, consumers' goods and property of practically all kinds had been declared surplus. The movement of govern-

ment-owned property into surplus rose tremendously. Of the total declarations, about \$11,500,000,000 was declared surplus during 1945 alone, and more than four-fifths of this huge amount became surplus in the last third of the year.

Surplus property is disposed of under the Surplus Property act of 1944. Disposition may take place in different ways. During 1945, \$2,600,000,000 of surplus property was disposed of by sale or other means. Property originally costing \$950,000,000 was sold for a total price received of \$390,000,000. Scrapping and salvaging of nonsalable aircraft accounted for more than \$1,600,000,000, while the balance of disposals comprised abandonments, donations and transfers without reimbursement. In addition to disposals, almost \$140,000,000 of industrial plants and equipment, aircraft and other property was leased.

Taking stock at the end of the year, officials found that the government had on hand approximately \$10,000,000,000 of surplus property, measured in original cost. Much of this was unsalable. In particular, about 30% of the total inventory consisted of nonsalable aircraft. A scrapping program was under way to reclaim from these aircraft, over a period of years, the secondary aluminum and other materials they contained.

Another 25% of year-end inventory was in plants and in industrial real property. Plant and industrial equipment, machine tools, general-purpose machinery, raw and semiprocessed materials and other capital and producers' goods accounted for 10%. Surplus consumer goods amounted to more than 7% of the total surplus inventory. Automotive vehicles, chiefly trucks; apparel, footwear, textile fabrics, various kinds of electrical equipment and household fixtures were outstanding in this classification.

All other surplus property available for disposal in the United States (including territories and possessions) totalled \$200,000,000, major items being marine property and manufactured foods. Large-scale declarations of real estate as surplus had not yet begun. A substantial portion of the total surplus inventory was overseas, totalling approximately \$1,400,000,000.

Shortly after the end of 1945 the Surplus Property administration estimated that more than \$26,000,000,000 of property would have been declared surplus by July 1, 1946. This was nearly four times the total surplus resulting from World War I. All these figures were in original cost except the price received, which was the equivalent of cash proceeds.

Organizationally, surplus property activities in 1945 reflected the increasing importance of disposals. On Jan. 2 the Surplus Property board, created by the act, commenced active operations although all three members of the board were not confirmed by the senate until later in the month. Hon. Guy M. Gillette was chairman of the board and the other two members were Hon. Robert A. Hurley and Col. Edward H. Heller. The board immediately set to work preparing basic regulations, utilizing what had been previously accepted in 1944 by the Surplus War Property administration, an organization set up under executive order No. 9425 of Feb. 19, 1944. When the war ended in Germany, the basic outlines of the World War II surplus property disposal were taking shape. The board was the general supervising agency, charged with the development of broad disposal policies. Actual disposals were carried on by different federal agencies designated by the board for that purpose and chosen with regard for their previous experience in property management and available staffs. Although subsequent actions had modified the disposal system originally established by the board, essentially the same disposal system existed at the end of the year. On Dec. 31 the major disposal agencies were:

- Industrial plants—War Assets corporation, a Reconstruction Finance corporation subsidiary
- Capital and producers goods—War Assets corporation, an RFC subsidiary
- Aircraft—War Assets corporation, an RFC subsidiary
- Consumers' goods—War Assets corporation, an RFC subsidiary
- Maritime property—U.S. maritime commission
- Agricultural commodities and food—department of agriculture
- Houses and housing facilities—National Housing agency
- Farm and forest land—Farm Credit administration (department of agriculture)
- Mineral and grazing land—General Land office (department of interior)
- Community facilities—Federal Works administration
- U.S. surplus property located in foreign countries—army-navy liquidation commissioner.





RENOVATED JEEPS parked at a U.S. depot in England in 1945. They constituted part of the vast accumulation of surplus property throughout the world which was awaiting eventual disposition

On Oct. 1, the board was replaced by a one-man surplus property administrator, W. Stuart Symington, pursuant to congressional authorization. The new Surplus Property administration possessed the same functions as its predecessor, the Surplus Property board. The work of preparing basic policy went ahead rapidly and by the end of the year most of the areas of the act had been covered by policy regulations.

The act authorizes that veterans be given a preference to purchase surplus property for the establishment, operation and maintenance of their own enterprises. This preference was drastically liberalized by removing an arbitrary limit to purchases and by making it possible for veterans to buy initial stocks of goods for resale or to buy property necessary to their employment and by permitting direct purchases from disposal agencies. The basic problem involved in all surplus disposal programs—that of moving vast quantities of goods through the limited outlets represented by the disposal agencies' field offices—is particularly hampering when thousands of different items are being sold to more thousands of veterans. The veteran might purchase through the Smaller War Plants corporation, under Section 18 of the statute, or direct from the disposal agency upon certification of eligibility from the Surplus War Property commission. (Early in 1946 this function was transferred to the RFC.)

The Surplus Property administration also acted to encourage the speedier movement of contractor inventory and small lots of scrap, salvage and other excess property from the owning agencies direct into private production. On a larger scale was another authorization by which government property built on privately owned land might be sold directly by the owning agency. This complemented the option previously given private operators to buy excess government machinery, tools and other industrial equipment in their plants, thereby assisting civilian production and employment.

By a third action the Surplus Property administration extended the existing pricing formula for surplus machine tools and general-purpose machinery so as to cover types of equipment in various stages of use extending back to 1920, and to include equipment not covered before.

The act grants to federal agencies first choice to purchase surplus property; to state and local governments, second choice. A very great problem in the administration of this preference was in overcoming the delay which its exercise necessarily imposed on other disposals. Consequently, there was established a system of reserves by which items estimated to be required by preferential purchasers might be held for their inspection while other surplus goods might be disposed of immediately. A system of local offices for the administration of this preference was also commenced.

By another authorization to the disposal agencies, nonprofit educational and public health institutions were given opportunity to buy at a discount surplus property appropriate to their needs. By this means, schools, colleges, hospitals and similar institutions might provide themselves with new or additional operating equipment and plant from property that was available in surplus.

A pricing policy was established for consumers' goods, designed to channel as much as possible of surplus consumer items into retail stores, directly or through wholesalers, for resale while the market was relatively good.

Other basic policies involved disposal programs for the sale of surplus government airports to local communities, the encouragement of community leaders to co-operate in the disposal of adjacent surplus real property, the stock-piling of critical materials for national defense purposes and the establishment of a compliance system to ensure conformity to the provisions of the act.

(S. F. R.)

**Suzuki, Kantaro**, BARON (1867- ), Japanese statesman, was born Dec. 24 in Osaka, and was graduated from the Japanese naval academy in 1887. He

served as vice-minister of the Japanese navy, commandant of the Kure naval station, commander in chief of the combined fleet, chief of the navy general staff and war councillor. In 1929 he was named grand chamberlain and privy councillor, concurrently. Following his resignation as grand chamberlain in 1936, he was made a baron. That same year, Suzuki, pre-eminently a "navy" man, was wounded in a revolt staged by young Japanese army officers, because he allegedly was antagonistic toward the army extremists who dominated the Tokyo government. In Aug. 1944, when the Japanese military were largely discredited by their successive defeats in the Pacific area, Suzuki was "pushed" to the fore as president of the privy council. After the fall of the Kuniaki Koiso cabinet (April 5, 1945), Suzuki formed a new government. On April 14, although his country was at war with the United States, Suzuki expressed his "profound sympathy" to the people of the U.S. on the death of President Roosevelt. On July 29 Suzuki rejected the U.S.-British-Chinese surrender terms formulated at the Berlin conference. However, when the emperor accepted the surrender terms (Aug. 15), Suzuki and his cabinet resigned to make place for men "with fresh ideas." In an interview later, he was reported to have declared that he sounded out the soviet union in June 1945 on the possibility of peace but that this "feeler" was ignored by the soviet union.

**Swains Island:** see PACIFIC ISLANDS, U.S.; SAMOA, AMERICAN.

**Swaziland:** see BRITISH SOUTH AFRICAN PROTECTORATES.

**Sweden.** A democratic monarchy of northern Europe. Area, 173,341 sq.mi.; pop. (Dec. 31, 1944) 6,597,348. Capital, Stockholm (as of Dec. 31, 1945) 671,525. Other principal cities (Dec. 31, 1944), were Göteborg (Gothenburg) (296,289), Malmö (167,885), Norrköping (75,792), Hälsingborg (65,357), Örebro (58,590). Religion, Lutheran Christian. Ruler in 1945: King Gustavus V. Prime minister: Per Albin Hansson.

**History.**—The wartime coalition government was dissolved in July 1945, though Per Albin Hansson, prime minister from 1932 (with a brief interruption in 1936), retained his post. The new cabinet was wholly Social Democratic. Östen Undén, chancellor of the universities, pro-Allied in sympathy and broadly experienced by work in the League of Nations, became foreign minister; Gunnar Myrdal, professor of economics, legislator, writer on the American Negro problem, became minister of commerce. Many of the former ministers remained, among them Ernst Wigforss in finance, Gustav Möller in social affairs, and Axel Gjöres in civilian supply. In international relations there was obviously a strong desire to enter and work with the United Nations, but without neglecting traditional Scandinavian collaboration. Declarations to this effect at the opening of the Riksdag in October brought overwhelming approval, in which the Swedish communists wholeheartedly joined. Meantime various meetings on common Scandinavian affairs were held in Oslo, Copenhagen and Stockholm, and the Norden society asked for a common citizenship in the Scandinavian countries.

The ending of World War II created an irresistible urge to re-evaluate Sweden's policy of armed neutrality. Documents discovered in Berlin indicated that Hitler had planned an invasion of Sweden in Feb. 1942, but that the Swedes obtained information and instantly mobilized. This, together with the German generals' opinions that Sweden's military strength would require more invasion forces than could be spared from the Russian front caused postponement and eventual annulment of the scheme. More information also became available during 1945 on the large amount of clandestine aid, even in the form of munitions, which was smuggled into Norway, sometimes through the agency of the Swedish frontier guards.

Humanitarian aid given by the Swedes to war victims assumed a great variety of forms. More than 70,000,000 kronor was given to Norway, largely in foodstuffs. Some 225,000 children in Norway were fed daily in 1944-45 by Swedish agencies, but the Quisling government refused offers to take 15,000-20,000 of the children to Sweden and other offers to take in destitute refugees from northern Norway. Several thousand went to Sweden for brief periods after the war was over. From Finland, the Baltic states, Denmark, Norway and other countries, however, 193,000 refugees were given hospitality in Sweden during the early months of 1945, and about 125,000 remained there in the autumn. Government and private sources co-operated to send 900,000 kr. worth of food to Krakow, Poland. Shiploads of food were sent to the Netherlands, and public benefits were held in Stockholm and a "Dutch Week" in Uppsala. In December the government sent 10,000 pairs of children's shoes to France. Raoul Wallenberg was attached to the Swedish legation in Budapest to direct the work of saving Jews in Hungary, and he and a staff of 300 did heroic service there.

Count Folke Bernadotte and the Swedish Red Cross brought 16,000 prisoners of war to southern Sweden from Germany in the first chaotic days of May. Bernadotte served as liaison man in the peace offers of Heinrich Himmler to the western Allies in the days just preceding his own and Germany's final collapse, and wrote an interesting account of the people and events in Germany in the spring of 1945 (see bibliography).

The job of serving as asylum for soldiers and civilians from all northern Europe was not always easy. Sweden risked trouble with Germany by a long-standing policy of abetting the return flight to England of hundreds of U.S. and British aviators forced

down on its neutral territory, in helping to train Danish and Norwegian "police" and in carrying on a regular underground for both refugees and saboteurs. After the war in Europe was over Sweden had to face the unpleasant necessity of returning many an unwilling soldier—especially the 2,700 Balts who had arrived in Sweden in German uniform. Russia demanded them as prisoners of war and in November and December Sweden sent them, but hundreds staged a hunger strike and a few committed suicide. By a decision of November, 8,000 Polish Jews and lesser numbers from other countries were permitted to remain in Sweden and to take employment.

Sweden's industrial peace was broken by the five-month strike of metal workers, involving 125,000 labourers and 700 employers. Settlement was made for an hourly wage increase of about two cents and a piecework increase of 5%, adjustments affecting about one-third of the workers. This was the most long-drawn-out and costly labour dispute in Sweden after the general strike of 1909. There were other slight upward adjustments in wages, but the cost-of-living index was held level from 1942 (when, however, it had risen to 40% more than 1939). Both Prime Minister Hansson and Minister of Commerce Myrdal declared that the government economic policy was fundamentally one of efficiency—that despite a leftist trend business would be left in private hands as long as this system functioned effectively, but that the government would not hesitate to nationalize if it appeared to be a means for achieving greater production.

**Education.**—In 1941-42 there were 529,750 pupils and 25,848 teachers in the regular elementary schools, and 53,868 students in secondary schools. In the five institutions of university grade 8,937 students were enrolled in 1944. The state provided also a large number of special industrial and continuation schools.

**Defense.**—Attainment of the five-year plan for the army and the coastal artillery was almost completed at the beginning of 1945; the navy and air corps programs would take until mid-1947. These long-range plans, separate from current preparedness, were budgeted at 3,800,000,000 kr. The expenditures on regular defense were considerably reduced in the spring of 1945. Defense policy was based on a desire that Sweden should be no military vacuum nor the pawn of any great power. During the year there were launched two 7,000-ton cruisers with special anti-aircraft equipment and "the strongest destroyer in the world," the 1,800-ton "Öland."

**Finance and Banking.**—The monetary unit is the krona (26 U.S. cents at par, 23.86 cents on Nov. 28, 1945). The fiscal year ending in June 1944 left a government deficit of 928,049 kr. (less than half the deficit of 1942). The national debt at the end of 1944 was 10,494,766,812 kr., more than double that of four years earlier. In 1940 there were 28 private banks with deposits of 4,793,477 kr. Gold reserves in Oct. 1945 reached a new peak of \$498,250,000. Riksbank note circulation in Oct. 1945 was \$641,750,000. Commercial bank loans were up to \$1,377,000,000 and deposits to \$1,763,500,000 (Oct.).

**Trade.**—Sweden was fortunately situated economically in comparison with the warring powers, but it nevertheless had to make profound readjustments. Its normally heavy trade with Germany had ceased entirely before the end of 1944. Fearing German action, Sweden on Jan. 28 even halted its "safe-conduct" traffic with the west, and found itself tightly blockaded. Gradually conditions improved, and Sweden prepared for a vast trade expansion. Agreements were made with Poland providing for a loan of 100,000,000 kr., Swedish rebuilding of Polish ports, the rental of 1,300 railroad cars and engines and the export of iron ore and machinery; in return Sweden was to obtain 200,000 long tons of coke and 6,000,000 long tons of coal, but by November only 100,000 long tons of the much needed coal had been delivered.

With other countries trade agreements were pushed vigorously. Reconstruction credits and gifts to other countries totalled nearly 3,000,000,000 kr. (more than \$675,000,000). Among the outstanding credits were: Norway 540,000,000 kr.; Denmark 230,000,000 kr.; Finland 220,000,000 kr.; Belgium 100,000,000 kr. Gifts totalled about 200,000,000 kr. A monetary agreement was made with Great Britain to facilitate commerce, and Sweden reached into the South American field with an exchange arrangement with Argentina whose agricultural products Sweden could well use. The U.S. figured largely in Swedish plans as a replacement of Germany for the supply of structural steel, machinery, textiles and dyestuffs, and many Swedish purchasing missions crossed the Atlantic. Counting on the continuance of such relations the Swedish Inter-Continent Air Line (S.I.L.A.) engaged in trial flights to New York.

Ship losses for Sweden during World War II amounted to 235, with a gross tonnage of 546,000 and a loss of 1,374 lives; besides these, 25 vessels were confiscated by the Germans in European ports. The Swedish shipbuilding program had, however, almost kept pace with the losses and the 1945 merchant marine had 1,555,600 gross tons, only about 5% less than in 1939, and made up largely of highly efficient motor vessels. More than 150 vessels, totalling some 1,000,000 tons dead weight, were ordered from Swedish yards in the early months of 1945, half of them for Norwegian owners.

Imports in 1944 amounted to 1,677,382,000 kr. and exports to 853,396,000 kr. This balance began to shift in 1945 and Sweden was even

PILES OF LOGS in a Stockholm suburb which were to be used as home fuel in the houses lining the street. Because of the shortage of coal in Sweden in 1945, available supplies were reserved for industry





forced to limit exports, especially of forest products.

**Communication.**—On Dec. 31, 1940, there were 10,231 mi. of railroads. By 1943 railway electrification served half the trackage and 85% of freight volume. In 1939 there were 53,787 mi. of highways. Automobiles licensed (Dec. 1944) numbered 81,239. Airways (1939) flew 1,536,000 mi. and carried 60,000 passengers. Telephones (Dec. 31, 1941) numbered 980,000 (about 150 per 1,000 persons), putting Sweden second only to the U.S. in the per capita ratio of telephones. Telegraph mileage was 11,040. There were 1,470,375 licensed radio sets and 35 broadcasting stations.

**Agriculture.**—As of June 1, 1944, the number of horses was 603,857; cattle 2,858,949; sheep 558,290; swine 1,053,865; hens 6,174,517.

Cereal crops in 1944 took 1,442,835 hectares, of which oats used 555,837; vegetables used 3,763,248 hectares; meadows 1,019,010. The cereal crop in 1944 was below normal with 2,313,095 long tons (of which oats was the largest with 730,037 tons); the potato crop was very low at 1,434,574 long tons; the sugar-beet crop about normal at 1,803,350 long tons.

**Forestry.**—In the period 1940–44 more than 6,000,000,000 cu.ft. of timber was cut for fuel, against a normal cut of about 3,000,000,000 cu.ft. Much of the excess cut was useful thinning, but the labour burden was heavy. Export of wood products was down in 1944 to 324,635,000 kr., but climbed in 1945.

**Manufacturing.**—Industrial establishments in 1942 numbered 19,955 and workers 580,773. Values of chief manufactured products (figures for 1941) are shown in the table.

Values of Principal Manufactures of Sweden, 1941

	kr.
Machinery . . . . .	1,359,063,000
Ships . . . . .	206,242,000
Automobiles, etc. . . . .	225,293,000
Electrical apparatus . . . . .	322,101,000
Milling . . . . .	204,102,000
Wood pulp . . . . .	276,578,000
Paper . . . . .	210,206,000
Wood . . . . .	229,167,000
Furniture, etc. . . . .	194,341,000
Yarn, etc. . . . .	204,942,000
Textiles . . . . .	330,326,000
Breads . . . . .	185,659,000
Tobacco products . . . . .	248,055,000

**Mineral Production.**—Production of the leading minerals in 1941 (in long tons) was as follows: iron ore 10,527,889; iron and steel 1,165,593; bar iron and steel 821,547; coal 556,690; copper 11,879; gold 5,950 kg.; silver 23,682 kg.

**BIBLIOGRAPHY.**—Folke Bernadotte, *The Curtain Falls* (1945); Bruce Hopper, "Sweden: a Case Study in Neutrality," *Foreign Affairs*, pp. 435–449 (April 1945); Joachim Joesten, "Phases in Swedish Neutrality," *ibid.*, pp. 324–329 (Jan. 1945); Herbert Tingsten, "Swedish Foreign Policy after the Second World War," *American Scandinavian Review*, pp. 307–312 (Winter 1945). (F. D. S.)

**Sweet Potatoes:** see POTATOES.

**Swimming.** World War II activities were chiefly responsible for the development in 1945 of more proficient swimmers than ever before. Not only did expanding facilities at belligerent army and navy training centres provide greater accommodation for schooling, but practical experience improved the efficiency of teaching staffs, making for speedier progress and better final results. Increasing national and sectional learn-to-swim campaigns contributed to the good work also.

Competition in the warring countries suffered in quality but not in quantity, for although many of the leading contestants were in the service, a larger number of boys and girls engaged in water sports. Fighting men, meanwhile, were afforded the opportunity to participate in Allied championships conducted in various theatres of operations and in frequent less important carnivals and events staged for them at home and abroad.

Because of the chaotic state of transportation in Europe, the Federation Internationale de Natation Amateurs, in control of Olympic and intercountry competition and entrusted with the supervision of world's swimming records, was unable to resume its functions at the end of hostilities as planned. But H. E. Fern, of Great Britain, president and acting secretary, believed it would be possible for the executive bureau, inoperative after the war started, to reconvene some time in 1946.

With the bureau not functioning, national bodies having record claims deferred their presentation. Fern, however, disclosed receipt of vouchers for a men's 400 m. free style relay standard of 3 min. 58.4 sec. by an Argentine team composed of J. M.



ANN CURTIS (left), new 100-yd. titleholder, with Brenda Helser, whom she defeated during the A.A.U. indoor swimming meet at Chicago, Ill., on April 13, 1945

Duranone, A. Yantorno, G. Lingenfelder and F. Neumayer. The listed mark of 3 min. 59.2 sec. was set in 1938 by a U.S. four.

Breast stroke swimmers were credited officially with two record feats. Joseph Verdeur, of the United States, lowered the figures for 200 yd. from 2 min. 22 sec. to 2 min. 21 sec., and Alfred Nakache, of France, those for 200 m. from 2 min. 37.2 sec. to 2 min. 36.8 sec. Leonid Meshkov, of Russia, equalled the tabled time for 200 m., but his exploit was not to be considered, since the soviet was not a member of the F.I.N.A.

(L. DE B. H.)

**Switzerland.** A republican confederation of 22 cantons of west-central Europe, bounded N. and E. by Germany, S. by Italy and W. by France. Flag, white cross on red background. Area 15,944 sq.mi.; pop. (1941 census) 4,260,179. Chief towns: Berne (cap. 129,331); Zürich (333,829); Basle (161,380); Geneva (124,442); Lausanne (92,000). Languages (census 1930): German 2,924,314; French 831,100; Italian 242,034; Romansch 44,204; and others 24,797. President (Jan. 1, 1945) Eduard von Steiger, succeeded on Jan. 1, 1946, by Dr. Karl Kobelt.

**History.**—With the surrender of Germany in May 1945, Swiss conditions began rapidly to improve. Thousands of U.S. soldiers on furlough took advantage of short tours provided by Swiss railways and hotels and thus began to revive one of



Switzerland's greatest sources of prosperity, the tourist trade. The demobilization of the greater part of the Swiss army reduced expenditures, increased manpower for agriculture and industry and made possible the removal of rationing restrictions on tea, coffee, textiles, shoes and some other consumers' goods. The federal government reduced the price of many products in order to keep down the cost of living, which at the end of Sept. was 152.8 (Aug. 1939=100).

**Education.**—Managed locally by the cantons and communities, education is obligatory and free. The seven universities (Basle, Zürich, Berne, Geneva, Lausanne, Fribourg and Neuchâtel) had a total of 9,649 matriculated students in the winter of 1940-41.

**Finance.**—The franc, the Swiss monetary unit, was devalued about 30% in 1936, so that it contained about 200 mg. of fine gold and had in 1945 an exchange value of 23.35 U.S. cents. The Swiss National bank on Dec. 1, 1945, had 4,502,300,000 frs. in gold and 249,200,000 in other assets, with 3,337,100,000 notes in circulation and other sight liabilities of 1,186,100,000.

**Trade and Communications.**—Coal, one of the country's most vital imports, was no longer available from Germany, but this deficiency was partly made good by the arrival of U.S. coal at Genoa, the U.S. having undertaken to supply about 300,000 tons annually, *i.e.*, nearly 10% of the country's requirements. Switzerland remained seriously short of other raw materials, cotton, wool, rubber, copper and lead. Foreign trade during the first nine months of 1945, especially after the end of the war in May, showed a good revival. The monthly average value of imports rose from 38,000,000 frs. in January to 77,000,000 in June and 128,000,000 in September, a nine-month total of 585,000,000 (as compared with a 12-month prewar total of 1,606,900,000 frs. in 1938). The monthly value of exports increased from 29,000,000 in January to 119,000,000 in May and 128,000,000 in September, a nine-month total of 1,001,000,000 (1,316,700,000 in 1938).

In 1945 Switzerland had 3,218 mi. of railway, mostly electrified and three main and three local broadcasting stations.

**FILMS.**—*Children of Switzerland* (Encyclopædia Britannica Films Inc.). (S. B. F.)

**Symington, William Stuart** (1901— ), U.S. government official, was born June 26 in Amherst, Mass. He joined the army during World War I, and after the armistice he attended Yale university, New Haven, Conn., 1919-23. His first job was with the Symington company, a railroad equipment plant owned by his family. He later joined other concerns owned by his family and then entered the radio manufacturing field. He became president of Colonial Radio (1930-35) and of Emerson Electric Manufacturing company in St. Louis, Mo. (1938). On June 7, 1945, Pres. Truman appointed Symington as chairman of the Surplus Property board. On Sept. 5 it was announced that Symington would accompany John W. Snyder, reconversion director, on the latter's mission to study the needs of western Europe, appraise lend-lease stockpiles and determine repayment possibilities. The Senate approved Pres. Truman's proposal that surplus property disposal be placed under the supervision of a single man, and on Sept. 18 Pres. Truman named Symington surplus property administrator.

**Symons, Arthur** (1865-1945), British poet and critic, was born Feb. 28 in Wales. Educated in France and Italy, Symons introduced the literature of both countries to the British Isles and was a familiar name to college students of European literature. At 19 years of age, he edited the *Shakespeare Quarto Facsimiles* for Bernard Quaritch. He was on the staffs of *Athenaeum*, the *Saturday Review*, and was

editor of *Savoy*. His last works include *Confessions* (1930), *Translation of the Adventures of Giuseppe Pignata* (1930), *Wanderings* (1931) and *Jezebel Mort and Other Poems* (1931). He died at his home in Wittersham, Kent, Jan. 22. (See *Encyclopædia Britannica*.)

**Symphony Orchestras:** see MUSIC.

**Synthetic Products:** see CHEMISTRY; PETROLEUM; PLASTICS INDUSTRY; RAYON AND OTHER SYNTHETIC FIBRES; RUBBER; STANDARDS, NATIONAL BUREAU OF.

**Syphilis:** see MEDICINE; VENEREAL DISEASES.

**Syria and Lebanon.** Independent republics, formerly French mandated territories, bordering the eastern Mediterranean. Syria: area 73,587 sq.mi.; pop. (est. 1942) 2,800,000; chief town, Damascus (cap.) 225,000. Lebanon: area 3,475 sq.mi.; pop. (est. March 1943) 1,025,000; chief town, Beirut (cap.) 234,000. President (1945) of Syria, Shukri el Quwatli; of Lebanon, Sheikh Bishara el Khoury. Language: Arabic; religion: mainly Mohammedan.

**History.**—The beginning of 1945 provided hints of coming conflict in a resolution passed by the Syrian chamber in January demanding the transfer of the *troupes spéciales* to Syria from France. This was followed by a show of French armed strength which provoked a Syrian protest. Lebanon also sent a note demanding the transfer to it of Lebanese *troupes spéciales*.

In May negotiations were opened for a treaty between France and Syria and Lebanon, but on May 18, when Gen. Paul-Etienne Beynet, French delegate general, presented his proposals, French troops were simultaneously landed. These troops, numbering some 1,200 and consisting of Senegalese and French Forces of the Interior (F.F.I.) units, were claimed by the French to be merely routine reinforcements, but were regarded by the Syrians as a threat. A general strike followed and a joint note was sent by Syria and Lebanon breaking off the negotiations. General Beynet was recalled to Paris to report while the Syrian opposition parties agreed to unite in the common cause. A week later clashes occurred and five French soldiers were reported killed. Serious disturbances followed in Homs, Hama, Aleppo and Damascus, Syrian gendarmes attacking all French posts. On May 30 the French shelled Damascus. Meanwhile, a political struggle proceeded, culminating in a note from Prime Minister Churchill to General de Gaulle, sent with U.S. approval, informing him of an order to the British commander in chief in the middle east to intervene in Syria and Lebanon and requesting that an order be sent to the French troops to cease fire. The order to cease fire was given, the French subsequently claiming that it was sent before the receipt of Churchill's note. The Syrian government subsequently reported that 593 persons were killed and 1,972 wounded in the disturbances. By the beginning of June quiet was restored by British troops, and French troops had retired to their barracks. Proposals made by General de Gaulle that the question should be discussed at a big five conference were rejected by Churchill and President Truman. De Gaulle also accused Britain of fomenting trouble in Syria and Lebanon against the French, these charges being denied by the British.

In the house of commons on June 14 Churchill pledged that British troops would be withdrawn the moment a treaty was signed between France and Syria and Lebanon. In July the French announced their decision to hand over the *troupes spéciales* (between 25,000 to 30,000 native and 5,000 French troops), the transfer to be completed within 45 days. In October it was reported that 24,000 troops had been transferred. There were further sporadic disturbances, in particular at Latakia, during the rest of the year. The Syrian cabinet re-

signed and was reformed under the former Prime Minister Fayeze el Khoury both in May and August. He resigned on Sept. 30 and a new cabinet was formed with Saadullah Jabry as prime minister. He also held the portfolios for minister for foreign affairs and defense.

In Lebanon a new cabinet was formed in January, under Abdul Hamid Karam as prime minister, which resigned in August. The new cabinet was headed by Sami Solh.

Syria and the Lebanon declared war on Germany and Japan on Feb. 26 and 27 respectively.

An agreement on the construction and operation of oil refineries was signed between Lebanon and U.S. oil companies.

On Dec. 13 an Anglo-French agreement was reached by which British and French forces were to be withdrawn from Syria and regrouped in the Lebanon until "such time as the United Nations organization has decided on the organization of collective security in this zone."

(D. K. M. K.)

The following statistics refer to Syria and Lebanon jointly:

**Finance.**—Monetary unit, the Syrian pound (divided into 100 piastres) = 20 French francs = (Nov. 1944) 40 U.S. cents. Revenue (1938) \$15,432,518. Expenditure \$13,386,700. Notes in circulation (1944) \$136,120,000; reserves (June 30, 1939), gold \$1,400,000; foreign assets \$12,720,000.

**Trade and Communication.**—Imports (1944) \$32,000,000; exports (1944) \$13,600,000. Roads (1939) c. 1,900 mi.; railways (1939) 690 mi.

**Agriculture.**—Short tons: wheat (1943) 641,630; barley (1940) 423,500; maize (1942) 36,300; oats (1939) 5,940; potatoes (1938) 45,760; tobacco (1941) 5,170; wine (1938) 1,135,200 U.S. gal.; cotton (1943) 2,860; cotton seed (1943) 6,710; sesamum (1938) 5,830; olive oil (1940) 14,300; wool (1938) 10,890; raw silk (1938) 220.

## Syrup, Sorgo and Cane.

The production of sugar-cane syrup in the United States in 1945 was estimated at 22,000,000 gal., compared with 21,506,000 gal. produced in 1944, and an average of 22,890,000

Table I.—U.S. Production of Cane Syrup by States, 1945 and 1944

State	1945 gal.	1944 gal.	State	1945 gal.	1944 gal.
Louisiana . . .	11,055,000	6,670,000	Florida . . . .	2,040,000	2,240,000
Georgia . . . .	4,640,000	4,356,000	Texas . . . . .	520,000	750,000
Mississippi . . .	3,910,000	3,630,000	South Carolina .	475,000	570,000
Alabama . . . .	3,120,000	2,760,000	Arkansas . . . .	105,000	95,000

gal. 1934-43. The production of sorgo syrup was 10,488,000 gal., compared with 12,197,000 gal. in 1944, and an average of 12,862,000 gal. 1934-43. The yield was about the same as in

Table II.—U.S. Production of Sorgo Syrup in Leading States, 1945 and 1944

State	1945 gal.	1944 gal.	State	1945 gal.	1944 gal.
Alabama . . . .	2,178,000	2,080,000	Georgia . . . . .	912,000	1,210,000
Mississippi . . .	1,680,000	1,950,000	Tennessee . . . .	840,000	915,000
Arkansas . . . .	935,000	900,000	North Carolina .	640,000	814,000

1944 but the acreage was reduced 12%. (See also BEEKEEPING; MAPLE PRODUCTS.)

(J. C. Ms.)

## Szold, Henrietta

(1860-1945), U.S. Zionist leader, was born Dec. 21, in Baltimore, Md., the daughter of a rabbi. She became actively interested in Zionism in the early 1900s. After a visit to Jerusalem in 1909, where she saw the appalling results of trachoma and other diseases among the poverty-stricken Jewish population there, she decided to rally the interest of U.S. Jewish groups in applying social hygiene measures in Palestine. To this end she founded in 1912 the Hadassah (whose name was taken from the Biblical designation of Queen Esther), a women's group designed primarily to help the Jewish population in Palestine. This organization, of

which she was president until 1926, developed into the U.S. women's Zionist organization. Miss Szold helped raise large funds in the U.S. to develop a public health program in the Holy Land and subsequently numerous clinics and hospitals and infant welfare stations were established there and a program of education was instituted. Miss Szold was a delegate to many Zionist conventions, was a member of the World Zionist Executive committee in Palestine, and in 1935 she directed the movement for resettling German-Jewish children in the Holy Land. She died in Jerusalem Feb. 13.

## Table Tennis.

The end of World War II enabled the International Table Tennis federation to begin preparations in the latter part of 1945 for resumption of the world championships, which hostilities had cancelled for six consecutive years. The competition includes matches for individual titles, for the Swaythling Cup (national men's teams) and the Corbillion Cup (national women's teams). In England it was proposed to restore the height of the net to 6¼ in. from the 6 in. to which it had been reduced before the war in an effort to handicap ultradefensive players. The game continued to be one of the chief recreations in the armed forces of many nations, and star players travelled by aeroplane to give exhibitions. The greatest upset in organized civilian play in 1945 occurred in the U.S., where Sally Green, after winning the national women's singles title for five straight years, was dethroned by Davida Hawthorne.

(C. Z.)

**Tahiti:** see PACIFIC ISLANDS, FRENCH.

**Taiwan:** see FORMOSA.

## Talc.

The sales of talc minerals in the United States dropped from 412,868 short tons in 1943 to 398,863 tons in 1944, while mine production fell from 436,249 tons to 418,228 tons. The only reported increase in use was in rubber.

Canadian production in 1943 included 14,204 short tons of soapstone and 11,959 tons of talc, increasing to 19,013 tons of soapstone and 13,584 tons of talc in 1944; these figures give totals of 26,163 tons and 32,597 tons respectively. Output declined again in 1945, the preliminary estimate for the year being 13,889 tons of soapstone and 13,000 tons of talc, a total of 26,889 tons.

(G. A. Ro.)

**Tanganyika:** see BRITISH EAST AFRICA; MANDATES.

**Tangerines:** see FRUIT.

**Tanks, Military:** see MUNITIONS OF WAR; WORLD WAR II.

## Tardieu, André Pierre Gabriel Amédée

(1876-1945), French politician and writer, was born Sept. 22 in Paris. He was educated at the École Normale Supérieure and entered the chamber of deputies in 1914. For his earlier career, see *Encyclopædia Britannica*. Tardieu was premier in 1929-30 and again in 1932. A brilliant orator and wit, he exerted most of his influence during the interim between World Wars I and II. He suffered a nervous breakdown just before the outbreak of World War II and lived in retirement on the French Riviera. He died in Menton, Sept. 15.

## Tariffs.

Because of the exigencies of World War II, customs tariffs were employed as instruments of commercial policy less during previous years than perhaps during any comparable period in at least three decades. Although prewar schedules of import duties generally had been maintained, at least in form, they had less effective application during the war than previously. There had been scattered instances where

governments increased or imposed new protective duties to foster specific industries, but these increases were scarcely representative of the war period. Because of wartime scarcities of essential materials, the closing of important sources of supply and the blockade of others, the shortage of shipping and the greatly increased demand for strategic materials, some countries suspended temporarily the application of duties on commodities essential to the prosecution of the war. Non-belligerent countries, impelled by the hunger for industrial equipment, raw materials and prime essentials, frequently sought to protect their economies by granting at least temporary exemption or reduction of duty. The world's commerce had been dominated not by tariffs but by export permits, priorities and allocations.

Although actual hostilities ceased in 1945, the immediate postwar supply situation had been sufficiently acute throughout the world that the emphasis continued to be on the control of exports rather than imports. Import controls, which were general during the war and throughout 1945, were employed primarily, not to restrict, but to facilitate imports, to allocate shipping space and to control the ultimate distribution of whatever imports were obtainable.

By and large, 1945 was a standstill year with respect to tariffs and related instruments of commercial policy. There were virtually no important modifications of tariff schedules throughout the world. Various countries, which were occupied by enemy nations during World War II, had, of course, either reimposed the import duties previously in force or had adopted temporary tariff schedules. Nontariff controls, many of them either originating or strengthened during the war, continued to be more important in world trade than tariffs themselves. Although there appeared to have been no over-all revision of the tariff schedule in any major country, there were many piecemeal modifications, usually relatively unimportant, raising or lowering the rates of duty for specified import items. These scattered changes displayed no decided pattern or trend; modifications providing for lower rates of duty, however, appeared to have been more numerous and of greater importance than those providing for increased import charges.

At least four countries, all in Latin America—Costa Rica, the Dominican Republic, Honduras, and Peru—made upward revisions of the duties on virtually all imports into their respective countries. These increases, however, were of minor significance and were usually imposed as revenue measures in the form of a small surcharge added to the former customs duties. In effect, tariff rates were also increased in Chile, where the duties were published in terms of "gold" pesos but collected in current paper pesos at a fixed rate of conversion. By legislation, effective Jan. 1, 1945, the conversion ratio was increased by 60%. Although the immediate result was to increase the actual duties payable in Chile, the adjustment does not appear to have been out-of-line with changes in the value of the currency which had long previously occurred. In July 1945, a somewhat similar adjustment was made in Nicaragua.

Some of the more important modifications imposing increased duties on individual imports into various countries follow. In February, France increased the tariff on most items in its petroleum schedule. In May, Italy approximately doubled the import duties on most types of manufactured tobacco. In July, the United Kingdom restored its duties on imports of machinery and accessories, which had been exempt from duty during World War II. During 1945, various Latin-American countries also increased the duties on various commodities, as in the case of raw wool and wool yarn by Brazil; petroleum products, edible oils and certain hair dressings by Costa Rica; alcoholic beverages and petroleum products by the Dominican Republic; almanacs and calendars by Guatemala; gasoline, wool, zinc oxide and numerous iron and steel products by Mexico; naphtha, gasoline and certain other petroleum products by Paraguay and fish products by Uruguay.

The most prominent relaxation of tariff restrictions in Europe during the year were provisions exempting from duty the contents of gift packages and articles imported for personal use. During the year privileges of this character were granted by Belgium, Denmark, France, Finland, Greece,

Italy, Norway, Netherlands, Poland, Sweden, Switzerland and Yugoslavia. Belgium, however, made an extensive downward revision of its customs tariff in February, when it temporarily exempted from the payment of duty more than 200 articles of prime necessity and industrial supplies.

The supply situation was also a chief cause of numerous revisions in Latin-American countries, where most of the reductions or exemptions from duty were temporary and were frequently granted only for specified quantities of imports. During the year, relief of this character was granted for imports of certain agricultural fertilizers, antimony, telecommunications equipment, pedigreed fowl, silkworms and raw silk in Argentina; equipment and supplies for the edible oil industry in Bolivia; dried meat, corn, onions, wheat, live sheep and penicillin in Brazil; refined petroleum products, various supplies used by newspapers and magazines, varnished tin-plate and numerous prime necessities, including crude oil, diesel oil, gasoline, coffee, sugar and wood pulp, in Chile; raw materials for the manufacture of vegetable lard in Colombia; scientific publications and literary works in Costa Rica; canned milk, eggs, livestock and poultry feed, machinery and equipment for use in the construction of public works, corn and various types of breeding stock in Cuba; certain construction materials and many essential food commodities, including meats, milk, eggs, butter, fish, potatoes, peas, lentils, beans, oats, corn and lard in Ecuador; corn, beans, rice, cacao beans, sole leather and cotton thread in El Salvador; automobile tires and psyllium seed in Guatemala; materials used by the embroidery industry and bottles in Haiti; paper bags in Honduras; certain cardboard and paper packing materials, plastic mosquito netting, gasoline, eggs, cement and specified insecticides in Mexico; X-ray equipment in Nicaragua; wheat flour, certain bleaching agents, gazogenes and specified types of industrial and scientific equipment in Paraguay; cement in Peru, middlings, millet, sorghum, barley, sheep dip, corn, various wheat and oat products, peas and lentils, potatoes, alpaca hair, forage and incubators and brooders in Uruguay; and wood piling, silk shower curtains, plastic pipe fittings and related materials, aviation gasoline, fishing nets, cement and wheat in Venezuela.

Shortly after the outbreak of the war, Canada imposed a War Exchange tax amounting to 10% of the value of imports from non-empire sources, in order to conserve the available supply of exchange for the purchase of essential war materials. Canadian imports were thereby shifted to purchases from the sterling area. During the war, as the supply problem became acute, this charge constituted, of course, an additional tax on imports which had to be obtained from the United States and other non-empire sources. In Oct. 1945, shortly after the cessation of hostilities, this tax was removed, inasmuch as its purpose had been served and because it was "discriminatory and could not be justified under conditions of normal trade." In April 1945, imports of numerous commodities into Newfoundland were exempted from a similar tax, amounting to 7½% ad valorem.

The most important action relating to United States tariff policy in 1945 was the renewal of the Reciprocal Trade Agreements act.<sup>1</sup> The congress of the U.S. not only authorized the president to continue the program of negotiating reciprocal, unconditional most-favoured-nation commercial agreements with other countries and to grant mutual concessions therein, but it also further liberalized the terms under which such concessions could be granted.

As the urgency for their use diminished during 1945, wartime and pre-war systems of import and exchange control in various countries were relaxed.

Lately, new systems of import control were established in at least two countries—Mexico and Brazil. The Mexican system, initiated in 1944, was elaborated more fully during 1945; from time to time additional commodities were added to the list for which official licences had to be obtained before their importation was permitted. The protection of domestic industries and the prevention of postwar "dumping" were dominant motives for the new program. The Brazilian import-licence control system was inaugurated Jan. 1945. Although it was initially described as a wartime measure, it also appeared to be associated with the desire to protect nascent industries. Despite general access to an abundance of exchange balances and a consequent relaxation of exchange controls throughout Latin America, exchange control was established in Peru in Feb. 1945. The announced purpose of the new policy was that of assuring future use of accumulated exchange holdings for financing imports which would contribute most to the development of the Peruvian economy. (See also INTERNATIONAL TRADE.) (D. L.H.)

**Tasmania.** A state of the Australian commonwealth, forming an island 26,215 sq.mi. in area to the south-east of the mainland, from which it is separated by 140 mi. of Bass strait. Pop. (est. Dec. 31, 1943) 245,434. Chief cities: Hobart (cap., 70,800); Launceston (est.) 40,000. Governor (1945): Admiral Sir Hugh Binney.

**History.**—Admiral Sir Hugh Binney was in 1945 appointed governor of Tasmania in succession to Sir Ernest Clark.

Although the state possesses extensive and valuable forests unregulated exploitation and neglect in the early days of settlement made great inroads on its timber assets. The government prepared a \$16,000,000 plan for the regeneration of forest resources. The premier asked for an initial advance from the loan council which would provide employment for 1,000 returned soldiers. The gross value of agricultural production during 1943—

<sup>1</sup>Originally enacted in 1934.



44 was \$23,303,000, the highest for many years in spite of depleted manpower. Because of the new industries which Tasmania's hydroelectric scheme had attracted to the state, R. Cosgrave, the premier, announced that demobilization would provide no unemployment problem.

**Education.**—In 1941: number of schools (state) 424, (private) 63; teachers (state) 1,273, (private) 329; scholars (state) 33,354, (private) 6,886; average attendance (state) 27,457, (private) 5,320.

**Finance.**—Revenue (1943-44) \$11,197,000; expenditure \$11,110,000; public debt (June 30, 1944) \$96,205,000. (Conversion rate: £A1=\$3.2.)

**Communication.**—Roads (1940) 9,386 mi.; railways, government (1944) 642 mi.; private, 130 mi. Motor vehicles licensed (March 1945): cars 17,003; commercial vehicles 6,804; cycles 2,677. Wireless receiving set licences (June 1944) 50,356. Telephones (June 30, 1941) 19,565.

**Manufacturing.**—(1943-44) factories 994; employees 10,791; gross value of output \$66,714,000; unemployment (trade union returns) (Feb. 1945) 0.7%. (W. D. MA.)

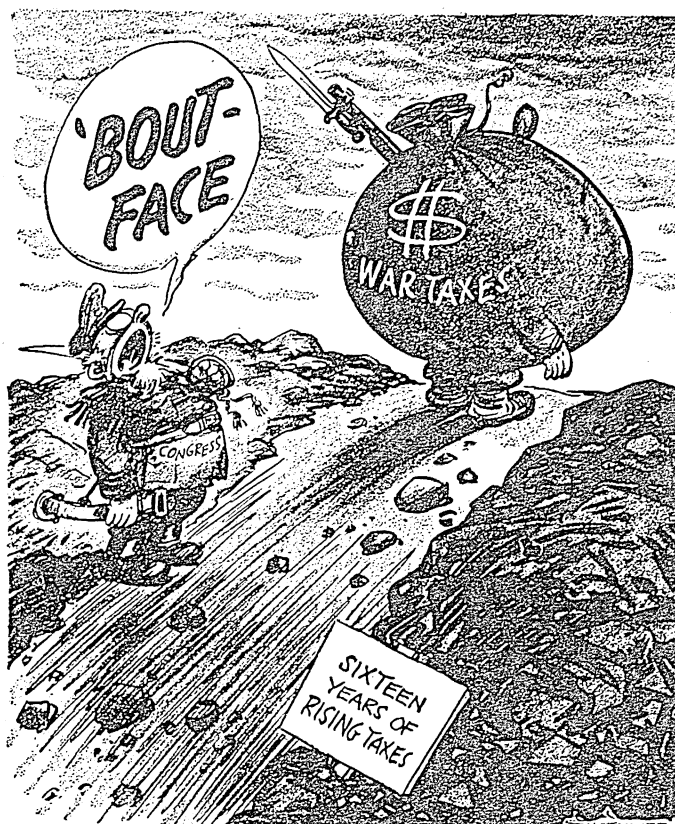
**Taxation.** United States.—Tinkering with taxes continued to be a popular pastime in the congress of the U.S. during 1945. As in the preceding year, two revenue laws were enacted, though neither was regarded as much more than stopgap legislation. The long-heralded "scientific revision" of the revenue code was again deferred, pending developments of the early postwar era. Taxpayers—corporate and individual—were given no assurance of the early establishment of a stable basis upon which tax liabilities could be computed over a fairly long period of time. They had to become reconciled to the prospect of year-to-year changes in the immediate future.

With but very few exceptions the two tax laws enacted in 1945 gave no reductions for that year, and affected the operation of the revenue code in comparatively minor degree with respect to 1945 taxes. From the standpoint of the taxpayer, the bright spot on the horizon was definite knowledge of substantial tax relief in 1946.

**Upward Trend Reversed.**—For the first time in 16 years, the upward trend of tax legislation was reversed by the congress. Both of the new revenue acts reflected the popular dissatisfaction with continuance of the burdensome levies of the preceding years. They were hailed as the initial steps in a fiscal program of relaxation of wartime pressure upon the financial resources of the nation. Corporations and estates, as well as individuals, shared in the lower levies to become effective in 1946.

In the face of conditions regarded as harbouring elements conducive to serious inflation, the lowering of tax revenues to be collected by the government was justified as a necessary aid to business in the reconversion period and a psychological stimulus to the people generally. With uncertainty as to the extent of lowered government expenditures in the period immediately ahead, record-breaking reduction in taxes, effective Jan. 1, 1946, was voted, despite a predicted treasury deficit of more than \$30,000,000,000 for the fiscal year ending June 30, 1946. A comparison of tax collections for 1945 with the prewar year of 1940 reflected the gigantic increase that had been necessary to conversion from a prewar to a wartime economy. Total revenue collections of the federal government for the fiscal year ended June 30, 1945, amounted to approximately \$46,500,000,000 compared with a total of \$5,400,000,000 collected in the fiscal year 1940. These receipts were exclusive of old-age insurance taxes.

**Business and Individuals Benefit.**—The Tax Adjustment Act of 1945, signed by President Truman on July 31 at Potsdam, Germany, was designed to aid the cash position of business, and to provide incentives to small business to enter into peace-



"AT LONG LAST!" Shoemaker of the *Chicago Daily News* voiced the relief of U.S. taxpayers in 1945 at the prospect that congress would start reducing the heavy tax load

time production. Its provisions did not affect individuals, being confined to corporations or other business concerns, with the relief measures becoming effective Jan. 1, 1946.

The second tax legislation of the year—the Revenue Act of 1945—became law Nov. 8. Its provisions affected both individuals and corporations as of Jan. 1, 1946. Under this law, it was estimated that 12,000,000 low-income persons would be removed from federal income tax rolls altogether, and that all other persons with incomes up to \$50,000 a year would realize tax reductions of 10% or more. Smaller percentage cuts were provided for those with incomes in excess of \$50,000 a year. Total reductions for individuals were expected to aggregate \$2,742,000,000 annually, while business was given relief estimated at \$3,178,000,000.

**Tax Program for a Solvent America.**—Consideration of the tax legislation of 1945 by congressional committees was attended by serious study of economic conditions and by constructive

Table I.—Computation of U.S. Tentative Surtax by Salary Brackets

If surtax net income is:		The tentative surtax shall be:	
Not over \$2,000		17% of the surtax net income	
Over	But not over		
\$ 2,000	\$ 4,000	\$ 340, plus 19% of excess over	\$ 2,000
4,000	6,000	720, plus 23% of excess over	4,000
6,000	8,000	1,180, plus 27% of excess over	6,000
8,000	10,000	1,720, plus 31% of excess over	8,000
10,000	12,000	2,340, plus 35% of excess over	10,000
12,000	14,000	3,040, plus 40% of excess over	12,000
14,000	16,000	3,840, plus 44% of excess over	14,000
16,000	18,000	4,720, plus 47% of excess over	16,000
18,000	20,000	5,660, plus 50% of excess over	18,000
20,000	22,000	6,660, plus 53% of excess over	20,000
22,000	26,000	7,720, plus 56% of excess over	22,000
26,000	32,000	9,960, plus 59% of excess over	26,000
32,000	38,000	13,500, plus 62% of excess over	32,000
38,000	44,000	17,220, plus 66% of excess over	38,000
44,000	50,000	21,180, plus 69% of excess over	44,000
50,000	60,000	25,320, plus 72% of excess over	50,000
60,000	70,000	32,520, plus 75% of excess over	60,000
70,000	80,000	40,020, plus 78% of excess over	70,000
80,000	90,000	47,820, plus 81% of excess over	80,000
90,000	100,000	55,920, plus 84% of excess over	90,000
100,000	150,000	64,320, plus 86% of excess over	100,000
150,000	200,000	107,320, plus 87% of excess over	150,000
200,000	—	150,820, plus 88% of excess over	200,000



"TAKE ONLY AS PRESCRIBED, UNCLE." Burck of the *Chicago Times* registered apprehension at a too drastic or ill-timed cut in federal taxes during 1945

suggestions by citizen groups and public officials. The new secretary of the treasury, Fred M. Vinson, enunciated the Truman administration's policy as "a complete modernization of tax laws to help achieve high levels of employment and production." He urged upon congress "a fiscal policy aimed at maintaining the economy at or near full employment and co-ordinating all government programs that have either an inflationary or deflationary effect."

One of the outstanding contributions to the discussion of tax revision was the report, in book form, of a group of several of the nation's best known tax students, functioning as the Committee on Postwar Tax Policy. This committee, headed by former Under-secretary of the Treasury Roswell Magill as chairman, was sponsored through a special grant from the Maurice and Laura Falk Foundation. Harley L. Lutz, professor of public finance at Princeton university, Princeton, N.J., served as director of research. Its recommendations were based on a 16-months' study of the tax question and its relation to fiscal policy. The underlying theme of the report was a balanced federal budget. The committee's proposals were predicated not upon national income but on the needs of the country's postwar economy and the preservation of free enterprise. For corporations, repeal of all excess profits taxes and gradual reduction of corporation tax rates over a period of years were recommended, along with suggested abandonment of the capital stock tax. As affecting individuals, a graduated schedule of rates applying to taxable net income was urged as a substitute for the prevailing 3% normal tax. The rates proposed would start at 20% for incomes up to \$2,000 and reach 42% on incomes between \$20,000 and \$25,000. Incomes between \$100,000 and \$200,000 would be taxed at a rate up to 54% and incomes over \$1,000,000 a year at 72%. The committee also recommended major reductions in gift and death taxes.

**The Tax Adjustment Act.**—Designed primarily as a postwar reconversion measure to enable U.S. business to improve its cash position during the period of changeover from manufacture of war materials to peacetime production, the Tax Adjustment Act of 1945, passed by congress in July, did not affect existing tax rates. It did, however, provide direct tax relief for business by increasing the specific exemption of corporations for excess profits tax purposes from \$10,000 to \$25,000, effective at the end of 1945. This provision was later repealed in the Revenue Act of 1945, which abolished the excess profits taxes, effective Jan. 1, 1946.

Other provisions of the Tax Adjustment act made immediately available to business the 10% postwar excess profits credit with respect to tax liabilities for 1944 and subsequent years; advanced the maturity date of outstanding postwar refund bonds at the option of the owner, on or after Jan. 1, 1946; created new procedure for quick refunds based upon carry-backs of net operating losses and of unused excess profits credits, and expedited refunds resulting from recomputation of deductions for amortization on property used in connection with government war contracts. The amount of postwar credit, after credit for debt retirement, applicable to 1944 liabilities was estimated at \$830,000,000 and the amount applicable to 1945 liabilities at \$710,000,000. The estimated net amount of bonds issued or to be issued with respect to postwar credits was \$480,000,000 for 1942 and \$820,000,000 for 1943, or a total of \$1,300,000,000 for the two years. The Revenue Act of 1942 had provided a carry-back of unused excess profits credits and a carry-back of business losses. Furthermore, the act of that year set up a postwar credit or refund of 10% of the excess profits tax, to be evidenced by non-interest-bearing bonds, payable at certain designated times soon after the end of World War II.

**Revenue Act of 1945.**—At an estimated cost to the federal government of \$5,920,000,000 in the ensuing year, tax liabilities of corporations and individuals were reduced by the Revenue Act of 1945, approved by the president on Nov. 8. Effective Jan. 1, 1946, this law provided the largest reduction in taxes ever granted in a single revenue measure. For the first time in almost a score of years a federal revenue measure was titled, "an act to reduce taxation, and for other purposes." The new law automatically amended or repealed certain sections of the internal revenue code. The total reduction indicated in 1946 taxes exceeded by almost \$1,000,000,000 the treasury's estimate of the amount that could safely be allowed. Secretary Vinson, in a statement to the senate finance committee, said: "We cannot afford more than \$5,000,000,000 of tax reduction for the calendar year 1946. The fundamental justification for tax reduction at this time, when the federal government still is running a large deficit (in excess of \$30,500,000,000) is the promotion of a vital, invigorated peacetime economy . . . to achieve the greatest positive economic good."

**Individual Taxes.**—"Take-home pay," a phrase that developed rapidly to plague industry and politicians coincidental with the growing practice of withholding sums from pay envelopes either to comply with tax requirements or to meet payments on war bonds or labour union dues, was increased for 1946 through enactment of the new revenue law. Millions of workers in the "low-income brackets" were absolved from any tax liability whatsoever, and all others received relief in varying degree. The withholding feature of tax collection, introduced originally with the enactment of Social Security legislation and extended in 1944 to implement the "pay-as-you-earn" program, was retained. Congress adhered to the theory that consumer purchasing power should be encouraged and that tax reduction for the lower income groups would bolster this policy by providing more spendable cash.

A new device was resorted to in connection with lowering of the normal tax and surtax of individuals. It was the introduction of a "tentative normal tax" and a "tentative surtax." These were to be computed in a manner similar to past procedure (except for new reductions) and the amounts thus arrived at were to be further reduced by a flat 5%.

The normal tax rate of 3% was retained in the new law, and individuals were allowed the same exemptions for normal tax purposes as were provided for surtax under the prior law. These were \$500 for the taxpayer, \$500 for the spouse of the taxpayer if a joint return was filed or if the spouse had no gross income and was not a dependent of another person, and \$500 for each dependent with gross income of less than \$500.

The surtax rates on individuals were reduced by 3% uniformly in each of the brackets of surtax net income. (See Table I.) By reason of this 3% reduction the maximum combined rate of normal tax and surtax for 1946 was reduced to 85½% from the prior limit of 90%.

Changes in the normal tax exemptions and reduction of surtax rates necessitated revision of the 1946 optional tax table for use of individuals with adjusted gross incomes of less than \$5,000 a year. These changes resulted in a reduction of more than 10% for every amount shown in the table. (See Table II.)

**New Withholding Rates.**—Revision of normal taxes and surtax rates also necessitated the promulgation of a new set of withholding rates,

though prior regulations governing the collection of taxes via the withholding route were retained with virtually no modification. (See Table III.) An added provision required employers to furnish statements or receipts of taxes withheld to all employees whose wages for any pay-roll period exceeded the amount of one withholding exemption, even though no tax was required to be withheld because the total withholding exemptions exceeded each wage payment. This provision was made because final returns were still required of all persons receiving \$500 or more gross income even though no tax were due. To such individuals was extended the privilege of filing the withholding receipt as a tax return.

**Relief for Servicemen.**—A special exemption of \$1,500 was provided for all commissioned officers in the military and naval forces for service pay received in years beginning after Dec. 31, 1942, and before termination of the war, as proclaimed by the president. Similar exemption was authorized for citizens or residents of the United States serving as members of the military or naval forces of any of the other United Nations during World War II.

All pay of servicemen below the grade of commissioned officers was exempted if received in years beginning after Dec. 31, 1940, and before termination of the war, by proclamation of the president. Provision was made for refunding overpayments of tax on such service pay, and also granting servicemen a period of three years in which to pay off accrued tax liability.

**Social Security Taxes.**—The 1% tax withheld from wages and salaries up to \$3,000 a year under the Federal Insurance Contribution act and the 1% tax on employers were "frozen" for another year. Under the law as revised, a rate of 2½% on both employer and employee was fixed for the calendar years 1947 and 1948.

The \$5 annual tax on the use of motor vehicles and boats was repealed, effective June 30, 1946.

Other excise taxes were not repealed. Under prior law they were to continue until "about six months" after the President's proclamation declaring the war officially ended. However, the new law did provide for floor stock refunds on distilled spirits, wines or cordials, imported perfumes, or fermented malt liquors held by manufacturers or dealers on the date when the war would be officially declared to have ended.

**Corporation Taxes.**—The predominant feature of the Revenue Act of 1945, from the standpoint of business, was the repeal of the excess profits tax on corporations, effective Jan. 1, 1946. This was a highly controversial subject—whether to ease the burden of the tax by raising exemptions or to erase it altogether from the revenue code. The repeal relieved industry of the special levy of 8½% on profits rated high in comparison to prewar earnings, and subjected them only to the normal tax and surtax rates. The estimated saving to business in 1946 through repeal of the excess profits tax was approximately \$2,900,000,000.

Surtaxes for corporations with net incomes of more than \$50,000 were reduced to 14% from the existing rate of 16% and for corporations with net incomes under \$25,000 to 6% from 10%.

The capital stock tax was repealed with respect to years ending after June 30, 1945, and the related declared value excess profits tax was repealed, effective June 30, 1946. Provision was made for reduction of declared value excess profits taxes where recovery of war losses in 1945 was concerned.

**State and Local Taxes.**—Legislatures in at least 44 of the 48 states were in regular session during some portion of 1945, and many of these enacted new laws or revised existing statutes to provide additional revenue

for the postwar era. These laws covered a wide scope, ranging from income tax exemptions for members of military and naval forces to additional excise levies. New or increased gasoline taxes were imposed by Idaho, Iowa, Kansas, Minnesota, Oklahoma and Oregon, and concessions or exemptions of taxes on gasoline and similar fuels were made on behalf of the U.S. government by Connecticut, Florida, Georgia, Idaho, Ohio, South Dakota and Wyoming. Eleven other states made minor regulatory changes in gasoline tax legislation. Florida reduced the mileage tax on trucks and trailers of less than 5,500 lb. from 1 cent per mile to ¾ cent, and on those over 5,500 lb. from 2 cents to 1½ cents per mile. Taxicabs were required to pay a permit fee of \$25 and registration fee of \$5 a year. Other changes in motor vehicle tax laws were made by Arkansas, Delaware, Illinois, North Carolina, North Dakota, Tennessee and Washington.

Exemption or relief with relation to state income taxes of military or naval service personnel was granted by Alabama, California, Colorado, Georgia, Iowa, Kansas, Maryland, Massachusetts, Minnesota, New York, Oklahoma, South Carolina, Utah and Vermont.

Almost one-half of the states in which legislatures convened in 1945 made revisions in individual income tax provisions. Emergency levies on businesses in New York, Pennsylvania and Wisconsin were extended and individual income tax reductions in California, Iowa and New York were continued.

Insurance tax legislation was revised in many states as a result of the decision of the United States supreme court, holding that the business of insurance is commerce and subject to interstate commerce law regulation. Much of this legislation was designed to provide nondiscriminatory taxation of domestic and foreign insurance companies. States in which insurance tax changes were made included Alabama, Arizona, Arkansas, California, Connecticut, Delaware, Florida, Georgia, Iowa, Maine, Maryland, Massachusetts, Missouri, New Hampshire, New Jersey, New Mexico, North Carolina, Oklahoma, Oregon, South Dakota, Tennessee, Texas, Washington and West Virginia.

Changes in bank tax laws were made by Alabama, Massachusetts, New York, Pennsylvania and Vermont, and laws affecting stock transfers and document recording were enacted in Minnesota, New York and Pennsylvania.

Table II.—U.S. Tax Table, for Adjusted Gross Incomes under \$5,000

If adjusted gross income is—		And the number of exemptions is—				If adjusted gross income is—		And the number of exemptions is—								
At least	But less than	1	2	3	4 or more	At least	But less than	1	2	3	4	5	6	7	8	9 or more
The tax shall be—						The tax shall be—										
\$0	\$550	\$0	\$0	\$0	\$0	\$2,200	\$2,225	\$283	\$188	\$93	\$0	\$0	\$0	\$0	\$0	\$0
550	575	1	0	0	0	2,225	2,250	288	193	98	3	0	0	0	0	0
575	600	5	0	0	0	2,250	2,275	292	197	102	7	0	0	0	0	0
600	625	10	0	0	0	2,275	2,300	296	201	106	11	0	0	0	0	0
625	650	14	0	0	0	2,300	2,325	300	205	110	15	0	0	0	0	0
650	675	18	0	0	0	2,325	2,350	305	210	115	20	0	0	0	0	0
675	700	23	0	0	0	2,350	2,375	309	214	119	24	0	0	0	0	0
700	725	27	0	0	0	2,375	2,400	313	218	123	28	0	0	0	0	0
725	750	31	0	0	0	2,400	2,425	318	223	128	33	0	0	0	0	0
750	775	35	0	0	0	2,425	2,450	322	227	132	37	0	0	0	0	0
775	800	40	0	0	0	2,450	2,475	326	231	136	41	0	0	0	0	0
800	825	44	0	0	0	2,475	2,500	330	235	140	45	0	0	0	0	0
825	850	48	0	0	0	2,500	2,525	335	240	145	50	0	0	0	0	0
850	875	52	0	0	0	2,525	2,550	339	244	149	54	0	0	0	0	0
875	900	57	0	0	0	2,550	2,575	343	248	153	58	0	0	0	0	0
900	925	61	0	0	0	2,575	2,600	347	252	157	62	0	0	0	0	0
925	950	65	0	0	0	2,600	2,625	352	257	162	67	0	0	0	0	0
950	975	70	0	0	0	2,625	2,650	356	261	166	71	0	0	0	0	0
975	1,000	74	0	0	0	2,650	2,675	360	265	170	75	0	0	0	0	0
1,000	1,025	78	0	0	0	2,675	2,700	365	270	175	80	0	0	0	0	0
1,025	1,050	82	0	0	0	2,700	2,725	369	274	179	84	0	0	0	0	0
1,050	1,075	87	0	0	0	2,725	2,750	373	278	183	88	0	0	0	0	0
1,075	1,100	91	0	0	0	2,750	2,775	377	282	187	92	0	0	0	0	0
1,100	1,125	95	0	0	0	2,775	2,800	382	287	192	97	2	0	0	0	0
1,125	1,150	100	5	0	0	2,800	2,825	387	291	196	101	6	0	0	0	0
1,150	1,175	104	9	0	0	2,825	2,850	391	295	200	105	10	0	0	0	0
1,175	1,200	108	13	0	0	2,850	2,875	396	299	204	109	14	0	0	0	0
1,200	1,225	112	17	0	0	2,875	2,900	401	304	209	114	19	0	0	0	0
1,225	1,250	117	22	0	0	2,900	2,925	405	308	213	118	23	0	0	0	0
1,250	1,275	121	26	0	0	2,925	2,950	410	312	217	122	27	0	0	0	0
1,275	1,300	125	30	0	0	2,950	2,975	415	317	222	127	32	0	0	0	0
1,300	1,325	129	34	0	0	2,975	3,000	419	321	226	131	36	0	0	0	0
1,325	1,350	134	39	0	0	3,000	3,050	427	327	232	137	42	0	0	0	0
1,350	1,375	138	43	0	0	3,050	3,100	436	336	241	146	51	0	0	0	0
1,375	1,400	142	47	0	0	3,100	3,150	445	344	249	154	59	0	0	0	0
1,400	1,425	147	52	0	0	3,150	3,200	455	353	258	163	68	0	0	0	0
1,425	1,450	151	56	0	0	3,200	3,250	464	361	266	171	76	0	0	0	0
1,450	1,475	155	60	0	0	3,250	3,300	474	370	275	180	85	0	0	0	0
1,475	1,500	159	64	0	0	3,300	3,350	483	379	284	189	94	0	0	0	0
1,500	1,525	164	69	0	0	3,350	3,400	492	388	292	197	102	7	0	0	0
1,525	1,550	168	73	0	0	3,400	3,450	502	397	301	206	111	16	0	0	0
1,550	1,575	172	77	0	0	3,450	3,500	511	407	309	214	119	24	0	0	0
1,575	1,600	176	81	0	0	3,500	3,550	521	416	318	223	128	33	0	0	0
1,600	1,625	181	86	0	0	3,550	3,600	530	425	326	231	136	41	0	0	0
1,625	1,650	185	90	0	0	3,600	3,650	539	435	335	240	145	50	0	0	0
1,650	1,675	189	94	0	0	3,650	3,700	549	444	343	248	153	58	0	0	0
1,675	1,700	194	99	4	0	3,700	3,750	558	454	352	257	162	67	0	0	0
1,700	1,725	198	103	8	0	3,750	3,800	568	463	361	266	171	76	0	0	0
1,725	1,750	202	107	12	0	3,800	3,850	577	472	369	274	179	84	0	0	0
1,750	1,775	206	111	16	0	3,850	3,900	586	482	378	283	188	93	0	0	0
1,775	1,800	211	116	21	0	3,900	3,950	594	491	387	291	196	101	6	0	0
1,800	1,825	215	120	25	0	3,950	4,000	605	501	396	300	205	110	15	0	0
1,825	1,850	219	124	29	0	4,000	4,050	615	510	406	308	213	118	23	0	0
1,850	1,875	223	128	33	0	4,050	4,100	624	520	415	317	222	127	32	0	0
1,875	1,900	228	133	38	0	4,100	4,150	633	529	424	325	230	135	40	0	0
1,900	1,925	232	137	42	0	4,150	4,200	643	538	434	334	239	144	49	0	0
1,925	1,950	236	141	46	0	4,200	4,250	652	548	443	342	247	152	57	0	0
1,950	1,975	241	146	51	0	4,250	4,300	662	557	453	351	256	161	66	0	0
1,975	2,000	245	150	55	0	4,300	4,350	671	567	462	360	265	170	75	0	0
2,000	2,025	249	154	59	0	4,350	4,400	680	576	471	368	273	178	83	0	0
2,025	2,050	253	158	63	0	4,400	4,450	690	585	481	377	282	187	92	0	0
2,050	2,075	258	163	68	0	4,450	4,500	699	595	490	386	290	195	100	5	0
2,075	2,100	262	167	72	0	4,500	4,550	709	604	500	395	299	204	109	14	0
2,100	2,125	266	171	76	0	4,550	4,600	718	614	509	405	307	212	117	22	0
2,125	2,150	271	176	81	0	4,600	4,650	727	623	518	414	316	221	126	31	0
2,150	2,175	275	180	85	0	4,650	4,700	737	632	528	423	324	229	134	39	0
2,175	2,200	279	184	89	0	4,700	4,750	746	642	537	433	333	238	143	48	0
						4,750	4,800	756	651	547	442	342	247	152	57	0
						4,800	4,850	765	661	556	452	350	255	160	65	0
						4,850	4,900	774	670	565	461	359	264	169	74	0
						4,900	4,950	784	679	575	470	367	272	177	82	0
						4,950	5,000	793	689	584	480	376	281	186	91	0



Other familiar classifications of taxes undergoing alteration in various states were: sales, gross income and use taxes, intangibles, inheritance and gift, liquors, tobacco and cigarettes, mining and minerals, chain stores, public utilities and franchise taxes. Georgia repealed its state poll tax.

Great Britain.—War's end brought promised tax relief for millions of the harassed people of the United Kingdom, who had borne the brunt of the devastating Nazi assault. The prospect of radical cuts in succeeding years, however, was tempered by the discontinuance of lend-lease and the limitation on new loans from the United States. Nevertheless, the new Labour government, in its first peacetime budget, slashed 10% from the standard income budget, and freed 2,000,000 low-income earners from the nation's tax rolls.

To aid business in the reconversion period a 40% cut was made in the excess profits levy. Chancellor of the Exchequer Hugh Dalton, in presenting the new budget to the house of commons on Oct. 23, 1945, announced that the government would maintain a belt-tightening policy of continued savings and price controls. The program included a further rise in taxes on large incomes, through increase in surtaxes on all earnings in excess of \$8,000 annually. The new surtax rates rose from 10% for the first \$2,000 of income to 97½% on all income over \$80,000 a year.

The general rate of taxation in 1945 was 10 shillings in the £, after deduction of personal allowances. This was reduced, effective April 6, 1946, to 9 shillings in the £, through slightly increased exemptions. At an estimated annual cost in revenue to the government of more than £2,500,000,000 (£1=\$4.035 U.S.), pre-war exemptions were restored, namely, \$9.40 a week for single persons and \$15.40 for married couples; married, one child, \$19.60; three children, \$28.20 and five children, \$36.60.

Reduction of the excess profits tax, effective Jan. 1, 1946, to 60% instead of the wartime 100%, would give Britain's business \$1,000,000,000 to aid in reconversion, Chancellor Hugh Dalton said. He also recommended that parliament abolish purchase taxes on articles of special importance for building, such as heating equipment, plumbing and refrigeration. In a later statement to the house of commons the chancellor revealed that individual taxation in the United Kingdom in 1945 was nearly 20 times heavier than before World War I. In 1913-14 taxation was \$14.25 per person compared with \$262.10 in 1944-45.

Australia.—In introducing the annual budget in the Australian house of representatives on Sept. 7, 1945, Prime Minister J. B. Chifley announced a reduction in income tax amounting to approximately 12½% in a full year, and lowering of sales taxes over a wide range of commodities. The reductions were to become effective Jan. 1, 1946.

Canada.—The dominion's hopes for early easement of the onerous tax levies prevailing throughout the war were blasted by the Ottawa government's announced policy of adhering to a "three-year plan" of economic and social development. The nine provinces were requested on August 6, 1945, to cede to the dominion voluntarily for a minimum of three years their rights to collect personal income, corporation and succession taxes. In return the dominion promised increased subsidies to maintain the economic stability of the provinces, to reduce taxes, and to expand unemployment insurance and other "social security." The Ottawa government promised to pay to the provinces an "irreducible minimum" of \$12 per capita of 1941 population, and to aid the development of natural resources.

Finance Minister J. L. Ilsley announced to the new parliament on Sept. 28 a reduction of \$1,000,000,000 in war expenditures for 1945, but he cautioned that there could be no substantial reduction in taxes or borrowing as the task of reorganization for peace, the demands of the social service program and the need for credits to other countries would

be too heavy.

France.—The magnitude of the problems faced by the "liberated countries" in Europe was illustrated by the plight of France in seeking to bring economic stability out of the chaotic conditions produced by the war. Following a census of wealth, taken by the government earlier in 1945, the consultative assembly on July 30, 1945, approved a capital levy consisting of two parts, viz., a straight levy on current net worth, and a special levy on the increase of wealth between Jan. 1940 and June 1945. The levy on net wealth was to rise progressively from 3% on smaller fortunes to 20% on amounts exceeding 300,000,000 francs after allowing certain exemptions. Provision was made for collection in four instalments in the 1946-49 period. It was estimated by the ministry of finance that this levy would bring the government more than 100,000,000 francs. The levy on wartime increments of wealth, to be paid in 1946, was to rise progressively from 20% on modest fortunes to 100% on

Table III.—U.S. Wage Bracket Withholding Table

If the pay-roll period with respect to an employee is weekly

And the wages are—		And the number of withholding exemptions claimed is—											
At least	But less than	0	1	2	3	4	5	6	7	8	9	10 or more	
		The amount of tax to be withheld shall be—											
\$ 0	\$11	17% of wages	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
11	12	\$2.00	.10	0	0	0	0	0	0	0	0	0	
12	13	2.10	.30	0	0	0	0	0	0	0	0	0	
13	14	2.30	.50	0	0	0	0	0	0	0	0	0	
14	15	2.50	.70	0	0	0	0	0	0	0	0	0	
15	16	2.70	.80	0	0	0	0	0	0	0	0	0	
16	17	2.80	1.00	0	0	0	0	0	0	0	0	0	
17	18	3.00	1.20	0	0	0	0	0	0	0	0	0	
18	19	3.20	1.30	0	0	0	0	0	0	0	0	0	
19	20	3.30	1.50	0	0	0	0	0	0	0	0	0	
20	21	3.50	1.70	0	0	0	0	0	0	0	0	0	
21	22	3.70	1.80	0	0	0	0	0	0	0	0	0	
22	23	3.80	2.00	.20	0	0	0	0	0	0	0	0	
23	24	4.00	2.20	.40	0	0	0	0	0	0	0	0	
24	25	4.20	2.40	.50	0	0	0	0	0	0	0	0	
25	26	4.40	2.50	.70	0	0	0	0	0	0	0	0	
26	27	4.50	2.70	.90	0	0	0	0	0	0	0	0	
27	28	4.70	2.90	1.00	0	0	0	0	0	0	0	0	
28	29	4.90	3.00	1.20	0	0	0	0	0	0	0	0	
29	30	5.00	3.20	1.40	0	0	0	0	0	0	0	0	
30	31	5.20	3.40	1.60	0	0	0	0	0	0	0	0	
31	32	5.40	3.60	1.70	0	0	0	0	0	0	0	0	
32	33	5.60	3.70	1.90	.10	0	0	0	0	0	0	0	
33	34	5.70	3.90	2.10	.20	0	0	0	0	0	0	0	
34	35	5.90	4.10	2.20	.40	0	0	0	0	0	0	0	
35	36	6.10	4.20	2.40	.60	0	0	0	0	0	0	0	
36	37	6.20	4.40	2.60	.80	0	0	0	0	0	0	0	
37	38	6.40	4.60	2.80	.90	0	0	0	0	0	0	0	
38	39	6.60	4.80	2.90	1.10	0	0	0	0	0	0	0	
39	40	6.80	4.90	3.10	1.30	0	0	0	0	0	0	0	
40	41	6.90	5.10	3.30	1.40	0	0	0	0	0	0	0	
41	42	7.10	5.30	3.40	1.60	0	0	0	0	0	0	0	
42	43	7.30	5.40	3.60	1.80	0	0	0	0	0	0	0	
43	44	7.40	5.60	3.80	2.00	.10	0	0	0	0	0	0	
44	45	7.60	5.80	4.00	2.10	.30	0	0	0	0	0	0	
45	46	7.80	6.00	4.10	2.30	.50	0	0	0	0	0	0	
46	47	8.00	6.10	4.30	2.50	.60	0	0	0	0	0	0	
47	48	8.20	6.30	4.50	2.60	.80	0	0	0	0	0	0	
48	49	8.40	6.50	4.60	2.80	1.00	0	0	0	0	0	0	
49	50	8.60	6.60	4.80	3.00	1.20	0	0	0	0	0	0	
50	51	8.80	6.80	5.00	3.20	1.30	0	0	0	0	0	0	
51	52	8.90	7.00	5.20	3.30	1.50	0	0	0	0	0	0	
52	53	9.10	7.20	5.30	3.50	1.70	0	0	0	0	0	0	
53	54	9.30	7.30	5.50	3.70	1.80	0	0	0	0	0	0	
54	55	9.50	7.50	5.70	3.80	2.00	.20	0	0	0	0	0	
55	56	9.70	7.70	5.80	4.00	2.20	.40	0	0	0	0	0	
56	57	9.90	7.90	6.00	4.20	2.40	.50	0	0	0	0	0	
57	58	10.10	8.10	6.20	4.40	2.50	.70	0	0	0	0	0	
58	59	10.30	8.30	6.30	4.50	2.70	.90	0	0	0	0	0	
59	60	10.50	8.40	6.50	4.70	2.90	1.00	0	0	0	0	0	
60	61	10.70	8.70	6.80	5.00	3.10	1.30	0	0	0	0	0	
61	62	11.10	9.10	7.10	5.30	3.50	1.60	0	0	0	0	0	
62	63	11.50	9.50	7.50	5.60	3.80	2.00	.20	0	0	0	0	
63	64	11.90	9.90	7.80	6.00	4.10	2.30	.50	0	0	0	0	
64	65	12.20	10.20	8.20	6.30	4.50	2.70	.80	0	0	0	0	
65	66	12.60	10.60	8.60	6.70	4.80	3.00	1.20	0	0	0	0	
66	67	13.00	11.00	9.00	7.00	5.20	3.30	1.50	0	0	0	0	
67	68	13.40	11.40	9.40	7.30	5.50	3.70	1.90	0	0	0	0	
68	69	13.70	11.70	9.70	7.70	5.90	4.00	2.20	.40	0	0	0	
69	70	14.10	12.10	10.10	8.10	6.20	4.40	2.50	.70	0	0	0	
70	71	14.50	12.50	10.50	8.50	6.50	4.70	2.90	1.10	0	0	0	
71	72	14.90	12.90	10.90	8.80	6.90	5.10	3.20	1.40	0	0	0	
72	73	15.30	13.20	11.20	9.20	7.20	5.40	3.60	1.70	0	0	0	
73	74	15.60	13.60	11.60	9.60	7.60	5.70	3.90	2.10	.30	0	0	
74	75	16.00	14.00	12.00	10.00	8.00	6.10	4.30	2.40	.60	0	0	
75	76	16.40	14.40	12.40	10.40	8.30	6.40	4.60	2.80	.90	0	0	
76	77	16.80	14.70	12.70	10.70	8.70	6.80	4.90	3.10	1.30	0	0	
77	78	17.10	15.10	13.10	11.10	9.10	7.10	5.30	3.50	1.60	0	0	
78	79	17.50	15.50	13.50	11.50	9.50	7.50	5.60	3.80	2.00	.10	0	
79	80	17.90	15.90	13.90	11.90	9.90	7.80	6.00	4.10	2.30	.50	0	
80	81	18.50	16.50	14.50	12.50	10.50	8.50	6.60	4.70	2.90	1.10	0	
81	82	19.50	17.50	15.50	13.50	11.40	9.40	7.40	5.60	3.80	1.90	.10	
82	83	20.40	18.40	16.40	14.40	12.40	10.40	8.40	6.40	4.60	2.80	1.00	
83	84	21.40	19.40	17.30	15.30	13.30	11.30	9.30	7.30	5.50	3.70	1.80	
84	85	22.30	20.30	18.30	16.30	14.30	12.30	10.30	8.20	6.30	4.50	2.70	
85	86	23.20	21.20	19.20	17.20	15.20	13.20	11.20	9.20	7.20	5.40	3.50	
86	87	24.20	22.20	20.20	18.20	16.20	14.10	12.10	10.10	8.10	6.20	4.40	
87	88	25.10	23.10	21.10	19.10	17.10	15.10	13.10	11.10	9.10	7.10	5.20	
88	89	26.10	24.10	22.00	20.00	18.00	16.00	14.00	12.00	10.00	8.00	6.10	
89	90	27.00	25.00	23.00	21.00	19.00	17.00	15.00	12.90	10.90	8.90	7.00	
90	91	28.40	26.40	24.40	22.40	20.40	18.40	16.40	14.40	12.30	10.30	8.30	
91	92	30.30	28.30	26.30	24.30	22.30	20.30	18.20	16.20	14.20	12.20	10.20	
92	93	32.20	30.20	28.20	26.20	24.10	22.10	20.10	18.10	16.10	14.10	12.10	
93	94	34.10	32.10	30.00	28.00	26.00	24.00	22.00	20.00	18.00	16.00	14.00	
94	95	35.90	33.90	31.90	29.90	27.90	25.90	23.90	21.90	19.90	17.90	15.80	
		19% of the excess over \$200 plus—											
\$200 and over		36.90	34.90	32.90	30.90	28.80	26.80	24.80	22.80	20.80	18.80	16.80	

19% of the excess over \$200 plus—

amounts over 5,000,000 francs, after exemptions. Corporations listed on the Bourse, with capitalization above 40,000,000 francs, were required to reduce their capital by 5% and reissue new shares in like amount to the treasury. (See also BREWING AND BEER; BUDGET, NATIONAL; BUSINESS REVIEW; DEBT, NATIONAL; LAW.)

FILMS.—*Property Taxation* (Encyclopædia Britannica Films Inc.). (C. A. Sr.)

**Tea.** The production of tea began to recover in 1945 and supplies were increased as shipping improved. The Combined Food Board's London tea committee allocated the supply through 1945 as in previous years. The imports in 1944 were reported to be about 90,000,000 lb. which was approaching prewar levels. In 1945 the per capita consumption was estimated to be .66 lb. compared with .67 lb. prewar average. Some types of tea were scarce and stocks reduced. Military requirements of the United States forces were relatively small which accounted for the control being placed in London where tea is regarded as an essential beverage. Imports were expected to quickly reach normal levels in 1946. (J. C. Ms.)

**Technicolor:** see MOTION PICTURES.

**Tedder, Sir Arthur William** (1890— ), British air officer, was graduated from Magdalene college, Cambridge, in 1912, and served with the royal flying corps in France during World War I. In 1936, he became air officer commanding the R.A.F. in the far east. He was promoted to deputy commander in chief of the R.A.F., 1940, and to commander in chief, 1941. In 1942, Tedder effectively co-ordinated the air and ground forces in the great El Alamein drive that started in October. He was subsequently knighted, made vice-chief of the air staff and was named air chief of the Mediterranean theatre, Feb. 11, 1943. On Dec. 28, 1943, he was named deputy supreme commander of Allied invasion forces under Gen. Dwight D. Eisenhower. After Air Chief Marshal Leigh-Mallory had been transferred to the southeast Asia theatre of war, Oct. 15, 1944, Sir Arthur directed Allied air operations in western Europe. Tedder signed the German surrender documents in the Berlin ceremony, May 8, 1945, as deputy commander of the Allied armies, representing Gen. Eisenhower. The air ministry announced, Oct. 19, that Tedder would replace Lord Portal as chief of the air staff and first and senior member of the air council on Jan. 1, 1946.

**Telegraphy.** Some of the developments of 1945 and previous years, which were not mentioned because of military secrecy, are discussed below.

**Transocean Telemeter Service.**—A telemeter system using the varioplex principle was installed between Washington and London. This system provides 12 two-way telegraph channels over one land line circuit, Washington to New York, and a submarine cable, New York to London. Each of the channels is equipped with two automatic printing telegraph machines, one for transmitting and one for receiving. By means of a cryptographic unit known as the "telekrypton," messages are automatically and simultaneously incoded as they are typed on the sending teleprinter, in Washington for example, and automatically decoded as they are received in London. Due to the efficiency of such an arrangement this special telemeter service was used extensively prior to and during the Allied invasion of France and Germany. Similar service was also inaugurated on the maritime cables between Canada and Newfoundland.

**Telefax (Automatic Facsimile Telegraph).**—An increasingly large volume of telegraph traffic was being handled by telefax. In 1945 more than 1,500,000 messages were handled by this method. The shortage of materials during the war slowed the installation of additional equipment for civilian use, but pro-

vided a period for further improvement and simplification of facsimile equipment. The use of telefax was extended from the handling of train orders by railroads to the rapid handling of air lines reservations. The feasibility of using telefax for a solution of the problem of providing an automatic record communications system for China with its alphabet of several hundred different characters was demonstrated and machines were shipped to China for the modernization of its record communications system. Facsimile messages and pictures were transmitted experimentally over a microwave radio beam circuit and it was expected that the anticipated rapid extension of these circuits would permit an early development of a nation-wide telefax network.

**Concentrated-Arc Lamp.**—An important by-product of telegraph research during the war years was a new device called the "concentrated-arc lamp." An intense cathode spot which does not change its position provides a point source of light as small as 0.003 in. in diameter. Efficiencies of from one to two candle-power per watt are obtained with the lamp. In addition to its use for purely telegraph communications purposes, the concentrated-arc lamp undoubtedly was expected to find important applications in such fields as lensless projection and enlargement, optical testing, photography and in many new devices which a brilliant point source would make possible.

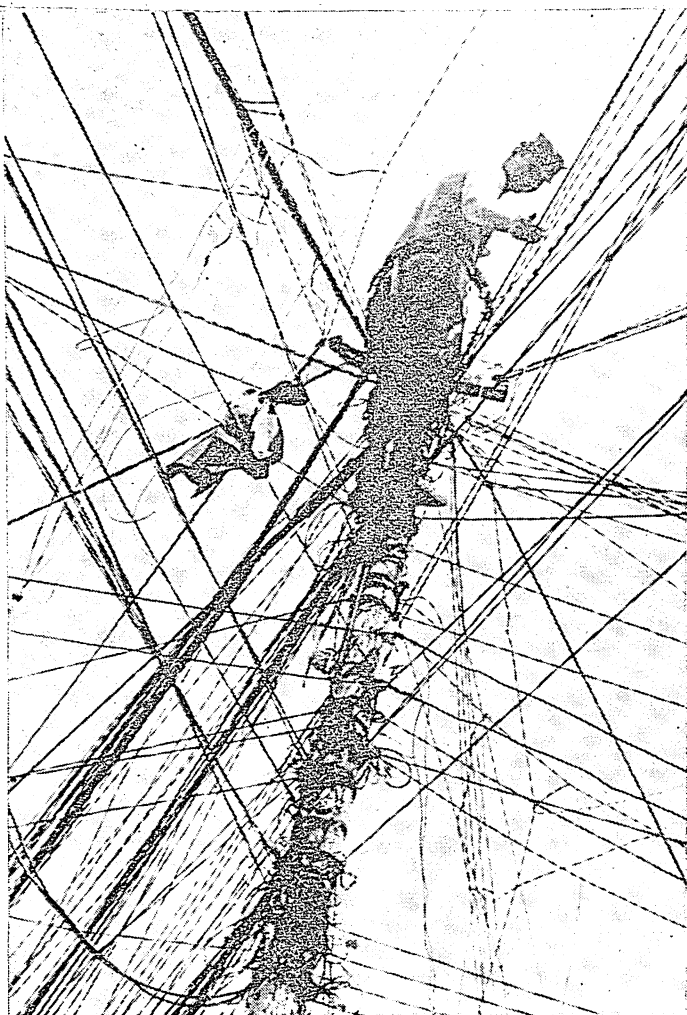
**Carbonyl Iron.**—Research work with carbonyl powdered iron was continued during 1945 particularly in the use of this material for cores in high-frequency coils and transformers. Filters built with these coils served in some applications where crystal filters were formerly thought necessary.

**Automatic Equipment.**—Design changes were made in printing telegraph equipment which permitted operating speeds to be increased for special purposes from the standard 65 words per min. to 100 words per min. Portable test instruments (impulse-measuring sets) were designed to record teleprinter transmission for the purpose of adjusting equipment and measuring transmission losses, without stopping the circuit operation. An improved synchronizing method was developed for multiplex distributors thus making it practicable to use four channel multiplex equipment on long radio circuits, whereas the use of this equipment had previously been confined to land line operation.

**Radio Beam Telegraph.**—One of the most significant advances in the communications field during the war years was the development of a microwave radio beam relay system, which would provide a larger number of channels than were available for the handling of telegraph traffic and would also provide circuits for new uses such as telefax operation and for special leased networks required by large users of the telegraph. An experimental system in operation between New York and Philadelphia indicated that this method of transmission would improve the quality, dependability and speed of telegraph service. New design antennas equipped with parabolic reflectors transmit the signals in a narrow beam using a power of less than one watt. Unattended repeater stations located in towers on hills or mountains roughly 30 mi. apart, depending on the line of sight, automatically relay the telegraph signals without causing delay or interference.

FILMS.—*Development of Communication* (Encyclopædia Britannica Films Inc.). (J. L. E.)

**Telephone.** Until World War II ended, the first effort of the telephone industry in the United States in 1945 was to supply all needed communication and electronic equipment for the fighting forces, and to meet, on the home front, all war needs for local and long-distance service. The arrival of peace made it possible for telephone companies and



TELEPHONE LINEMAN in the U.S. army as he helped to keep communication wires in order on Okinawa during 1945

manufacturers to turn again to the needs of the home front where provision of many service facilities had necessarily been held in abeyance.

At the end of the year, the number of telephones in the U.S. was approximately 27,700,000, an increase during the 12 months of about 850,000. There were about 2,000,000 applications for main telephone service being held awaiting the provision of facilities. These were due in part to lack of telephone instruments, but the larger number of the applications held were due to shortages of cable or central office switching facilities. During 1945, telephone factories produced about 1,000,000 telephones for civilian use, together with many switchboards and related equipment. The industry expected it would be some time before all orders for telephone service held for lack of facilities could be filled, but before the end of 1945 an emergency program was in full swing to meet the needs of all waiting customers as quickly as that could be done.

Records were set in the volumes of local and long-distance calls handled. Local calls averaged 104,000,000 daily, compared with 101,700,000 per day for the preceding year. Completed toll and long-distance calls averaged approximately 4,900,000 daily, an increase of about 400,000 per day over 1944.

As in other years, special efforts were made to provide prompt and pleasing service to men and women in uniform. As many thousands of veterans returned to the U.S. from overseas, telephone centres staffed with experienced employees were ready at debarkation and demobilization points to assist them in placing their calls. To help handle these calls, many new long-distance circuits were put in with record speed.

Following the war's end, it was possible to disclose some of the wartime research and production achievements of the telephone industry. Telephone laboratories were revealed as major

contributors to electronic developments such as radar. Telephone factories were major sources of radar sets, electrical gun directors and computers, and combat radio receivers and transmitters. These products were in addition to great quantities of field telephones, switchboards and wire supplied to the armed forces.

To provide service for all who want it, to restore adequate telephone facilities and to develop numerous improvements in service, the Bell system at the war's end inaugurated the largest construction program in its history. Among other objectives, the program aimed to make telephone service available to 1,000,000 additional farm homes within the forthcoming few years. As part of over-all plans to strengthen the long-distance networks, some 1,500 mi. of coaxial cable had been placed in the ground by the year's end, with several thousand more miles scheduled for completion in the forthcoming few years. Suitably equipped, this type of cable can transmit television or carry several hundred telephone conversations simultaneously. Such a system, therefore, not only provides needed additional telephone circuits in large quantity, but can also serve as the basis for a nation-wide television network.

During the year, construction was also going forward on two experimental microwave radio relay systems that were expected to be suitable for transmission of telephone messages or television. Plans to provide mobile radiotelephone service to vehicles, permitting two-way voice communication between mobile units and any regular telephone, were announced. Progress also was reported in the automatic long-distance switching program, the goal of which is to enable any operator to dial direct, without assistance of another operator, any telephone in the United States.

FILMS.—*Development of Communication* (Encyclopædia Britannica Films Inc.). (W. S. G.)

**Television.** United States.—Television in 1945 moved much nearer to the establishment of a nation-wide sight and sound entertainment and educational service. One of the main issues was settled on June 27, 1945, when the Federal Communications commission announced frequency allocations for television. There were 13 six megacycle (mc.) channels established; six of which were located between 44 and 88 mc. and seven were between 174 and 216 mc. The 44 to 88 mc. band included, in addition to the six television channels, 4 megacycles between 50 and 54 mc. for amateur use and 4 megacycles between 72 and 76 mc. for nongovernment fixed and mobile services. Frequencies were assigned by the commission between 480 and 920 mc. for experimental broadcasting of both high resolution monochrome television and television in colour.

It was estimated that the 13 channels allocated to commercial television broadcasting would permit more than 400 stations throughout the United States with a maximum of seven in any metropolitan area. In the congested eastern seaboard region, interference problems limited the number of stations which could be allocated to cities such as Philadelphia, Baltimore and Washington. The Federal Communications commission had on file at the end of the year more than 130 applications for commercial television broadcasting licences.

A renewed interest in television program experimentation was evident during the year. Live talent studio pickups which had been discontinued during World War II were resumed. Numerous outdoor and indoor sporting events were televised. One of the notable events of the year was the broadcasting by stations in New York, Philadelphia, Pa., and Schenectady, N.Y., of the Army-Navy football game from the Municipal stadium, Philadelphia. The program was relayed to New York by coaxial cable and on to Schenectady by radio relay.



Further progress on the network problem was announced during the year. The American Telephone and Telegraph Co. completed its coaxial cable installation from New York to Washington, D.C., through Philadelphia as an intermediate point. For comparative purposes, the Telephone company was installing a radio relay link between New York and Boston, and expected to have by 1950 a coast-to-coast radio and cable network for television program distribution. Early in the year, the Philco corporation gave a demonstration of a television radio relay system between Washington and Philadelphia, and other organizations announced plans for the study of radio relay systems for television.

The inability to televise scenes under unfavourable light conditions has been a serious limitation to the broadcaster. That a satisfactory solution to this problem is at hand was indicated by the announcement of a new pickup tube developed by the RCA laboratories. The new tube, called the Image Orthicon, has a light sensitivity at least 100 times greater than prewar camera tubes. A television camera employing this tube was used by the National Broadcasting company to broadcast the Navy day dinner from the dimly lighted ballroom of the Waldorf Astoria hotel.

The Westinghouse company announced that in a co-operative venture with the Glenn L. Martin company it planned to investigate the possibility of broadcasting both frequency modulation and television programs from transmitters in planes flying at altitudes of 30,000 ft.

During the year, several demonstrations were given of projection type home television receivers equipped with special optical systems having high light efficiency and producing pictures approximately 18 by 24 in. It was expected that both direct viewing and projection type receivers would be ready for sale by the summer of 1946. (B. E. Sd.; G. L. Bs.)

**Great Britain.**—The report of the television committee, appointed in 1944 to prepare plans for the reinstatement and development of postwar television in Britain, was published early in 1945. The principal conclusions reached were that the television service should be recommenced on the standards in use before World War II (405 lines, interlaced, 25 frames per second) and that the service should be extended to six of the most populous centres in the provinces as quickly as possible. At the same time it was recommended that vigorous research should be begun on an improved system with a definition approaching that of the cinema and possibly incorporating colour and stereoscopic effects.

It was hoped that the television service would ultimately become self-supporting and not depend for part of its revenue on the ordinary broadcast licence fees and grant from the government, as in prewar days. To

this end it was suggested that a special licence for domestic viewers of £1 per annum should be introduced and that a cinema licence should be made available later.

Among the reasons given for the committee's recommendation were the importance of starting the public service again with the minimum of delay, the prevention of the dispersal of highly-trained staff from the BBC television station (most of whom were engaged in war work), avoiding the scrapping of the existing receivers in the hands of the public, and the difficulty of putting a greatly improved service into use within a reasonable time. "To leave a gap of some years without any television service would dampen interest and seriously retard commercial development in this country."

On the question of international standardization, the committee agreed that, while for the present it was not possible to fall into line with the existing U.S. practice, the earliest opportunity should be taken of reaching international agreement on the bands of frequencies to be allocated to television. On Nov. 5 the BBC announced the appointment of Maurice Gorham to take charge of the television service when it should begin. It was stated also that in addition to the London station at the Alexandra palace it was proposed to open six stations in the provinces, all transmitting the same program. It had not been found possible to increase the 40-mi. radius of transmission, but with the seven-station link-up 75% of the country's population would be able to see the program. Further appointments to the projected service announced later were those of D. C. Birkinshaw to be superintendent engineer from Dec. 1 and of H. W. Baker to be engineer-in-charge, television station Alexandra palace from Dec. 5.

**Europe.**—It was reported from France that the Paris television service had been resumed in 1940 under German control on a standard of 441 lines. On their departure from Paris, the Germans wrecked the Eiffel tower transmitter and dismantled the studio equipment. In 1945 it seemed probable that the service would be resumed on the old standard of 441 lines 50 fields, interlaced, as soon as the necessary repairs could be made.

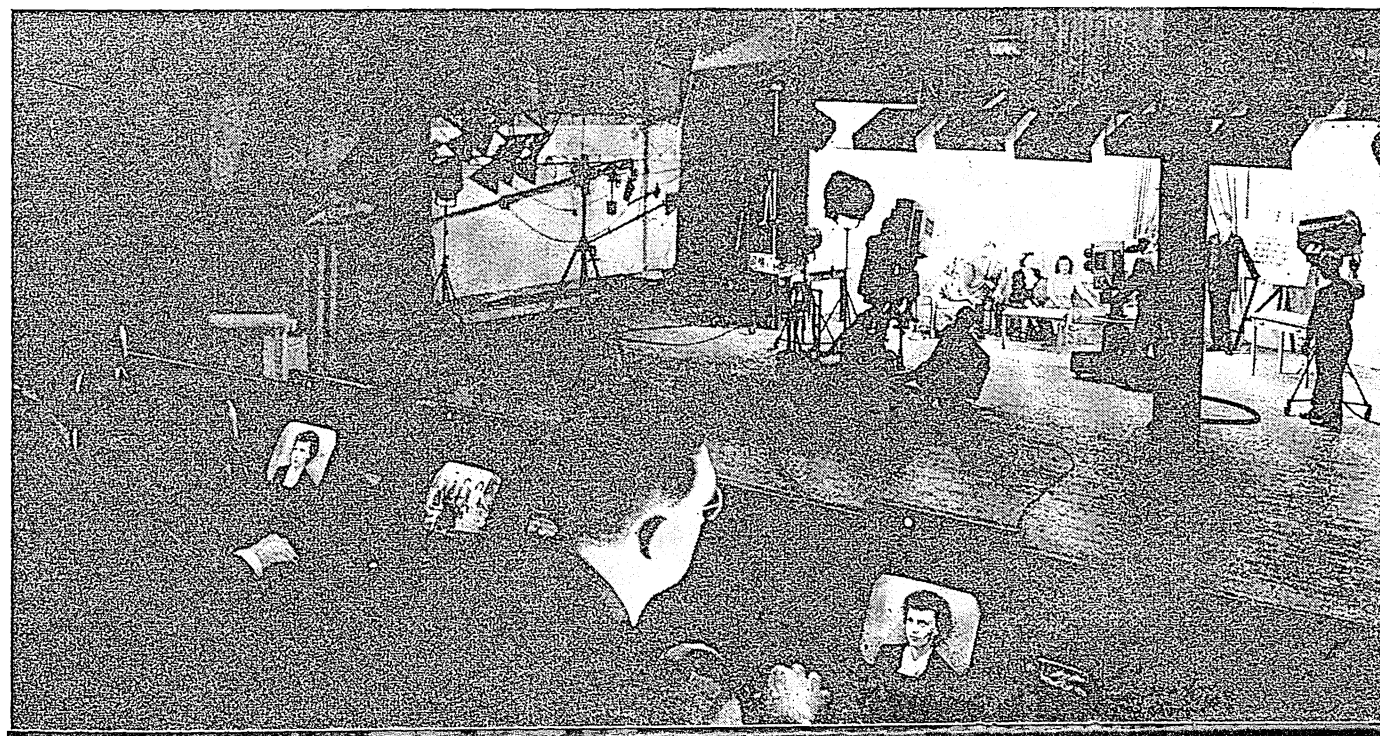
It was also reported that R. B. Barthelemy, the well-known French radio engineer, had developed a system of 1,000 lines definition, using a pick-up camera of a new type.

**BIBLIOGRAPHY.**—*Report of the Television Committee* (H. M. stationery office). (G. P.)

**Tellurium.** The production of tellurium in the United States increased from 56,174 lb. in 1943 to 69,025 lb. in 1944, but sales dropped 62,260 lb. to 45,323 lb., and stocks rose to 163,105 lb. In Canada production was low—8,600 lb. in 1943 and 10,166 lb. in 1944, but the preliminary estimate of the 1945 output rose to 42,000 lb. Several other countries were producers on a smaller scale, but no figures were available in 1945. (G. A. Ro.)

**Tennessee.** A south central state, 16th to enter the union, called the "Volunteer state." Land area 41,961 sq.mi., water area 285 sq.mi. Population (1940) 2,915,841; rural 1,888,653; urban 1,027,206; rural farm 1,271,944; native white 2,395,586; Negro 508,736; foreign-born 11,320; other races, 199. The bureau of the census estimated the civilian population on July 1, 1944, at 2,870,158. Capital, Nashville (167,402). Other cities include Memphis (292,942); Chattanooga (128,163); Knoxville (111,580).

CONTROL ROOM at the New York studios of television station WCBW on the Columbia Broadcasting System during 1945



**History.**—Governor of Tennessee in 1944-45 was James Nance McCord; secretary of state, Joe C. Carr; state treasurer, C. C. Wallace; comptroller of the treasury, Sam K. Carson; adjutant general, Rufus E. Fort, Jr.; attorney general, Roy H. Beeler. Commissioners were as follows: agriculture, O. E. Van Cleave; conservation, Paul S. Mathes; education, Burgin Dossett (superintendent of schools, appointed by governor); finance and taxation, George F. McCanless; highways and public works, C. W. Phillips; institutions, Dr. W. O. Baird; welfare, William A. Shoaf; insurance and banking, James M. McCormack; labour, W. E. Jacobs, Sr.; public health, Dr. R. H. Hutcheson; railroad and public utilities, Sam Pharr, Leon Jourolman, Jr., John Hammer; safety, Lynn Bomar; employment security, W. O. Hake.

**Education.**—In 1944, of 5,067 elementary schools, 1,464 had three or more teachers; the number of one-teacher schools declined from 3,555 in 1927 to 2,393 in 1944. Enrolment in elementary schools in 1944 was 496,844. In 1944 there were 557 high schools with a total enrolment of 109,576; the number of teachers, 5,074.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—In Oct. 1944, the total amount of assistance was \$974,348; 37,805 old-age recipients received \$607,098; aid to dependent children, 29,092 (11,060 families), totalled \$336,572; aid to the blind, 1,537, amounted to \$30,498. In 1944-45 there were eight correctional institutions; expenditures \$1,576,521. Separate schools were maintained for the blind, the deaf and the underprivileged; three state hospitals for the insane; a home and training school for feeble minded.

**Communications.**—Of about 82,000 mi. of public road, 7,491 mi. were state highways; state expenditures were \$10,259,662 for the year ending June 30, 1945. There were 3,507 mi. of railroads in Dec. 1944. As of Oct. 1945, there were 879 mi. of designated airways and 39 airports, of which eight were class I, 17 class II, seven class III, four class IV and three class V—class V accommodating the largest planes. There were 353,400 telephones in the state, 245,100 residential and 108,300 business. Water-borne commerce on the Tennessee river in 1943 amounted to 2,869,218 short tons; Cumberland river 712,059, Mississippi river 10,891,691 short tons from Ohio river to Baton Rouge, La., and 3,088,357 at Memphis.

**Banking and Finance.**—In April 1945 there were 70 national banks, and in June 1945, 222 state banks; assets \$1,215,916,000 for national and \$552,843,845 for state banks; deposits \$1,154,975,000 for national banks and \$522,117,265 for state banks. Savings and loan associations, Dec. 31, 1945, numbered 39 with assets of \$49,831,641.

Total state revenue for the fiscal year 1944-45 was \$55,638,228; revenue shared with counties and cities, \$7,593,200; revenue for state purposes, \$48,045,028. Direct bonded debt for the state was \$76,355,500; highway reimbursement debt \$7,060,137; gross debt \$83,415,637; unencumbered surplus in sinking fund \$7,525,245; net debt \$75,890,392.

**Agriculture.**—There were 239,285 farms in 1945; 18,005,762 ac. in farms. Gross value of agricultural production in 1944, was \$425,543,000; cash farm income, \$330,402,000 (including government payments); cash farm income from crops was \$156,003,000; from livestock and livestock products \$159,000,-

000; government payments to farmers \$15,399,000. Gross farm income from crops was \$192,185,000 in 1944. The forest area was about 14,000,000 ac.

**Manufacturing.**—In 1939 (the latest data available in 1945), 2,289 manufacturing plants yielded products valued at \$728,087,825, of which \$320,341,902 was added by manufacture. The number of wage earners increased from 107,645 in 1925 to 131,874 in 1939; wages paid in 1939, \$109,661,769.

**Mineral Production.**—The total value of minerals produced

Table II.—Principal Mineral Products of Tennessee, 1944 and 1943

Mineral	Value, 1944	Value, 1943
Coal . . . . .	\$23,088,000	\$20,321,025
Stone . . . . .	7,776,775	10,047,944
Zinc . . . . .	9,309,468	9,021,456
Cement . . . . .	6,080,921	7,342,894
Sand and gravel . . . . .	2,314,478	2,285,339
Clay products (other than pottery and refractories) . . . . .	1,500,000	1,800,000
Lime . . . . .	1,246,802	1,503,850
Clay, raw . . . . .	764,016	759,806
Barite . . . . .	279,567	383,007

in Tennessee in 1944 was \$63,382,000 compared with \$64,485,000 in 1943. (C. E. A.)

**Tennessee Valley Authority.** With the end of World War II in 1945, TVA again turned its attention to its long-range peacetime function. Conversion from war to peace did not involve any major changes, for TVA's role, both in war and peace, is the development and prudent use of the region's natural resources.

Thus, 1945 saw the virtual completion of its system of dams and their attending reservoirs, the creation of a 650-mi. deep water navigation channel, the capacity to impound immense quantities of potentially dangerous floodwater, and the production of about 12,000,000,000 kw.hr. of electricity.

The two largest dams in the TVA system, Kentucky and Fontana, were completed during 1945. The system's total reached 22, 16 of which were built by TVA. The completion of the Kentucky dam and reservoir assures a substantial measure of flood control in the Mississippi river, south of Cairo, Ill., for this one reservoir alone provides more than 4,000,000 ac.-ft. of useful flood storage and is capable of reducing the flood crest about 3 ft. at Cairo, Ill. All five of Kentucky's generating units, totalling 160,000 kw., were in operation as the year closed. The Fontana dam on the Little Tennessee river is the fourth largest concrete structure in the world. It is 480 ft. high and contains approximately 3,000,000 cubic yards of concrete. It was completed on a wartime 24-hour schedule in about three years. Two of its three units, totalling 135,000 kw., were operating in 1945.

Three-quarters of TVA power prior to V-J day was used for war purposes, either directly by industry from the TVA transmission system or through the facilities of 138 municipal and co-operative distributors. On Jan. 30, 1945, when the Fontana reservoir reached operating level, TVA under its agreement with the Aluminum Company of America began directing releases from the latter's reservoirs, thus integrating their operation with that of TVA dams, to assure maximum flood control and power production.

At the close of 1945, the TVA installed generating capacity was 2,264,982 kw., not including 311,120 kw. of installed capacity in the Aluminum Company of America dams.

Gross power revenues in the fiscal year ending June 30, 1945, were \$39,383,231 and net income after all power expenses amounted to \$17,945,460. Return on the average power investment was 4.76%.

Retail power distribution by 138 locally owned and managed municipal and co-operative systems brought them gross revenues of \$38,293,500 and a combined net income of \$7,326,000. About 600,000 consumers were being served by these systems.

Table I.—Leading Agricultural Products of Tennessee, 1945 and 1944

Crop	1945*	1944
Corn, bu. . . . .	67,151,000	59,950,000
Tame hay, tons . . . . .	2,628,000	1,601,000
Cotton, bales . . . . .	495,000	562,000
Wheat, bu. . . . .	5,688,000	6,714,000
Tobacco, lb. . . . .	131,985,000	125,645,000
Potatoes, bu. . . . .	3,485,000	2,464,000
Sweet potatoes, bu. . . . .	3,300,000	4,128,000

\*Estimated.



Domestic consumers under TVA rates used an average of 1,754 kw.hr. during the year and paid 1.85 cents per kw.hr., as compared with the national average use of 1,186 kw.hr. and national average domestic rate of 3.47 cents per kw.hr.

Four distributors—Starkville and Columbus, Miss., and Trenton and Lewisburg, Tenn.—initiated rate reductions saving their consumers \$100,000 annually. Four others previously had gone on the lower rates. The new domestic rate was about 25% below the standard TVA domestic rate, while savings to commercial and industrial consumers ranged from 1% to 20%.

TVA achieved a 26% increase in output of elemental phosphorus, an important munition. TVA shipped 8,314 short tons of anhydrous ammonia and 15,360 short tons of munitions grade ammonium nitrate crystal to the ordnance department during the fiscal year. Ammonium nitrate fertilizer produced totalled 111,390 short tons. Calcium carbide production for the synthetic rubber program totalled 82,455 short tons in the fiscal year 1945.

Increased demands for elemental phosphorus caused a fourth successive annual reduction in production of concentrated phosphatic fertilizers which had been used with success in soil- and water-conserving types of agriculture on test-demonstration farms in 28 states. Of the 29,793 short tons of phosphorus produced, an all-time high, 4,041 short tons were available for fertilizer. This was used to produce 22,358 short tons of concentrated super-phosphate and 4,149 short tons of calcium metaphosphate. TVA also produced 6,440 short tons of dicalcium phosphate for use as a supplement to stock feeds, helping replace shortages caused by cutting off of U.S. imports of bone meal.

TVA forestry activities were aimed at increasing timber output for war and at the same time encouraging cutting practices which preserve forests and woodlands as future assets. The Tennessee valley, it is estimated, produced 600,000,000 bd.ft. of lumber during 1945. During the year, 100 demonstrations of sustained-yield management were established co-operatively with state extension services or conservation departments. The woodland management program was extended to 11 new counties, making a total of 78 valley counties having one or more demonstrations.

By June 30, 1946, the TVA would have received congressional appropriations totalling \$677,617,270 and \$63,072,500 from sale of bonds.

At the close of the fiscal year 1945, TVA employees totalled 12,348. The board of directors consisted in 1945 of David E. Lilienthal, chairman, Harcourt A. Morgan and James P. Pope. (See also DAMS; ELECTRICAL INDUSTRIES; PUBLIC UTILITIES.) (K. R. K.)

**Tennis.** The end of World War II, and the defeat of Japan in midsummer enabled more tennis tournaments to be held in 1945 than in 1944, although lists were still depleted, and often composed largely of servicemen out of training. The national championships were as usual held on the Labor day week end at the West Side Tennis club, Forest Hills, L.I. Although few foreign entrants competed, and the majority of the best men in the U.S. were still overseas, more players took part than in 1944. The singles title was again won by Sgt. Frank Parker, who again defeated William Talbert, this time in three sets; 14-12, 6-1, 6-2. The best match of the tournament was the final of the women's singles, won by Mrs. Elwood T. Coke, who as Miss Sarah Palfrey won her first national championship in 1930. Returning to competitive play after an absence of several years, she defeated Miss Pauline Betz, who had won three successive singles titles, by a score of 3-6, 8-6, 6-4.

(J. R. T. V.)

**Termites:** see ENTOMOLOGY.

**Teschen.** The district of Teschen was in 1945 disputed between Czechoslovakia and Poland. The duchy of Teschen (Tessin) was originally ruled by Polish princes but became a part of the lands of the Bohemian crown in 1335. It is of great strategic and economic importance. It is the watershed between the Vistula (Baltic sea) and the Danube (Black sea) and the crossroads of the railroads from Berlin to Budapest and from Vienna to Warsaw. In its territory are important coal mines on which Czechoslovak industry largely depended.

Czechoslovakia and Poland disputed the area in 1919. The Council of Ambassadors decided on July 28, 1920, to partition the territory, and the solution was accepted though against Polish wishes. The weakness of Czechoslovakia at the time of the Munich crisis was used by the then Polish government to present an ultimatum to Czechoslovakia for the Czechoslovak part of the Teschen district. In 1945, in spite of all protestations of Slavic brotherhood and in spite of the fact that both governments were Russian controlled, the struggle for Teschen flared up with undiminished violence between the two governments. The Polish army occupied the territory on June 19. The Czechoslovak government immediately protested. It declared that any cession of the territory to the Poles would affect the most vital interests of Czechoslovakia. In spite of many attempts no agreement was reached during 1945. The question was left to a decision by the peace conference. (H. Ko.)

**Texas.** A west-south-central state of the United States; the 28th state admitted to the union on Dec. 29, 1845. Popular name, "Lone Star state." Area, 263,644 sq.mi. of land and 3,695 sq.mi. of inland water surface. Pop. (July 1, 1944) 6,876,248; est. Jan. 1, 1945, 6,750,000. Rural pop. (1940) 3,503,435 or 54.6% of total. During the World War II period rural migration to industrial centres amounted to 500,000; there was a moderate reversal of migration, city to country, during the latter part of 1945. White pop. (1940) 5,487,545; Negro, 924,391; other 2,888. Native pop. 6,179,296; foreign-born 235,528, principally from Mexico. Capital, Austin (87,930 in 1940). Four largest cities (1940): Houston (384,514); Dallas (294,734); San Antonio (253,854); Fort Worth (177,662). These cities accumulated approximately 25% additional population each, 1940-45.

**History.**—The closing of large ordnance, aeroplane and ship-building plants, built for war production, was the outstanding event of 1945, causing some redistribution of population and lessening of drastic labour shortage. The only state election in 1945 was on Aug. 25 when three constitutional amendments were adopted, increasing the supreme court from three to nine members; providing for soldier voting without poll tax for a limited time after the war; and giving state agencies wider discretion in distribution of social welfare benefits; one amendment, increasing legislative pay, was defeated. Submission of these amendments was the principal permanent result of the 49th legislature in biennial session Jan. 2 to June 5. The controversy over University of Texas control continued during 1945 with the institution placed on probation by the Southern Association of Colleges and Secondary Schools.

The principal state officers (biennium, Jan. 1, 1945, to Dec. 31, 1946) were: governor, Coke R. Stevenson; lieutenant governor, John Lee Smith; secretary of state, Claude Isbell; comptroller, George H. Sheppard; attorney-general, Grover Sellers; treasurer, Jesse James; superintendent of public instruction, L. A. Woods; state land commissioner, Bascom Giles; chief justice of the supreme court, James P. Alexander; railroad commission (having administration of transportation, oil and nat-



ural gas), Olin Culberson (chairman), Beauford Jester and Ernest O. Thompson.

**Education.**—Expenditures for public schools in 1945 were \$130,000,000, from about half state and half local revenue. There were 1,007 independent and 4,841 common school districts; 1,246 accredited four-year high schools. Scholastic population (6-17 years) in 1944-45 was 1,495,974; enrolment, 1,043,438. Classroom teachers, 36,602. Average salary: white \$1,354; Negro, \$920. University enrolment (1945-46) 7,729, was 34% less than the prewar average. Enrolment of seven state teachers' colleges was 4,820, also considerably under the prewar normal.

**Social Insurance and Assistance; Public Welfare and Related Programs.**—On old-age pension rolls were 175,000 persons; aid to dependent children, 10,500 persons; aid to blind, 4,600 persons. Average monthly payments: old-age, \$21.00; dependent children, \$9.00 per child and \$21.00 per family; blind, \$24.00.

As of Dec. 31, 1945, there was available for payment of unemployment compensation a sum of \$154,575,189. Employers in Texas subject to the Unemployment Compensation act in 1945 numbered 20,624. Total taxable wages paid by these employers to their workers in 1945 was somewhat in excess of \$1,500,000,000 and taxes amounted to about \$14,000,000. During the calendar year 1945 the Unemployment Compensation commission paid \$3,971,526 in unemployment benefits. However, these payments increased from month to month throughout the year, from about \$54,000 in January to \$1,219,166 in December.

All forms of pension payments, after declining for several years, turned upward in latter 1945. State eleemosynary institutions included 12 hospitals for mental diseases, a sanatorium for tuberculars, a state school for the blind white, a state school for the deaf white, a state school for blind and deaf Negroes, two homes for delinquent white children, two homes for white orphans, one home for Negro orphans and one home for crippled white children.

**Communication.**—The public road system had a total mileage of approximately 195,000, of which 24,664.96 mi. were in the designated highway system on Aug. 31, 1945. Total disbursements, 1944, were \$46,615,967.39. Texas railway main line trackage was 15,752.73 mi. Truck line revenue was \$44,401,557.49; bus, \$42,560,560.00. Texas had approximately \$20,000,000 annually of foreign exports; \$1,500,000 of foreign imports; \$66,000,000 annually of outbound coastwise shipments; and \$6,000,000 of inbound shipments. Nine commercial air lines traversed the state, with a total of 294 commercial airports. Telephone exchanges numbered 1,061; total telephones, 983,941.

**Banking and Finance.**—There were on Jan. 1, 1945, 398 state and 436 national banks with resources of \$780,910,000 and \$4,092,473,000, respectively; total, \$4,873,383,000. Life insurance in force amounted to \$4,663,000,000. The number of policies was 5,168,000. Total state government disbursements were \$185,000,000, of which 37% was for education; 29% for pensions and benefits; 20% for highways; 14% for administrative, legislative and judicial.

**Agriculture.**—The total crop value in 1945 was \$754,914,000, a marked decline from 1944 because of drought conditions in parts of the state. Cotton acreage of 6,000,000 and production of 1,820,000 bales were the lowest after 1895, the result of 15 years of cotton decline as acreage was diverted to other crops. The census of 1945 showed a continued decrease in the number of farms and number of tenants and an increase in the average size of farms and the degree of mechanization. More than 50 crops were produced on a commercial scale during 1945.

Table I.—Leading Agricultural Products of Texas, 1945

Crop	Production	Value
Cotton lint (bales) . . . . .	1,820,000	\$193,830,000
Wheat (bu.) . . . . .	41,778,000	61,414,000
Corn (bu.) . . . . .	66,832,000	80,198,000
Sorghum for grains (bu.) . . . . .	60,921,000	71,887,000
Cottonseed (short tons) . . . . .	741,000	39,273,000
Rice (bu.) . . . . .	18,000,000	34,560,000
Oats (bu.) . . . . .	42,441,000	29,284,000
Grapefruit (boxes) . . . . .	23,000,000	28,750,000

The value of all livestock on Texas farms on Jan. 1, 1945, was \$583,259,000.

Table II.—Number and Value of Livestock in Texas, Jan. 1, 1945

Livestock	Number	Value
All cattle . . . . .	7,590,000	\$376,241,000
Milk cows only . . . . .	1,593,000	103,545,000
Hogs . . . . .	2,019,000	32,182,000
Sheep . . . . .	10,091,000	60,673,000
Goats . . . . .	3,500,000	15,050,000
Horses . . . . .	559,000	30,713,000
Mules . . . . .	372,000	29,597,000
Chickens . . . . .	33,972,000	34,651,000
Turkeys . . . . .	856,000	4,152,000

**Manufacturing.**—Because of the large amount of Texas manufacturing which was diverted to war production, no data were issued after 1940 when there were 5,376 plants with 126,996 wage earners and a value of \$1,530,220,676 of production. The total value of production in 1945 was estimated at \$3,000,000,000, a precipitate drop from approximately

Table III.—Leading Mineral Products of Texas, 1944

Mineral	Quantity	Value
Oil, bbl. . . . .	748,947,000	\$906,226,000
Natural gas, cu. ft. . . . .	1,323,885,000,000	199,900,000
Natural gasoline, gal. . . . .	1,196,237,000	57,030,000
Sulphur, short tons . . . . .	2,582,237	38,174,544

\$4,500,000,000 in 1944, because of the closing of most of the war plants in the latter part of 1945.

**Mineral Production.**—Texas in 1944 was the leading mineral producing state with a total value of production of \$1,160,000,000. Petroleum, natural gas and natural gasoline accounted for a large percentage of this value, though there were approximately 60 other kinds of minerals produced commercially. (S. McG.)

**Texas, University of.** A co-educational institution of higher education at Austin, Tex., with seven schools and colleges and a graduate school. The 63rd annual session opened Sept. 1, 1945, continuing under the trimester calendar which was to revert to the two-semester basis in Sept. 1946. There were 9,191 students enrolled, including 2,260 veterans of World War II. Emphasis was given in mathematics, natural sciences, engineering, business, social sciences and graduate work in all fields in which interest was shown by the veterans, and special housing was provided for this group within the resources of the institution. The navy V-12 program, which had been in operation from July 1943, was continued through the school year, although with fewer trainees than in former years. The third co-operative summer field school was held in Mexico City in 1945 under the joint direction of the University of Texas Institute of Latin American Studies and the National University of Mexico, and the program of teaching of English as a second language was continued with a special six weeks' program for teachers. The medical school is located at Galveston, Tex., the school of dentistry and the M. D. Anderson Hospital for Cancer Research are both in Houston, Tex., the College of mines and metallurgy is in El Paso, Tex., all of which are branches of the University of Texas. (For statistics of enrolment, faculty, library volumes, endowment, etc., see UNIVERSITIES AND COLLEGES.) (T. S. P.)

**Textile Industry.** Superimposed upon the normal business of the textile industry of supplying clothing for the United States was the additional task of supplying clothing, parachute cloth and hundreds of other items for the armed forces, as well as industrial fabrics in unprecedented volume for war industries. After cessation of hostilities in 1945, the industry faced a continued record demand for the immediate postwar period—and threatened then to revert later to its position of one of the most easily depressed of all industries.

The reasons for this apparent paradox were simple. In the first place; textiles were probably the easiest of all major industries to convert to wartime use. Overnight, the industry became the quartermaster general's arsenal of democracy. In the second place, textiles were probably the easiest of all major industries to reconvert to peacetime use. The technical difficulties were negligible compared with most other industries supplying major requirements for World War II.

But it was equally true that the easiest industry for a newly awakened industrial country to "invade" was the textile industry. That was exactly what most of the free or liberated countries were expected to do: start to make textiles.

The U.S., with an increasingly high wage-level, was expected to be at an ever-increasing disadvantage in the production of old-line textiles. Synthetics offered another problem.

From the standpoint of the industry itself, this whole prospect involved problems—but from the standpoint of the consumer it involved better and better textiles, at lower and lower prices. World competition was expected to force research and the results, added to those achieved during the war by research on military fabrics, should mean more versatile, more durable and more attractive fabrics, at less cost. (See also COTTON; RAYON AND OTHER SYNTHETIC FIBRES; WOOL.)

FILMS.—*Clothing* (Encyclopædia Britannica Films Inc.).

(D. G. Wo.)

**Thailand:** see SIAM (THAILAND).

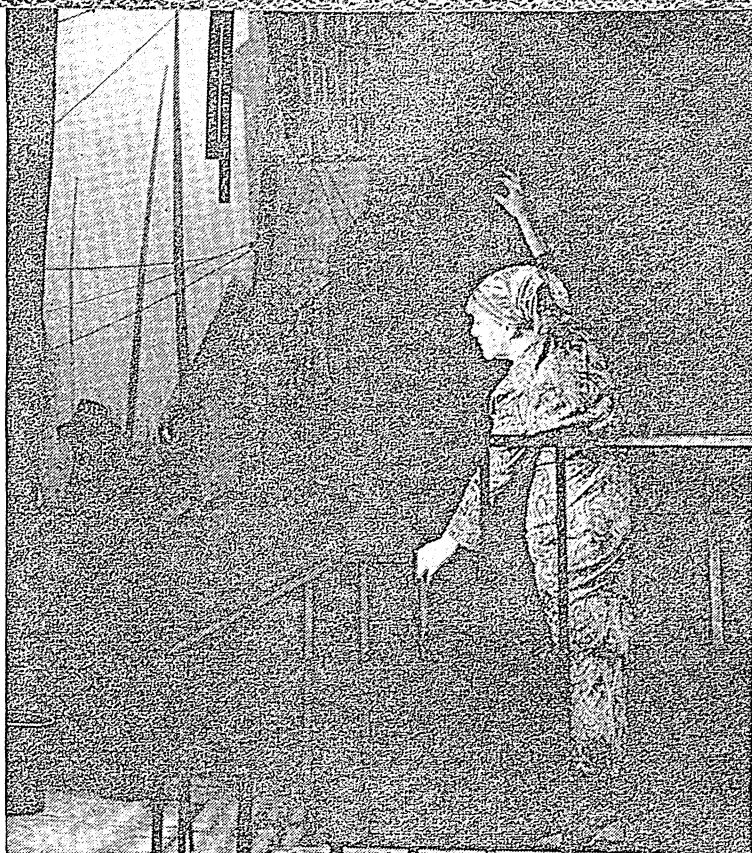
**Theatre.** U.S.—As in 1944 and 1943, the financial prosperity of the theatre in the U.S. in 1945 was out of all proportion to the critical quality of most of the stage offerings. The box office responded to many plays and shows ranging from the but relatively meritorious to the distinctly inferior. Only such as were downright impossible, and were so designated by the critics, were consigned by the public to limbo, and even in this catalogue there were occasional exceptions. Thus, though the majority of the reviewers had forcefully condemned exhibits like *School For Brides* and *Catherine Was Great*, they continued to run far into 1945 from the previous year, the former lasting out the entire season in New York city and the latter achieving 191 performances and thereafter taking to the road with good returns. The abrupt failures indicated only that, despite the public's hunger for the theatre, there was a limit beyond which its appetite, however indiscriminate, simply could not go.

The relatively meritorious plays alluded to were few. *Dark Of The Moon*, by Howard Richardson and William Berney, based upon the paraphrased Barbara Allen folk legend of the Carolina Great Smokies, was one. Though faulty in casting, staging and direction, a measure of poetic imagination emerged from it and two or three of its scenes managed a telling effect. *The Glass Menagerie*, by Tennessee Williams, was to a lesser degree another. Admirably staged and acted—the production was one of the finest the theatre had proffered in some years—the presentation, which dealt with the futile lives of a St. Louis slum family, created an audience mood not readily forgotten. As a playscript, the exhibit was defective, but the arts of the theatre brought to bear upon it contrived to conceal the flaws and to convert it into an impressive stage evening. Laurette Taylor's rare performance, a first-rate company, Jo Mielziner's setting and lighting and Eddie Dowling's direction thus manoeuvred the play into the choice of the New York Drama Critics' Circle as the season's best, though *Dark Of The Moon* might have been a wiser selection.

John Patrick's *The Hasty Heart*, which treated of a stubbornly suspicious and selfish Scot soldier's gradual surrender to the friendly offices of his fellow soldiers, was highly esteemed by some of the reviewers, but seemed to others an essentially grease paint job, though not without one or two episodes that exercised a modicum of sympathetic appeal. John van Druten's sex comedy, *The Mermaids Singing*, though disesteemed by the majority of the reviewers, indicated his locally unmatched talent for such comedy and provided a cultivated theatre occasion. And Harry Brown's play of U.S. soldiers during the Italian invasion, *A Sound of Hunting*, while covering familiar theatrical ground, displayed numerous sound critical virtues, though it, too, was received unfavourably by most of the newspaper critics.

In the musical department, *Carousel*, with music by Richard Rodgers and book, derived from Molnar's *Liliom*, and lyrics by Oscar Hammerstein II, was the year's best. There was, however, very little critical competition, most of the other shows representing a new aggregate low. The losses on these amounted to something well over \$1,500,000, since the public, warned by the critics, would have nothing to do with them. Among the costly failures, which could not draw customers even from an otherwise carelessly spending populace, were *Sing Out, Sweet Land!*, *A Lady Says Yes*, a poor revival of *La Vie Parisienne*, *The Firebrand Of Florence*, *Memphis Bound*, *Hollywood Pinafore*, *Mr. Strauss Goes To Boston*, *Carib Song* and *The Girl From Nantucket*, the last named alone losing something like \$360,000.

Several musicals of indifferent merit succeeded, however, in achieving long and financially blessed runs, among them *Up In Central Park* and *On The Town*, as did also a decidedly poor



LAURETTE TAYLOR and Eddie Dowling in a scene from Tennessee Williams' *The Glass Menagerie*, which was judged the season's best play by the New York Drama Critics' Circle on April 10, 1945

one called *Are You With It?* And a revival of Victor Herbert's melodious *The Red Mill* prospered beyond expectations.

One feature of the year was the number of successful hold-overs from not only the previous year but the years before that. These included the phenomenal *Life With Father*, which entered its seventh year; the ditto *Oklahoma!*; *Harvey*, which was awarded the Pulitzer prize; *Anna Lucasta*, which substituted a second company for the original which in turn scored a great success in Chicago; *I Remember Mama*; *Bloomer Girl*; *Follow The Girls*; *Song Of Norway*; and *The Voice Of The Turtle*.

Dramatic revivals included *The Tempest*, which enjoyed a successful engagement of 100 performances in New York but managed only a mediocre road engagement; a semi-amateur performance of *As You Like It*, which collapsed within a week; *The Barretts Of Wimpole Street*, which scored 87 performances; a short-lived *You Can't Take It With You*; Maurice Evans' duplication of the *Hamlet* which he had presented in Honolulu and elsewhere to the G.I.'s; and Shaw's *Pygmalion* with Gertrude Lawrence in the leading role.

Among the U.S. playwrights of past position, George Kelly appeared with a dramaturgically dubious but periodically interesting study of a female egoist called *The Deep Mrs. Sykes*; Elmer Rice with *Dream Girl*, a suggestion of *Lady In The Dark* without music; Robert Sherwood with an over-garrulous and uninteresting propaganda play, called *The Rugged Path*, about an idealistic newspaper editor's search for his soul; Irwin Shaw with *The Assassin*, a fair to middling melodrama about the Darlan murder; Vincent Lawrence with *The Overtons*, a very uneven but intermittently witty rewrite of an earlier play; Philip Barry with *Foolish Notion*, a juvenile treatment of its characters' imaginings; S. N. Behrman with a lacklustre pro-working man dramatic lecture, *Dunnigan's Daughter*; and Howard Lindsay and Russel Crouse with a critically negligible but prosperous box-office exhibit, *State Of The Union*, dealing with self-seeking politicians in opposition to a political idealist.

Many Hollywood writers hopefully laid siege to the theatre, but mainly with disastrous consequences. Of them all, only

## Statistics of the Theatre in New York City, 1945 and 1944

	1945	1944
Productions . . . . .	107	126
Musical comedies . . . . .	29	39
Plays . . . . .	78	87
Premières . . . . .	71	82
Successful productions . . . . .	18	27
Performers employed . . . . .	2,047	2,449
Tickets sold . . . . .	8,840,000	8,970,000
Approximate cost of production . . . . .	\$4,000,000	\$3,500,000
Number of shows booked for other cities . . . . .	74	91

Arnaud d'Usseau and James Gow managed to find trade with a melodrama of Negro prejudice in the south called *Deep Are The Roots*. Those who discovered that there are as many miles between drama and the motion picture as there are between the Atlantic and the Pacific included in their number B. H. Orkow, with *Star Spangled Family*, Edward Chodorov with *Common Ground*, Les White and Bud Pearson with *Too Hot For Maneuvers*, Jacques Deval with *Oh, Brother!*, Lester Vale with *Devils Galore*, Vera Mathews with *Make Yourself At Home*, Edmund Goulding with *The Ryan Girl*, Harry Kleiner with *Skydrift* and Stanley Richards with *Marriage Is For Single People*.

The new foreign plays were few: Daphne du Maurier's *Rebecca*, a poor dramatization of her novel of the same name; Leslie Reade's dated murder melodrama, *The Stranger*; a minor comedy, *It's A Gift*, by Curt Goetz and Dorian Otvos; *Lady In Danger*, a trashy mystery exhibit by the Australian Max Afford in an adaptation by Alexander Kirkland; Bert Brecht's anti-Nazi alarm, *The Private Life Of The Master Race*; and Terence Rattigan's *O Mistress Mine*, originally titled *Love In Idleness*, a feeble play which served as a vehicle for the Lunts.

The leading metropolitan experimental groups showed nothing of value. Figuring among the various exhibits were the Blackfriars' *Simon's Wife*, by Francis D. Alwaise, an amateur version of the story of Simon, called Peter, and his wife Leah; the same organization's *Home Is The Hero*, a poor, returned-soldier play by Courtenay Savage; the ditto's *Seven Mirrors*, a wholly undramatic effort dealing with woman's duty in a man's world; and the American Negro theatre's *Garden Of Time*, a badly confused analogy laid in ancient Greece and in the modern state of Georgia.

Established U.S. playwrights who were not represented during the year were Eugene O'Neill who, though he had finished at least two new plays, *The Iceman Cometh* and *A Moon For The Misbegotten*, decided to withhold them from production until the next year, when he personally could be present to supervise them; William Saroyan, who had been in the army and was not released until late in the year; Paul Green; Sidney Kingsley, who preferred to seek money in the Hollywood film factories; Clifford Odets, who occupied himself likewise; and John Steinbeck, who spent part of the year in collaboration on a book for a musical comedy, which had not been completed at the year's conclusion.

Among the better-known actors and actresses, Helen Hayes declared her intention of abandoning the stage for a year and devoting herself to the radio; Katharine Cornell appeared at the year's very end in a French-derived version of the classic *Antigone*; Tallulah Bankhead wasted her efforts on the here-before noted *Foolish Notion*; Laurette Taylor, as recorded, scored a personal triumph in *The Glass Menagerie*; and Ethel Barrymore appeared in a revival of Philip Barry's mediocre *The Joyous Season*. Walter Hampden pathetically turned clown in a seedy comedy, *And Be My Love*, by Edward Caulfield, which lasted for only 14 performances; and Bobby Clark turned his comic abilities to some account in Molière's *A Would-Be Gentleman*.

In the way of minor phenomena, the melodrama, *The Drunkard*, first produced by P. T. Barnum in New York city in 1846,

was still running in its 12th successive year at the Theatre Mart in Los Angeles; several companies made their appearances in revivals of *Uncle Tom's Cabin* throughout the country; and *Tobacco Road* was still playing return engagements around the land after all these many seasons. (G. J. N.)

**Great Britain.**—During 1945 the English theatre, especially in London, was submitted to the continuing and ever-increasing strain of war hazards until, in May, relief came. It could hardly be a year of progress and innovation, because peacetime readjustments and rebuildings were inevitably delayed. It was a case of carrying on. Revivals continued to flourish. The repertory of ancient and modern classics at the Haymarket theatre added Webster's little acted but often quoted tragedy, *The Duchess of Malfi*, to its list of achievements and this was succeeded in the autumn by a glittering revival of Oscar Wilde's *Lady Windermere's Fan*. Other classics to be gaily refurbished were *The Rivals*, with Edith Evans, and Pinero's riotous late-Victorian farce, *Dandy Dick*.

The "Old Vic" company remained at the New theatre in London and added the two "Falstaff" historical plays, *Henry IV*, Parts I and II, to their Shakespearean record; the *Oedipus* of Sophocles and Sheridan's *The Critic* were also given. It was determined by the managements at both these theatres that, since so many people of all nations were passing through London, it was essential to keep classics on view, cast and mounted with the best of British resources in acting and decoration. Naturally this reliance on the old and familiar evoked the criticism that companies of such distinction, having the support of the newly formed Arts Council of Great Britain, should be more adventurous and afford more opportunity to the new writer for the stage. New plays, indeed, were not particularly numerous or distinguished. The theatre both in and out of London was suffering, paradoxically, from wartime prosperity. Almost anything presented was liked and runs were consequently long. This meant that stages were fully occupied and that new managements with new ideas found it difficult to procure a place in which to work. Thus the production of fresh plays tended to be on a small scale in outlying or provincial theatres. The Embassy theatre, in south Hampstead, was reopened and did present a series of original pieces, of which Joan Temple's *No Room in the Inn* was an especially lively example, combining effective stagecraft with a remorseless scrutiny of the treatment of derelict and unwanted children in wartime and after. At the tiny Mercury theatre in Notting Hill, room was found for a season of new poetical plays, and the Lyric, Hammersmith, made famous by Nigel Playfair a quarter of a century earlier, was reopened as a home for new plays. In London's West End Daphne du Maurier scored a new success with *The Years Between*; in this, Clive Brook appeared as a soldier-statesman, deemed to have disappeared and died in the maelstrom of Europe, but returned to discover himself replaced in parliament by his wife whose unsuspected political abilities he now found embarrassing. This was one of the best new pieces of 1945.

One of the events of the year was the reopening of the Sadler's Wells opera house in north London with a new and much-applauded opera—*Peter Grimes*—with music by Benjamin Britten, a young British composer of whom much was hoped. Ballet continued to be enormously popular and three companies played simultaneously to packed houses in central London—the Sadler's Wells company, Ballet Jooss, and the International Ballet. (I. Br.)

**Theatre Library Association:** see SOCIETIES AND ASSOCIATIONS.

**Therapy:** see CHEMOTHERAPY; MEDICINE; PHYSICAL MEDICINE AND OCCUPATIONAL THERAPY FOR THE WOUNDED.



**Throat:** see EAR, NOSE AND THROAT, DISEASES OF.  
**Thyroid:** see ENDOCRINOLOGY.

**Tibet.** A country of central Asia, lying N. and N.E. of the Himalayas, mainly a high tableland. Nominally a Chinese dependency, it is in practice independent. Area, about 450,000 sq.mi.; estimates of the population vary, but 2,000,000 is a probable figure. The religion is Lamaism, a late form of Buddhism modified by animism and primitive magic, and education is in the control of the many monasteries. The ruler is the 14th dalai lama (born 1933) enthroned in 1940 as Lingerh Lamutanchu.

In a statement made in August 1945 before the national supreme defense council and the central executive committee of the Kuomintang, Generalissimo Chiang Kai-shek announced that China must now allow Tibet a high degree of autonomy.

**Tien, Thomas** (1890— ), titular bishop of Ruspe, vicar apostolic of Tsingtao, China, was born at Changtsiu, on Sept. 27. Orphaned as a little boy, he was taken into the Divine Word orphanage at Puoli, first settlement of Divine Word missionaries at Shantung. In early youth he entered the society's minor seminary at Yenchowfu and completed his studies at the major seminary there. Ordained in 1918, he taught mission schools for three years and then was assigned to various missions in Shantung.

He entered the Divine Word novitiate in 1929, made his religious profession 1931 and took final vows in 1934. He became first apostolic prefect of the newly erected Yangkü prefecture. He was consecrated vicar apostolic of Yangkü by Pope Pius XII on the Feast of Christ the King, and was named titular bishop of Ruspe and vicar apostolic of Tsingtao in 1942, succeeding Bishop George Weig, S.V.D.

He was appointed to the Sacred College of Cardinals, according to an announcement of Dec. 23, 1945, and was created and proclaimed cardinal at consistory on Feb. 18, 1946.

**Timber:** see LUMBER.

**Timor:** see NETHERLANDS COLONIAL EMPIRE; PORTUGUESE COLONIAL EMPIRE.

**Tin.** Specific information was lacking on production of tin in many of the more important countries; Table I lists mine production as compiled and estimated by the United States bureau of mines.

Table I.—World Production of Tin  
(Thousands of short tons)

	1939	1940	1941	1942	1943	1944
Argentina . . . . .	1.9	1.7	1.0	1.1	0.8	0.9
Australia . . . . .	3.9	4.7	3.9	3.4	2.8	2.7
Belgian Congo . . . . .	10.0	14.0	18.8	18.1	19.6	17.2
Bolivia . . . . .	30.5	42.5	47.3	42.9	45.1	44.1
Burma . . . . .	9.5	6.0	?	?	?	?
China . . . . .	11.7	7.0	9	8	6	3
Indo-China . . . . .	1.6	2.3	1.6	1.6	1.1	0.6
Malaya . . . . .	57.9	95.6	87	17	17	11
Netherlands Indies . . . . .	31.1	48.4	57	11	8	6
Nigeria . . . . .	10.6	13.5	17	14	14.2	13.8
Portugal . . . . .	1.7	1.9	2.6	3.0	3.9	2
Siam . . . . .	19.4	19.5	18	13	8	6
Great Britain . . . . .	1.8	1.8	1.7	1.5	1.5	1.2
Total . . . . .	196	264	276	140	132	112

Since two-thirds of the prewar tin output originated in countries that were occupied by Japanese troops, the tin industry of the world was recast during World War II, and especially the supplies of the United Nations, which had been only partially offset by increased production in countries still accessible. After the loss of the oriental smelting capacity, a tin smelter was built in the U.S., making that country for the war years the largest smelter of tin in the world. Smelters of the U.S., Great Britain and the Belgian Congo handled about two-thirds of the

ore output of 1944.

The government-owned smelter in Texas did not start operation until April 1942, but there was a small amount of smelting done in private plants before that. The salient features of the industry in the U.S. are shown in Table II.

Table II.—U.S. Tin Industry, 1940-44  
(Thousands of short tons)

	1940	1941	1942	1943	1944
Imports, total . . . . .	127.8	169.6	55.7	33.9	49.8
In concentrates . . . . .	3.0	28.7	28.9	21.9	36.5
Metal . . . . .	124.8	140.9	26.8	12.0	13.3
Smelter output . . . . .	1.4	1.8	16.2	21.5	30.9
Secondary recovery . . . . .	29.7	37.5	33.9	33.8	29.1
Consumption* . . . . .	97.2	134.7	85.7	80.3	90.0
Stocks† . . . . .	87.7	143.4	144.4	125.5	107.2

\*Includes primary and secondary metal. †Includes ore and metal.

It was not known in 1945 how long it might take to get the eastern sources back into production, and with stocks so low, there was some question whether the supplies on hand would carry through the reconversion period and get industry back on its way to normal civilian consumption. It might be from one to two years before production could come back to the prewar level. The situation was improved somewhat, however, by the recovery of moderate stocks of Japanese-produced tin in the reoccupied countries.

Operation of the Texas smelter would seem to be assured until the eastern smelters could be rehabilitated, but its final disposition would be a matter for international agreement. (See also METALLURGY; MINERAL AND METAL PRODUCTION AND PRICES.) (G. A. Ro.)

**Titanium.** After 1943 the former heavy imports of ilmenite from India were largely replaced by domestic output, and the U.S. had been much more nearly self-sufficient in its supply of titanium. The salient statistics of the industry during World War II are shown in the table.

Statistics of Titanium Industry, 1940-44  
(In short tons)

	Gross weight		TiO <sub>2</sub> content		Total	Imports	
	Ilmenite	Rutile	Ilmenite	Rutile		Ilmenite	Rutile
1940 . . . . .	20,702	2,888	9,505	2,475	11,980	223,891	2,164
1941 . . . . .	21,526	3,130	9,930	3,192	13,122	170,689	6,291
1942 . . . . .	93,397	2,648	41,328	2,466	43,794	10,407	10,525
1943 . . . . .	211,715	3,987	94,283	3,639	97,922	78,093	14,338
1944 . . . . .	280,791	6,922	128,095	6,312	134,407	108,948	10,019

Of the total ilmenite supply in 1944, 97% went into pigments, and the remainder into alloys and cemented carbides; of the rutile, 73% was used in welding rod coatings; and most of the remainder in alloys.

**Canada.**—Production of ilmenite concentrates in Canada had been declining sharply with the passing of war demand. Output dropped from 69,437 short tons in 1943 to 33,973 tons in 1944, and an estimated 13,307 tons in 1945. (G. A. Ro.)

**Tito:** see BROZOVICH, JOSIP (TITO).

**Tobacco.** A record crop of tobacco was harvested in the United States in 1945 following the near-record crop of 1944. The grand total of all types was estimated at 2,041,800,000 lb. compared with 1,952,000,000 lb. harvested in 1944 and an average of 1,392,300,000 lb. 1934-43. While average yields were lower, the larger acreage produced the big crop. The total acreage harvested was 1,845,900 ac. in 1945, 1,751,000 in 1944 and averaged 1,505,800, 1934-43. The yield in 1945 was 1,106 lb. per acre, 1,117 lb. in 1944 and 925 lb. average. About 57% of the crop was flue-cured, 31% air-cured and 12% other classes. Cigarette tobacco was in the largest supply though considerable supplies of flue-cured for export were produced.

The crop of flue-cured tobacco was estimated at 1,175,000,000 lb. compared with 1,089,700,000 lb. in 1944 and an average of

788,700,000 lb. This crop was larger than the previous record crop of 1939. Diseases in plant beds and cold weather at planting time held the acreage to only 6% above 1944 but the yield was high in the big producing states of North Carolina, South Carolina and Virginia. Adequate rainfall in midsummer promoted growth and harvest weather was also favourable. The fire-cured crop of Virginia, Kentucky and Tennessee was estimated at 62,720,000 lb., a little less than the 64,075,000 lb. harvested in 1944 and much below the average of 96,416,000 lb. 1934-43. This smaller crop was due to a lower yield, 997 lb., on a much smaller acreage, 63,100 ac. compared with an average of 112,600 ac. 1934-43.

The burley tobacco crop was 2% above that of 1944 and 84% above the average; 603,397,000 lb. in 1945; 591,467,000 lb. in 1944 and 327,800,000 lb. average 1934-43. The increase was due entirely to a larger acreage, 531,600 ac. compared with 500,600 ac. in 1944 and 361,150, average. The yield was 1,135 lb. in 1945, 1,182 lb. in 1944 and 902 lb. average, 1934-43.

The southern Maryland belt acreage was sharply reduced in 1945 due to unfavourable weather and shortage of labour, to a total of only 36,000 ac. compared with 45,000 ac. grown in 1944 and an average of 37,500 ac. The yield was low, 600 lb. compared with 850 lb. in 1944 and 752 lb. average so that the total crop was 21,600,000 lb. compared with 38,250,000 lb. in 1944 and 28,325,000 average, 1934-43.

Dark fire-cured tobacco acreage was increased 14% to 46,100 ac. above the 40,400 ac. grown in 1944 which was about the average. The yield was slightly below 1944 but above the average, returning a crop of 48,647,000 lb. compared with 44,514,000 lb. in 1944 and an average of 36,113,000 lb.

All cigar types reached a high total of 129,635,000 lb., almost 2% more than 1944 and above the average of 114,819,000 lb. 1934-43. The acreage was up to 90,500 ac. compared with 86,800 ac. in 1944 and an average of 85,850 ac. 1934-43. The yield was slightly lower. All of the increase was in the binder types, as fillers were 2.4% below 1944. Cigar filler grown in Pennsylvania and Ohio returned a crop of 56,856,000 lb. compared with 59,283,000 lb. in 1944 and 54,680,000 lb. average, 1934-43. Cigar binder types showed increases in nearly all areas. The total of binder tobacco was 61,780,000 lb. compared with 57,225,000 lb. raised in 1944 and an average of 50,908,000 lb. 1934-43. Wrappers grown in Massachusetts and Connecticut, shade grown in Connecticut and in Georgia and Florida returned a smaller yield and the total crop was 10,999,000 lb. compared with 11,290,000 lb. in 1944 and 9,230,000 average. The perique tobacco crop of Louisiana was estimated at 192,000 lb. compared with 210,000 lb. in 1944 and 141,000 lb., average.

U.S. Production of Tobacco by States, 1945 and 1944

State	1945 lb.	1944 lb.	State	1945 lb.	1944 lb.
No. Carolina . . .	819,790,000	752,956,000	Florida . . .	20,413,000	20,095,000
Kentucky . . .	469,395,000	475,240,000	Indiana . . .	13,540,000	14,456,000
Virginia . . .	154,077,000	148,827,000	Massachusetts . . .	8,460,000	9,381,000
Tennessee . . .	141,560,000	125,645,000	Missouri . . .	6,800,000	7,744,000
So. Carolina . . .	139,520,000	132,250,000	West Virginia . . .	3,795,000	3,382,000
Georgia . . .	108,035,000	93,780,000	New York . . .	1,000,000	1,170,000
Pennsylvania . . .	52,724,000	52,893,000	Minnesota . . .	910,000	744,000
Wisconsin . . .	35,112,000	29,700,000	Alabama . . .	325,000	328,000
Connecticut . . .	22,989,000	23,368,000	Kansas . . .	300,000	300,000
Maryland . . .	21,600,000	38,250,000	Louisiana . . .	192,000	210,000
Ohio . . .	21,274,000	25,347,000			

Stocks of tobacco were lower in relation to consumption in 1945 than a year earlier. Burley was in large supply, however, with a large carry-over, a big 1945 crop making a total of 1,334,300,000 lb., the largest Oct. 1 supply of 33 years of record. Stocks were 758,000,000 lb., 108,000,000 lb. above a year earlier. Maryland types of tobacco were about the same as a year before and the supply smaller. Dark tobacco stock stood at about the same level as a year earlier. Cigar types stocks and supply were both lower than a year earlier.

The production and consumption of cigarettes reached a new high record in 1945, above that of 1943. Cigarette consumption in 1944 was below 1943 because of inadequate supplies but in 1945 returned to the high level of nearly 100 packs per capita per year. This is 46% above the disappearance of 1939. Cigar manufacture declined from the high level of 1942 while the total output of all tobacco products was estimated to be a new record. Cigarette consumption was expected to decline as the government closed purchases for overseas shipments. The consumption of cigars continued the downward trend and averaged in 1945 about 36 cigars per capita which is less than half the 1917 average.

Consumption of smoking tobacco increased in 1945 because of the shortage of cigarettes and the reduction of factory employment and releases of the armed forces. Chewing tobacco consumption, which increased with the large employment in war plants where smoking was prohibited, showed a decline in 1945. Snuff consumption followed the same pattern of change as smoking tobacco. During 1945 a total of 43,004,000 lb. was withdrawn from stocks according to tax records.

Exports of tobacco increased in 1945 as shipping improved, stocks purchased over the previous four or five years and held in storage in the U.S. were being moved as rapidly as possible. U.S. exports dropped to 165,800,000 lb. from a prewar level of about 400,000,000 lb. exports per year. Export trade recovered to 499,000,000 lb. in 1944 and was expected to exceed that amount in 1945.

Prices of tobacco to growers passed a peak in 1945 and were expected to decline through 1946. This index of prices reached a 373 in October compared with an average of 245, 1940-41. The goals for 1946 were put at a total slightly larger than that of 1945 on the assumption that exports would increase, and if not the surplus could be absorbed into U.S. stocks without breaking the market. Loans at 90% of parity were offered as the incentive to attain the goal. (J. C. Ms.)

**Tobago:** see WEST INDIES, BRITISH.

**Togoland:** see BRITISH WEST AFRICA; MANDATES.

**Tojo, Hideki** (1884- ), Japanese army officer and statesman, was born in Tokyo, the son of Gen. Eikyo Tojo, master strategist of the Russo-Japanese War of 1904-05. A graduate of the Military Staff college in 1915, he went to Germany in 1919 as military attaché, and studied military strategy. On Oct. 18, 1941, Tojo, then a lieutenant general, became premier after Prince Konoye resigned. Tojo also took over the war and home ministry portfolios.

On Dec. 13, 1941, six days after Japan attacked Hawaii, Tojo said Japan was "fighting in self-defense and the cause of righteousness."

In Feb. 1943 Tojo was given dictatorial economic and political powers. In Feb. 1944, he assumed the additional duties of chief of the army general staff, war minister, head of the munitions ministry and governor of the Imperial Rule association, Japan's mass totalitarian party. In July, however, he was removed as chief of the army general staff and two days later his entire cabinet resigned and Tojo was officially placed on the reserve list, even in the army.

In an interview, Sept. 10, 1945, Tojo asserted that the United States, as the victor, could name the blameworthy, but added that historians "500 or 1,000 years from now may judge differently." The following day, Sept. 11, when he was to be arrested as a war criminal, Tojo shot himself in an attempt at suicide. He was then quoted as saying that he was to blame for the war. Nursed back to health, he was held in a prison camp with other high Japanese officials awaiting trial as war criminals.

**Tokyo.** The capital and largest city of Japan. Pop. (1940), 6,778,804; area, 257 sq.mi.; situated at 35° 41' N. and 139° 45' E. at the head of the bay of the same name on the southeastern coast of Honshu, largest of the Japanese islands. There were 1,029,695 buildings and dwelling houses in the city in 1937.

Tokyo was devastated by B-29 bombings before Japan surrendered in Aug. 1945. It was the worst damaged of all Japanese cities. The population of the city had greatly diminished in 1945 and a survey by the home ministry (based on data from the Cabinet Statistics council) estimated the population to be about 3,000,000 as of Aug. 31, 1945. An official report of the Japanese government on that date stated that 88,250 civilians in Tokyo had been killed and 61,306 injured. Of the city's

buildings 65% were totally destroyed with an estimated 220,000 persons living in 70,000 ground shelters in early September. More than 20% of the area was devastated by bombing.

From Sept. 1945, Tokyo was the headquarters of General Douglas MacArthur, commander in chief of the U.S. army of occupation. There were no serious incidents between the U.S. troops and the Japanese civilian population up to the end of the year, and some fraternization had taken place.

Tokyo is governed by an elected city council and board of aldermen and a mayor chosen by the city council. Twenty-two universities with 107,302 students were located in the capital before World War II. At the end of 1936 there were 14,329 factories with 403,095 workers, and 29,633 small workshops with five or fewer employees, with 47,251 operatives.

(W. H. CH.; X.)

**Tomatoes.** The total tomato crop of the United States in 1945 made another high record. The crop for the fresh market was 34% above average and 16% more than 1944. The crop for processing was nearly 500,000 tons less than 1944 but above the average. The fresh market crop of tomatoes was estimated at 32,331,000 bu. compared with 27,768,000 bu. in 1944 and an average of 24,093,000 bu., 1934-43. Florida produced nearly all of the winter crop of 2,655,000 bu. California came in with the early fall crop of about 4,000,000 bu. and also grew 2,000,000 bu. of the early summer crop. The summer crop came mostly from the south central states while the late summer crop was centred in New York, Michigan, Indiana and vicinity.

The average price for the season was \$3.38 per bu. for all seasons, ranging from \$5.50 per bu. for the late fall, \$4.95 per bu. for the winter crop down to \$2.84 per bu. for the late spring tomatoes. These prices were all above the level of 1944. With favourable prices and higher yields the value of the crop was put at \$108,234,000 compared with \$85,263,000 in 1944 and only \$36,989,000 average for 1934-43.

The yield of tomatoes for canning was below the average—4.82 tons per acre compared with 5.45 tons in 1944, the lowest in seven years. The crop in the Atlantic states was poor and reduced the average. Ohio and Indiana, the big producers, had near-average yields. The California yield was above average and equal to 1944. The price per ton averaged \$26.59 for canning tomatoes which compared with \$27.22 per ton in 1944 and an average of \$14.68, 1934-43. The total value of the crop was below that of 1944; \$70,864,000 compared with \$86,269,000 in 1944 and \$33,466,000 average.

U.S. Seasonal Acreage and Production of Tomatoes for Fresh Market, 1945 and 1944

Crop	Acreage		Production	
	1945	1944	1945 bu.	1944 bu.
Winter . . . . .	17,700	16,900	2,655,000	2,112,000
Early Spring . . . . .	80,500	61,900	6,765,000	5,442,000
Late Spring . . . . .	48,700	48,350	3,913,000	2,971,000
Early Summer . . . . .	38,150	35,720	5,316,000	4,920,000
Late Summer . . . . .	52,620	53,350	8,394,000	8,570,000
Early Fall . . . . .	19,100	16,300	3,998,000	2,975,000
Late Fall . . . . .	14,200	9,100	562,000	252,000

An unusually high proportion of the tomatoes processed in 1945 went into tomato juice and a smaller proportion was canned whole. With the reduction of military requirements, the civilian supply of juice, catsup and other products was ample, but whole tomatoes were scarce. (See also VEGETABLES.)

(J. C. Ms.)

**Tongan Island Protectorate:** see PACIFIC ISLANDS, BRITISH.

**Tongking:** see FRENCH COLONIAL EMPIRE.

**Tornadoes:** see DISASTERS.

**Toronto.** Established as a French trading post in 1749, Toronto was some 50 years later, when Canada became a British colony, made the capital of the province of Upper Canada (Ontario). Still the capital and the seat of the provincial government, it covered in 1945 an area of 35 sq.mi. and had a population of nearly 700,000 persons, predominantly of British extraction. Toronto is an important place of manufacture and commerce and is the heart of the mining business of Canada. The mining stock exchange was said in 1945 to be the largest of its kind in the world. Communications by land and water and air are excellent, and owing to a very favourable position midway between the Atlantic and Pacific oceans Toronto has become a great centre for the distribution of goods throughout the dominion. The University of Toronto with its many colleges has become famous, and not least for its great achievements through research such as the discovery of insulin by Sir Frederick Banting and Dr. Charles H. Best. Its students flocked to the colours during World War II and on their return in 1945 were being encouraged and helped in the completion of their education. The Provincial museum and the Toronto Art gallery are outstanding, and in music a very high standard is set and maintained by the Toronto Symphony orchestra, the promenade concerts, the Mendelssohn choir, the Hart House quartet and many other excellent organizations.

(G. R. G.)

**Torpedoes:** see MUNITIONS OF WAR; NAVIES OF THE WORLD; SUBMARINE WARFARE.

**Totalitarian State:** see GERMANY; SPAIN; UNION OF SOVIET SOCIALIST REPUBLICS.

**Towers, John H.** (1885— ), U.S. naval officer, was born in Rome, Ga., Jan. 30, and was graduated from Annapolis in 1906. Towers, who was assistant director of naval aviation during World War I, organized and led a unit of flying boats that made the first transatlantic flight in history in May 1919. He was assistant chief of the navy department's bureau of aeronautics, 1929-31, was commanding officer of the United States aircraft carrier "Saratoga," 1937-38, and was made chief of the bureau of aeronautics in June 1939. In the same month, he was made a rear admiral. Adm. Towers was long an advocate of naval air expansion and was in the vanguard of the air-minded officers who fought for a vast naval air expansion program. In Sept. 1942, he was promoted to rank of vice-admiral and given command of the Pacific fleet air force. On Feb. 11, 1944, he was appointed deputy commander in chief of the Pacific ocean areas, a post which put him second in command to Admiral Nimitz. The navy announced July 14, 1945, that Adm. Towers had replaced Vice-Adm. John McCain as head of a naval carrier task force. Secretary of the Navy Forrestal, in disclosing plans, Dec. 4, to reorganize the naval commands with more emphasis on the role of aviation, said that Towers would "eventually" succeed Adm. Spruance as commander in chief of the Pacific fleet.

**Town and Regional Planning.** In the U.S. many of the larger cities provided liberal budgets for planning commissions. Reports issued in 1945 indicated that planning commissions were generally making more thorough surveys and were adopting capital budgets for planning projects. A growth in the number and activities of citizens planning associations was noted. Most cities prepared plans for postwar public works. The bureau of community facilities under the Federal Works agency made federal loans to state and local governments to assist in planning public works, exclusive of housing.

Urban redevelopment continued to be much discussed. There



were enabling acts of various sorts in about half of the states. At the end of 1945 a bill was pending in congress to extend federal aid to cities for urban redevelopment. For the first time the Public Roads administration was authorized by congress to grant federal aid for through highways in urban districts. Planning commissions in some cities took the initiative to bring about agreement on routes and uses of these highways to protect the master plan and prevent undue congestion of downtown districts.

Large conferences were prohibited during the war, but the American Institute of Planners in Jan. 1945, held an annual meeting in New York; the American Society of Planning Officials in May called together 50 city-planning officials in Chicago; and the American Planning and Civic association held several small conferences in Washington, including one to discuss the planning provisions in the pending National Housing and Urban Redevelopment bill.

In 1945 Harvard university appointed a chairman of its department of Regional Planning and the University of Chicago appointed a director of a new program for education in planning.

In Great Britain a number of planning reports for rebuilding devastated cities were issued. Implementation for the Barlow, Scott and Uthwatt reports was discussed, but at the end of 1945 it was uncertain what national land and planning policies would be adopted. (See also HOUSING; RECONSTRUCTION PLANNING.)

**BIBLIOGRAPHY.**—*United States:* American Planning and Civic Association, *American Planning and Civic Annual* (1945); American Institute of Planners, *Urban Redevelopment Bills and Statutes* (1945); American Society of Planning Officials, *Planning Legislation for 1945*; *Urban Redevelopment Legislation in the U.S.*; and *Planning, 1945*, proceedings of a Discussion Conference on Problems of Large Cities; American Transit Association, *Fact Book* (1945); W. Earle Andrews, *Detroit Expressway and Transit System* (1945); Chas. B. Bennett and Milton Breivogel, *Planning of San Fernando Valley, Los Angeles* (1945); Cambridge, Mass., City Manager, *Postwar Cambridge* (1945); Chicago Plan Commission, *Chicago Looks Ahead*, Design for Public Buildings (1945); Henry S. Churchill, *The City is the People* (1945); Postwar Planning Council of Greater Cleveland, *Rolling Along* (1945); Miles Colean and Arthur P. Davis, *Cost Measurement in Urban Redevelopment* (1945); Rodney Gibson, Omaha City Planning Commission, *The City Plan—Population, Land Use and Zoning* (1945); Greenville, Ohio, City Planning Commission, *Comprehensive City Plan* (1945); Kansas City, City Plan Commission, *Local Transportation* (1945); Louisville Area Development Association, *Action to Date* (1945); Milwaukee Common Council, *Milwaukee is Ready* (1945); C. Earl Morrow, *Planning Your Community*, N.Y. Planning Association (1945); Lewis Mumford, *City Development Studies in Disintegration and Renewal* (1945); New Haven City Planning Commission, *Tomorrow is Here* (1944); Schenectady Interdepartmental Postwar Planning Commission, *Planning for Schenectady* (1945); Seattle City Plan Commission, *Report on Proposed Public Building Area* (1945); Oscar Stonorov and Louis O. Kohn, *You and Your Neighborhood* (1944); Syracuse-Onondaga Postwar Planning Council, *Community Facilities* (1945); Vancouver Housing Authority, *Vancouver's Plan* (1945); Waterbury, Conn., City Plan Commission, *Comprehensive City Plan* (1945). *Canada:* Hamilton City Planning Commission, *A Report on Existing Conditions* (1945); Montreal Department of City Planning, *Planning for Montreal* (Nov. 1944); Toronto City Planning Board, *3rd Annual Report* (Dec. 1944). *Great Britain:* Patrick Abercrombie, *Greater London Plan of 1944, 1945*; and with others, *A Plan for Bath* (1945); Philip Boardman, *Patrick Geddes, Maker of the Future* (1944); British Information Service, *A Bibliography of Housing and Town and Country Planning, Postwar Planning in Britain, and Physical Reconstruction in Great Britain* (1945); Great Britain, Ministry of Education, *Community Centers* (1945); City of Leicester, *Postwar Civic Affairs*; C. B. Purdom, *How Should We Rebuild London* (1945); *Target for Tomorrow Series*, Editorial Board Sir Wm. Beveridge, Dr. John Huxley and Sir John Boyd Orr (1944-45); F. Longstreth Thompson, *Merseyside Plan of 1944*, (1945). *Journals:* *United States:* *American City* (monthly); *Journal of the American Institute of Planners* (quarterly); *News Letter* (American Society of Planning Officials, monthly); *Planning and Civic Comment* (American Planning and Civic Association, quarterly); *Urban Land* (Urban Land Institute, monthly). *Great Britain:* *The Housing and Planning News Bulletin* (National Housing and Town Planning Council bimonthly); *Journal of the Town Planning Institute* (bimonthly); *Town and Country Planning* (quarterly).

**FILMS.**—*Arteries of the City; Growth of Cities* (Encyclopædia Britannica Films Inc.). (H. Js.)

**Track and Field Sports.** Vision of a four-minute mile was once again renewed during 1945 when Gunder Haegg (Hägg) went the distance in four minutes, one and four-tenth seconds on a Swedish track.

The performance highlighted the continued duel of the two Swedish runners—Haegg and Arne Andersson—and scraped two-tenths of a second from Andersson's old world record of 4:1.6.

The mile mark, as well as all others set by the two stars of Sweden, might be wiped from the record books as a result of professional charges levelled against Haegg, Andersson and about a dozen other Swedish trackmen. The allegation that the athletes were subsidized by amateur clubs came late in the year 1945, and all subsequent developments were blotted out by a censorship. A ruling was expected early in 1946 as to the status of the Swedish stars.

Three 1944 champions successfully defended their crowns in the Amateur Athletic union senior outdoor championships. Henry Dreyer of the New York Athletic club retained his hammer throw title and dethroned Frank Berst of the same club in the 56-lb. weight throw. Dr. Arky Erwin, New Orleans Athletic club, continued his reign as 400-metre hurdles champion and Robert Kelley, University of Illinois, Urbana, won his second straight 800-metre title. Aside from Berst, those dethroned as A.A.U. senior champions were: Earl Audet, University of Southern California, beaten by Wilfred Bangert of Normandie, Mo., in the shot-put; Don Barksdale of Camp Ross, Calif., who finished second to Burt Cox, Villanova, Pa. marine trainee, in the hop, step and jump, and William Lund of Case School of Applied Science, who failed to place in the broad jump.

Standout of the 57th annual A.A.U. championships was Roland Sink, a 19-year-old midshipman at Harvard, who won the 1,500 metres in 3:58.4 over such veteran competition as Jim Rafferty and Rudy Simms, both of New York city. Next

#### Outstanding U.S. Track and Field Performances (Outdoor), 1945

100 Yards	High Jump
9.5 sec.—Samuels, Thos. Jefferson H.S., San Antonio	6 ft., 6¾ in.—Wiesner, Marquette
9.6—O'Reilly, U.S.N. Air Station, Fla.	6.6¾—Sheffield, Univ. of Utah
9.7—Afzal, Cleveland East Tech H.S.; Moon, Kemmerer H.S., Wyo.; Klemmer, Great Lakes	6.6—Barksdale, Camp Ross, Calif.; Green, A.A.F., Calif.
	6.5½—Schmacke, Massena, N.Y., A.A.
220 Yards	Broad Jump
20.9 sec.—Klemmer, Great Lakes; O'Reilly, U.S.N. Air Station, Fla.	24 ft., 8 in.—Lewis, Rankin, Pa., C.C.
21.2—Shurr, Texas	24¼—Bell, Los Angeles C.C.
21.3—Harris, Shore A.C., Asbury Park, N.J.; Van Velzer, Navy	23.9¾—Peacock, U.S. Coast Guard
	23.9¼—Haese, Fort Sam Houston
440 Yards	23.8—Bouwman, Navy
48.4 sec.—Kelley, Illinois	Discus Throw
48.6—Erwin, New Orleans A.C.	162 ft., 8¾ in.—Bangert, Univ. of Missouri
49.1—Holbrook, Texas A.&M.	157.5—Donaldson, Rice
49.2—Klemmer, Great Lakes; Lubin, New York univ.	155.0¾—Gordon, Camp Perry, Va.
880 Yards	154.6½—Hiler, Olympic club
1 min., 54.8 sec.—Cuff, Navy	148.8—Schrader, Hunter Field
1:55.3—Parsons, Michigan	Hammer Throw
1:55.5—Kelley, Illinois	158 ft., 2½ in.—Lieut. Miller, Navy
1:55.7—R. Hume, Michigan	156:6—Penico, Univ. of Pennsylvania
1:55.8—Williams, unattached, Los Angeles	153:5—Felton, Dartmouth
One Mile	145:5¾—Congdon, R.I. State
4 min., 17.9 sec.—Sink, U.S. naval trainee	144:11¾—Dambrowski, U.S. Army
4:18.5—Ross Hume, Michigan	Javelin Throw
4:18.6—Robert Hume, Michigan	208 ft., 10 in.—Cohen, U.S. Army
4:19.5—Barry, Navy	207:10—Marshall, Carlsbad, New Mex.
4:22—Hartzell, California	206:8½—Patton, U.S. Navy
Two Mile	205:5—Fagerlund, Iowa
9 min., 24.6 sec.—Kandl, Cornell	203—Fetzer, Dartmouth
9:25.5—Martin, New York univ.	Pole Vault
9:45.3—Filer, Drake	13 ft., 10 in.—Schmidt, Ohio State univ.
9:49.9—Truxes, Army	13:9—Padway, U.S. Navy
9:50.2—Birdsall, Michigan	13:7¾—Kring, Pacific univ.
120-Yard High Hurdles	13:7—Felton, Dartmouth
14.4 sec.—Lidman, Sweden; Fisher, Miami	13:6½—Moore, Western Michigan
14.6—Scott, Navy	Shot-Put
14.7—Moore, Olympic Club	53 ft., 4 in.—Bangert, Missouri
14.8—Urfurth, Breckenridge H.S., San Antonio	53:7¾—Audet, Southern California
220-Yard Low Hurdles	53:0¼—Quirk, Missouri
23.4 sec.—Walker, Illinois; Scott, Navy	51:10¾—Blanchard, Army
23.7—Scott, El Monte H.S., Calif.; Morrow, Army	51:8½—Hershey, Olympic club
23.8—O'Reilly, U.S. Navy Air Station, Fla.	Hop, Step and Jump
440-Yard Hurdles	45 ft., 8½ in.—Barksdale, Camp Ross, Calif.
54.2 sec.—Erwin, New Orleans A.C.	44:5¼—Atzet, California
55.2—Conor, U.S.M.A.	44:4½—Meyers, unattached, Los Angeles
56.4—Bates, Langley Field, Va.	44:2—Turner, Olympic club
	43:9¾—Fos, Fortier H.S., New Orleans (M.P.W.)

to Sink in the tournament spotlight was Barney Ewell, 27-year-old private at Camp Kilmer, N.J. Ewell won the 100 metre event, a title he held in 1939, with a record-equalling performance of 10.3 seconds.

The New York Athletic club won both A.A.U. team championships; the junior with 59 points and the senior with 74. New York's Pioneer club was runner-up in both divisions, scoring 50 junior points and 48 in the senior meet. On the collegiate front, the two service academies monopolized team honours. Navy won both the Intercollegiate A.A.A.A. and National Collegiate Athletic association outdoor titles and became the first eastern school to win the latter. Army captured the Intercollegiate A.A.A.A. indoor and cross-country championships. The University of Illinois won the Big Ten outdoor crown, while Michigan topped the conference's indoor competition.

Eulace Peacock, former Temple university sprinter and a member of the coast guard, easily repeated his pentathlon championship by winning the broad jump, javelin and discus and finishing second in the 200 metres. Charles M. Beaudry, Marquette university student-teacher, captured the decathlon by winning the 100 and 400 metre events and placing in four others. John Kelley of West Acton, Mass., won his second Boston marathon in 2 hr., 30 min., 40.2 sec.

**Indoor Track.**—Rafferty, the 29-year-old N.Y.A.C. veteran, took charge of the indoor season with a sweep of all (nine) mile races he entered, including the National A.A.U., Millrose A.A., Boston A.A., New York A.C., New York Knights of Columbus games and the Chicago Relays. However, he failed to get under 4:10 in any of his victories, his best performance being a 4:10.9 mile in Buffalo, N.Y. Haegg and Hurdler Haakon Lidman arrived belatedly from Sweden to compete during the last half of the indoor season, but the Swedish wonder man was unable to defeat Rafferty. He won only one mile race, topping an undistinguished field in 4:16.7 at Cleveland, Ohio.

**Outstanding Foreign Track and Field Performances, 1945**

100 Metres	110-Metre Hurdles
10.5 sec.—Assis, Brazil	14.3 sec.—Lidman, Sweden
10.6—Braekman, Belgium; Gomez, Peru; Hakansson, Sweden; W. Perez, Uruguay	14.5—Braekman, Belgium
	14.7—Ramirez, Uruguay; Kristofferson, Sweden
100 Yards	400-Metre Hurdles
9.7 sec.—McLachlan, Australia; Shore, Union of South Africa	52.9 sec.—Storskrubb, Finland
9.8—Mauston, Australia	53.2—Larsson, Sweden
	53.5—Cross, France
200 Metres	10,000-Metre Walk
21.3 sec.—Assis, Brazil	42 min., 31 sec.—Balsan, Czechoslovakia
21.4—Marques, Argentina	42:31.6—Hardmo, Sweden
41.5—Gomez, Peru	42:41.2—Brunn, Norway
400 Metres	High Jump
47 sec.—Shore, Union of South Africa	6 ft., 6 in.—Ursin, Finland
47.8—Harris, New Zealand	6:5½—Bjorck and Duregard, Sweden
48—Storskrubb, Finland	
800 Metres	Broad Jump
1 min., 49.3 sec.—Storskrubb, Finland	24 ft., 6½ in.—Kuznetsov, Russia
1:49.4—Holst-Sorensen, Denmark; Liljekvist, Sweden	24:2½—Simola, Finland
	24:1½—Laesker, Sweden
1,500 Metres	Hop, Step and Jump
3 min., 45 sec.—Andersson, Sweden	50 ft., 9½ in.—Rautio, Finland
3:45.2—Haegg, Sweden	50:03½—Johnsson, Sweden
3:46.2—Persson, Sweden	49:6½—Moberg, Sweden
One Mile	Shot Put
4 min., 1.4 sec.—Haegg, Sweden	51 ft., 1 in.—Huseby, Iceland
4:02.2—Andersson, Sweden	50:3½—Lehtila, Finland
4:03.8—Persson, Sweden	49:11¼—Willny, Sweden
3,000 Metres	Discus Throw
8 min., 15.8 sec.—Haegg, Sweden	165 ft., 9¾ in.—Consolini, Italy
8:18.2—Durkfeldt, Sweden	161:9¾—Nyquist, Finland
8:19.2—Ahlden, Sweden	160:9½—Bergh, Sweden
5,000 Metres	Hammer Throw
14 min., 17.2 sec.—Heino, Finland	183 ft., 10¼ in.—Ericsson, Sweden
14:22.8—Ostbrink, Sweden	179:7½—Hausmann, Germany
14:25.6—Durkfeldt, Sweden	178:5½—Johansson, Sweden
10,000 Metres	Pole Vault
30 min., 2 sec.—Heino, Finland	13 ft., 5½ in.—Olsson, Sweden
30:12—Jacobsson, Sweden	13:3½—Lindberg, Sweden; Scheurer, Switzerland
3:12.6—Maki, Finland	
	Javelin Throw
	247 ft., 7¼ in.—Rautavaara, Finland
	240:1—Ericksson, Sweden
	235:6¾—Jarvinen, Finland

New York A.C. won the senior indoor championship with 23 points to Army's 15½ and Navy's 13.

**Women.**—Alice Coachman, 21-year-old miss from Tuskegee Institute, Ala., dominated the 1945 women's A.A.U. championships with firsts in the 50 metre, 100 metre and high jump. Her 100-metre triumph included a close decision over the veteran Stella Walsh of the Cleveland Polish Olympics, who a week before had lowered the world record for the distance to 11.2 seconds. Miss Coachman's time was 12 seconds. As a result of her achievements, Tuskegee institute retained its team championship with 102 points to 68½ for the Cleveland Polish Olympics. (M. P. W.)

**Trade Agreements:** see INTERNATIONAL TRADE.

**Trade Commission, Federal:** see FEDERAL TRADE COMMISSION.

**Trade Unions:** see LABOUR UNIONS.

**Traffic Accidents:** see ACCIDENTS.

**Train, Arthur** (1875-1945), U.S. novelist, was born Sept. 6, in Boston. He was graduated from Harvard with a B.A. degree in 1896 and took his law degree there in 1899. After he was admitted to the bar, he went to New York where he worked with various law firms. He was assistant district attorney of New York county, 1901-08. He was named by Gov. Charles Evans Hughes as a special deputy attorney general of the state of New York, 1910. Later, he returned to his private practice. Meanwhile, Train wrote short stories, the first of which was printed in 1904. Thereafter, he wrote regularly and then created the immortal Mr. Tutt, a shrewd Yankee lawyer who employed legal stratagems to rescue his technically guilty, but morally innocent, clients from prison. The Tutt stories, written with sparkle and subtlety, enjoyed a wide following.

Among Train's works are: *Tutt and Mr. Tutt* (1920), *By Advice of Counsel* (1921), *Tut, Tut, Mr. Tutt!* (1923), *The Needle's Eye* (1924), *Page Mr. Tutt* (1926), *When Tutt Meets Tutt* (1927), *The Adventures of Ephraim Tutt* (1930), *Puritan's Progress* (1931), *Mr. Tutt's Case Book* (1937), *Old Man Tutt* (1938), *Tassels on Her Boots* (1940), *Mr. Tutt Comes Home* (1941) and *Yankee Lawyer; the Autobiography of Ephraim Tutt* (1943). Train died in New York city, Dec. 22.

**Trans-Jordan.** This Arab principality, bounded in the west by Palestine, on the north by Syria, on the northeast by Iraq, on the southeast and south by Saudi Arabia, is a British mandated territory. It is administered, under the supervision of the British high commissioner for Palestine and Trans-Jordan, Lieut. Gen. Sir Alan Gordon Cunningham, by Emir Abdullah ibn Hussein, who is supported by a constitutional government. Prime minister (May 1945): Ibrahim Hachem Pasha. Area, 34,740 sq.mi.; pop., c. 325,000, all Mohammedans except for c. 30,000 native Christians. Capital: Amman, the ancient Rabbat Ammon. Chief cities: Amman (25,000), Es-Salt, Maan.

**History.**—During 1945, as in previous years, Emir Abdullah adhered faithfully to the obligations of the treaty with Great Britain concluded in 1928. Great Britain promised the negotiation of a treaty between the two countries more favourable to Trans-Jordan's aspirations for the same complete independence which the neighbouring states of Iraq and Egypt had reached under Great Britain's guidance.

A definite advance in the international position of Trans-Jordan was achieved when the country became a member of the Arab league. This league was formed in Egypt in 1944 and began to function in 1945 as the international representation of

seven Arab states—Egypt, Iraq, Syria, Lebanon, Saudi Arabia, Yemen and Trans-Jordan. The first five of these states were members of the United Nations organization and were represented at the United Nations Conference on International Organization at San Francisco, Calif., where they acted in unity as spokesmen of common Arab interests. Most of the attention of the Arab league and of Trans-Jordan was devoted in 1945 to the defense of Arab rights in Palestine and to a struggle against Zionism. The prime minister of Trans-Jordan took an active part in all the conferences of the Arab league. Emir Abdullah worked for the creation of a great Syria which would include Syria, Lebanon, Palestine and Trans-Jordan in one state over which Emir Abdullah hoped to become the ruler.

**Communications, Education, Finance.**—The economic life of the country is primitive. Many of its inhabitants lead a nomadic or seminomadic life. No oil deposits were found up to 1945, but there were important phosphate deposits, and potash was being produced in the Dead sea. Illiteracy was widespread, though there were numerous private schools, and the government spent £27,874 (£=403.5 cents U.S.) in 1939 on public education. In view of the thin population of the country it is well provided with good motor roads connecting it with Palestine, Syria and Iraq. Of less importance is the Hejaz railroad running through the country from north to south at the brink of the desert. The value of the local currency is identical with that of Great Britain. The public debt was insignificant in view of considerable grants-in-aid from the British government to help to balance the budget. The public debt amounted in 1940 to £155,107. In 1939-40 revenue amounted to £513,971, including grants-in-aid from the British government. The expenditure was £510,293 for the same period. (H. Ko.)

**Transportation:** see BUSINESS REVIEW; DEFENSE TRANSPORTATION, OFFICE OF; ELECTRIC TRANSPORTATION; MOTOR TRANSPORTATION; RAILROADS.

**Transylvania:** see HUNGARY; ROMANIA.

**Trap-shooting.** Don Engleby, a Vermilion, O., restaurant owner, broke 99 targets out of a possible 100 to win the Grand American handicap and continue the 46-year-old tradition of no man ever having won the title twice. Engleby, the Ohio state champion, fired at 23 yd. and beat out S. Dalé Pierce of Geneseo, Ill., and Harris Myatt of Chillicothe, O., who finished in a tie for second with 98.

Rudy Etchen, 22-year-old gunnery specialist from the U.S. navy and Memphis, Tenn., highlighted the 46th annual American trap-shooting tournament at Vandalia, O., with triple championships. He broke 474 out of a possible 500 targets to win the over-all title, and had 381 out of 400 to take the all-around crown. Etchen also retained his doubles championship to become the first three-time winner in the event. Etchen scored 96 out of 100 in the doubles, with Herschel Cheek of Clinton, Ind., second with 93 out of 100.

Mrs. Van Marker of Evanston, Ill., carried on her dominance of the women's division, repeating as victor of the Grand national following a shoot-off with Florence Mos of Cincinnati. Each scored 94 out of 100. Ruth Knuth of Indianapolis, Ind., retained the women's champion of champions tournament with a 95 out of 100. Lt. Vic Reinder of Waukesha, Wis., winner of the 1944 all-around title, won the men's champion of champions in a three-way shoot-off.

E. T. Pugh of Morris, Ill., dethroned Capt. Joe Hiestand of Hillsboro, O., a four-time winner, as North American clay target champion with 199 out of a possible 200. Mrs. Lela Hall won her fifth North American clay target title with 192 out of 200. The men's preliminary handicap went to A. F. Jones of Thief

River Falls, Minn., with 99 out of 100, while Mrs. Isaac Andrews of Spartanburg, S.C., won the women's preliminary, 95 out of 100.

Illinois won the state team championship with 974 targets out of a possible 1,000. Texas, 973, was second. (M. P. W.)

**Treason:** see FEDERAL BUREAU OF INVESTIGATION.

**Treasury, U.S. Department of:** see GOVERNMENT DEPARTMENTS AND BUREAUS.

**Trieste.** A city and port on the northeastern Adriatic (pop. 248,379 in 1936), and the chief city of the Italian province of Venezia Giulia e Zara (area 3,456 sq.mi.; pop. 977,257). This territory had formed part of Austria (Trieste from 1382) before World War I. It was then called Küstenland. After World War I the territory was claimed by Yugoslavia and by Italy. The Italian population was preponderant in the cities, the Yugoslav population, Croat and Slovene, in the rural districts. According to the census of 1910 there were 387,000 Italians and 435,000 Slavs.

The disposition of the territory played a major role at the peace conference of 1919. It was closely connected with the question of Fiume and Dalmatia. The control of the territory was settled by the treaty of Rapallo of Nov. 12, 1920, between Italy and Yugoslavia, which gave the territory to Italy. The collapse of the German armies in April 1945 brought Marshal Tito's Yugoslav forces into the occupation of the territory, and Marshal Tito declared his determination to unite it with Yugoslavia. Italy was united in an equally determined protest against the annexation of Venezia Giulia and especially of Trieste by the Yugoslavs. The Allied armies wished to have the question settled by the peace conference and to avoid any one-sided settlement by force. The acting secretary of state, Joseph C. Grew, declared on May 12 that "it is the firm policy of the United States that territorial changes should be made only after thorough study and after full consultation and deliberation between the various governments concerned." As northeastern Italy was an Anglo-U.S. theatre of operations, an Allied military administration was established and the Yugoslav forces prevailed upon to relinquish part of the territory to Allied administration until final settlement of the dispute. In an agreement concluded on June 9 the cities of Trieste, Gorizia and Pola and the territory connecting them were placed under Allied administration while the much larger part of the province east of that line was put under Yugoslavia without prejudice of the ultimate disposal of that area. Zara in Dalmatia and Fiume came under Yugoslav administration.

**BIBLIOGRAPHY.**—A. J. P. Taylor, *Trieste* (Yugoslav Information Office, London 1945); René Albrecht-Carrié, "The Northeastern Frontier of Italy," *Journal of Central European Affairs* (Oct. 1945); Gaetano Salvemini, "The Frontiers of Italy," *Foreign Affairs* (Oct. 1944); Isabella Massey, "Venezia Giulia," *Free Italy* (Nov. 1945). (H. Ko.)

**Trinidad:** see WEST INDIES, BRITISH.

**Tripartite Conference at Berlin:** see BERLIN CONFERENCE.

**Tripoli:** see ABRASIVES.

**Trolley Coaches:** see ELECTRIC TRANSPORTATION.

**Troubetzkoy, Amélie Rives,** PRINCESS (1863-1945), U.S. author, was born Aug. 23 in Richmond, Va. A popular novelist of the 1890s, she established her literary reputation with her first novel, *The Quick or the Dead?* (1888), which originally appeared in a magazine. The theme, a young widow's torment between her love for her dead husband and a new lover, then considered a taboo subject, caused considerable furor and resulted in enormous sale of



her book. Her second marriage, to Prince Pierre Troubetzkoy, a Russian artist, took place at the family estate in Virginia in 1896. Miss Rives was the author of *Seléné* (1905), *Augustine the Man* (1906), *The Golden Rose* (1908), *Pan's Mountain* (1910), *Hidden House* (1911), *The World's End* (1913), *Shadows of Flames* (1915), *The Ghost Garden* (1918), *As the Wind Blew*, poems (1922), *The Queerness of Celia* (1926) and *Firedamp* (1930). She died in Charlottesville, Va., June 15.

**Trucial Sheikhs:** see ARABIA.

**Truck Crops:** see VEGETABLES.

**Trucks:** see AUTOMOBILE INDUSTRY IN RECONVERSION; MOTOR TRANSPORTATION.

**Truman, Harry S.** (1884– ) became the 33rd president of the United States at 7:09 P.M. of April 12, 1945, upon the death of Franklin Delano Roosevelt. The vice-president from Independence, Mo., was sworn into office by Chief Justice Harlan F. Stone in the cabinet room of the White House.

Truman promptly pledged himself to carry out his predecessor's domestic and foreign policies. In an address before a joint session of congress and in a broadcast to the armed forces around the world, he reiterated the "fallen leader's" demand for unconditional surrender by the axis. In a telephoned speech opening the San Francisco United Nations conference on April 25, he urged the representatives of the victorious countries to write a world security charter and to create a "strong and lasting" organization that would "maintain peace and redeem the terrible sacrifice of the war."

The new chief executive's first days in office were historic. On May 8 he announced the final defeat of Germany. On Aug. 6 he reported that an atom bomb perfected by Allied scientists and manufactured in the United States had virtually wiped out the Japanese city of Hiroshima. On Aug. 11 he gave out the not unexpected news that Russia had declared war on Japan and had already invaded Manchuria. On the night of Aug. 14, to a jubilant nation, he proclaimed the end of the global conflict with the announcement of Japan's acceptance of Allied surrender terms.

Truman presented his own legislative program to congress in an 18,000-word message on Sept. 6, 1945, and simultaneously the era of good feeling—the political honeymoon—showed signs of ending. Bipartisan conservatives, who had hitherto withheld judgment, branded him as "ultra-New Dealish." Some liberal spokesmen did not think that he had travelled far enough in their direction.

The president asked for federal-state unemployment compensation of \$25 a week for 26 weeks, an increase in the existing 40-cent hourly minimum wage rate, extension of wartime controls, statutory creation of a permanent Fair Employment Practices commission, passage of a full employment bill, retention of federal control over state employment agencies, regional development of river basins on the pattern of the Tennessee Valley authority. It was these Rooseveltian proposals which irritated conservatives inside and outside congress.

Truman also recommended government reorganization, continuation of the draft for 18–25 age groups, limited and immediate tax reduction pending further study of the revenue structure and basic revision, a broad federal housing program, financial aid to veterans, farmers and small business men and an increase from \$10,000 to \$20,000 a year for members of congress.

When congress recessed for Christmas, only a few of the president's rather routine demands had become law. A conservative Democratic-Republican coalition thwarted his major and more far-reaching requests. Liberal and labour factions began

to criticize him because, in their opinion, he did not make a sufficiently aggressive fight for his (their) program.

On July 17 President Truman met at Potsdam with Prime Minister Churchill and Premier Stalin for discussion and tentative solution of postwar problems. It was, in reality, a preliminary peace conference. The three heads of states were accompanied by their respective foreign ministers—James F. Byrnes, Anthony Eden and V. M. Molotov. The British elections, which were held during the conference, introduced two new faces to the closing sessions—Labourites Clement R. Attlee and Ernest Bevin as prime minister and foreign minister, respectively. (See BERLIN CONFERENCE.)

The Potsdam meeting created a Council of Foreign Ministers which was given the task of framing peace treaties with the smaller of the vanquished axis nations for eventual submission to the United Nations. The council consisted of the foreign ministers of the United States, Britain, Russia, France and China. They met in London in September, but they made no progress, and they did not assemble again in 1945.

The foreign ministers of the Big Three, however, reached certain settlements at a Moscow meeting in December of 1945. They arranged for the writing of peace treaties with Italy, Rumania, Bulgaria, Hungary and Finland, with the provision that these documents would be submitted subsequently to all the Allied belligerents. They recommended that the United Nations organization study the problem of control of atomic energy. They agreed upon a four-power rule of Japan—the United States, Britain, Russia and China—in place of the supervision that had been exercised by the United States alone. (See also MOSCOW CONFERENCE.)

The Big Three also arranged for zonal control of Germany by the U.S., Britain, Russia and France; and for the liquidation of German militarism and nazism, without, however, the enslavement of the German people. They provided for trial of major war criminals, for reparations and for the establishment of new governments in Poland and Austria.

Foreign problems—a legacy of the war—beset Truman in the closing days of 1945. Almost all the Allies—Russia, Britain, China, the Netherlands, France—adopted aggressive and possessive policies in Europe, the Balkans, the middle east and the orient which appeared to violate the principles of the Atlantic charter, the Tehran, Yalta and Potsdam agreements. Washington protested periodically against these seeming infringements on the Allies' avowed program of eventual enfranchisement of colonial peoples and the promise of self-determination for liberated nations. As the fateful year ended, the administration's foreign policy was under constant fire by liberals and conservatives.

President Truman cheered the nation with his announcement that he favoured a speedy termination of the government's wartime controls over wages and prices, but his specific program precipitated a grave industrial crisis. When the C.I.O. unions voiced strike demands for a 30% increase in pay with the end of the war emergency, Truman stated his policy in a radio broadcast. He advocated higher wages without any increase in retail prices except when the manufacturer could prove that he needed relief. Meanwhile, he sponsored a Labor-Management conference at Washington that was entrusted with the task of devising machinery for preventing and settling industrial disputes.

When this conference proved barren of results, and strikes threatened the reconversion process in the automobile and steel industries, Truman proposed a compromise method for dealing with these difficulties. He asked congress to create a federal fact-finding agency that would investigate major industrial differences and make public the issues at stake. The proposed law would also bar strikes during this inquiry and provide for a

"cooling off" period of at least 30 days.

Truman admittedly brought forth this plan in an attempt to head off the enactment of extreme antiunion legislation by an impatient congress. But his scheme solidified organized labour against him. Even C.I.O. President Philip Murray, who had been a political stalwart for the Democrats during the Roosevelt regime, declared that the president's proposal was "designed to weaken and ultimately destroy labour union organizations." Murray's reaction aroused the fear among Truman's partisan friends, who obviously anticipated his renomination in 1948, that he had alienated the very group—the mass workingman's vote—which had made possible Democratic control of the government for 16 years.

(See also UNITED STATES.)

(R. Tu.)

**Tuberculosis.** Diagnosis and Case Finding.—C. E. Palmer observed that in the central eastern half of the United States where there is a high incidence of calcium deposits in the lungs there is a corresponding high incidence of reactors to histoplasmin. Thus it appears that an infection caused by the fungus *Histoplasma capsulatum* resulting in the disease histoplasmosis is prevalent in this area. Prior to this discovery, histoplasmosis was thought to be a fatal disease. It now appears that a mild form exists which does not even cause illness in the bodies of large numbers of persons and that it casts X-ray shadows which cannot be differentiated from those produced by tuberculous lesions. Formerly the tuberculin test was severely condemned by those who believed that all deposits of calcium in the lungs were due to tuberculosis. Deposition of calcium occurs in many diseases and conditions, and therefore is not a specific process. Palmer concluded that "a very high proportion of the pulmonary calcifications observed in roentgenograms of tuberculin-negative persons is due not to tuberculosis but probably to histoplasmosis." Palmer's work emphasizes the necessity of specific tests in diagnosis.

A comparative study of the various X-ray methods of inspecting the chests of a large number of persons was made. Each of the individuals included in the study had a 35-mm. photofluorogram, a 4x10 photofluorogram, a 14x17 in. paper film and a 14x17 in. celluloid film taken within a few minutes of one another. Independently, three chest specialists and two radiologists then inspected the films. A preliminary report of this study revealed that in the actual experience of the five experts, the efficiency for case-finding purposes was of approximately the same magnitude for each of the four methods. It was found that such advantage as may be inherent in any one technique is of so small a magnitude that it is much smaller than the human error involved in X-ray inspection.

R. H. Morgan made additional perfections in the development of a photo timer, one of the outstanding contributions in the field of radiology during 1945. H. E. Hilleboe and Morgan were the authors of a book on *Mass Radiography of the Chest*, which was the first of its kind to be published in the U.S. This is more than a book on X-ray, since it includes information on practically all phases of tuberculosis control work. A monograph entitled, "Mass Miniature Radiography of Civilians," was published by the British Medical Research council.

The committee on tuberculosis of the American Student Health association reported that the incidence of tuberculous infection among college students is steadily decreasing. It was strongly recommended that all students be tested with tuberculin and that X-ray films of the chest be made of only the reactors. The committee urged that faculty members and employees, including food handlers, participate in the tuberculosis control program on the same basis as students.

M. J. Seid emphasized the importance of the tuberculin test

for pregnant women. He found 380 reactors among 1,000 tested. Other phases of the examination revealed 14 cases of the reinfection type of pulmonary tuberculosis among the 380 reactors. W. H. Oatway, Jr., emphasized the value of examining for tuberculosis all of the 15,000,000 persons admitted to hospitals each year. Douglas called attention to the great importance of the private physician as a case finder. H. A. Burns and O. L. Bettag called attention to the seriousness of the tuberculosis problem in institutions for the mentally ill and in prisons. They outlined excellent methods of control in these institutions. D. B. Ruskin examined 1,852 patients in a state-owned hospital for epileptics and found 7.2% with active tuberculosis. Only 0.8% of the total number of patients examined had been diagnosed before the survey. He suggested that special hospitals be provided for tuberculous inmates of hospitals for the mentally ill.

**Tuberculosis and War.**—It was reported that among 16,000,000 persons examined for military service in the U.S., approximately 168,000 were rejected because of X-ray shadows which might represent tuberculosis. The emergency did not permit the military services to determine the cause of the disease producing the shadows. However, many rejectees were later examined, and a relatively small percentage (10 to 20) were found to have evidence of tuberculosis which required treatment.

After the beginning of World War II the total number discharged from military service because of tuberculosis reached approximately 20,000 in 1945. For a period corresponding with the length of World War I, the percentage of discharges was only about one-tenth as great during World War II. This was due to two main reasons: (1) there was far less tuberculosis among the citizens of the U.S. during World War II than during the earlier war; (2) much of the gross tuberculosis that existed among persons of military age was detected at induction centres, and the individuals were rejected for this war in much greater numbers than in World War I. In both the army and the navy there was no apparent association between the nature of service and the development of tuberculosis. Those engaged in the most strenuous and severe activities fared as well as those in more sedentary positions. Among the 20,000 persons discharged from service because of tuberculosis, from one-half to two-thirds of them had definite shadows on X-ray films at the time of induction which were overlooked or were considered insignificant. The remaining one-third to one-half had no X-ray shadows indicating the presence of disease at the time of induction. Doubtless the vast majority of this latter group had pre-X-ray tuberculosis when they were inducted, after which it evolved to such proportions as to cause illness or produce shadows. The remainder of these persons probably became infected while in service. In the Canadian army J. D. Adamson reported that approximately twice as many of those who went overseas fell ill from tuberculosis as those who remained at home.

**Tuberculosis and Veterans.**—The committee on tuberculosis among veterans of the National Tuberculosis association inspected hospitals for the tuberculous during 1945 and made recommendations with reference to organization and future care of patients. It was reported that between 1921 and 1944, 350,196 veterans were admitted to hospitals for tuberculosis, 92% of whom were from World War I. The cost of paying compensation or pensions and hospitalizing veterans because of tuberculosis between 1918 and 1944 amounted to \$1,422,540,000.

All persons discharged from military service during World War II because of tuberculosis were referred to the Veterans' administration for treatment. On May 1, 1945, there had been 15,249 admissions to veterans' hospitals. Plans were made for additional beds through 1947, when there were expected to be

11,587 available for veterans in 23 hospitals for the tuberculous and 11 tuberculosis departments of general veterans' hospitals. Many veterans do not require long periods of treatment in these hospitals. Others leave to be treated at home or in hospitals for civilians.

**Treatment.**—W. H. Feldman and H. C. Hinshaw demonstrated that the excellent results previously reported by treating tuberculous guinea pigs with sulfones (promin, diasone and promizole) were due to a suppressive action of the drugs. Animals so treated did not lose their sensitivity to tuberculin; moreover, those apparently successfully treated with promin over a prolonged period of time eventually died from tuberculosis after the medication was stopped. Penicillin was found to have no effect on tuberculosis in animals or man. Another antibiotic substance, known as streptomycin, proved to be efficacious in treating experimental tuberculosis. Feldman, Hinshaw and F. C. Mann found it effective in resolving or suppressing the disease. In 39% of the animals it resulted in a reversal of a positive to a negative sensitivity to tuberculin. M. I. Smith and W. T. McClosky reported that streptomycin has a chemotherapeutic index better than ten times that of promin. When they used a suitable combination of streptomycin and promin, they obtained results which under their experimental conditions they had not obtained previously. In a preliminary report of the effects of streptomycin on tuberculosis in humans, Hinshaw and Feldman presented the results upon 34 patients. Apparent significant improvement was seen in cases of early and extensive haematogenous forms of pulmonary tuberculosis, early miliary disease, and lesions of the kidneys and lymph nodes. These encouraging results stimulated more extensive studies.

M. I. Levine observed 90 infants before, during and after the development of primary tuberculosis complexes. He found that rest in bed did not influence the course of the primary complex or reduce the incidence of complications, nor was there evidence that lack of rest in bed was detrimental. The age of the child at the time of infection, rather than the method of treatment, seems to be the important factor in determining prognosis. Rest in bed during a primary infection with tuberculosis should be limited only to the period of elevation of temperature, as in the period of any febrile infection during childhood, he said. Contact with a tuberculous mother during the first year was much more dangerous than contact with a tuberculous father.

The Metropolitan Life Insurance company closed its 300-bed sanatorium at Mount MacGregor, New York, for lack of patients. In a few parts of the U.S., county and state sanatoriums had vacant beds, while in other areas there were patients on waiting lists. In most parts of the world the number of beds was inadequate in 1945.

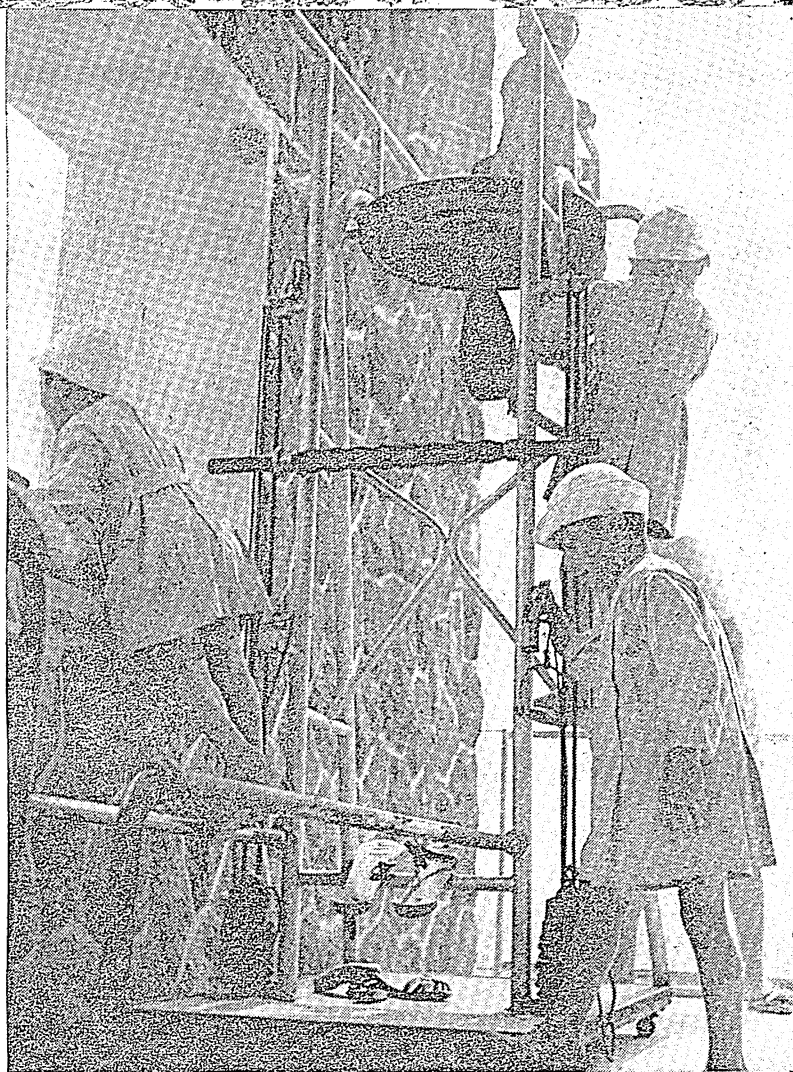
Afonso MacDowell, of Brazil, emphasized that pregnancy in confirmed tuberculosis lost the sinister gravity it held for early obstetricians, largely because of the use of collapse therapy.

R. H. Overholt reported 36 cases of pulmonary tuberculosis for which he removed entire lungs, and 24 for whom lobes were removed. Operative fatality was 11.6%. In 47 cases for whom the risk was reasonable the mortality was only 4.3%.

R. Tapia Acuña, of Mexico City, made bronchoscopic examination of 279 patients with pulmonary tuberculosis, of whom 83 were found to have disease in the trachea and bronchi. He stressed the importance of bronchoscopy in tuberculosis as complementary for both diagnosis and treatment.

**Morbidity and Mortality.**—In the U.S. the mortality rate continued to decrease, reaching the all-time low figure of approximately 38 per 100,000 population.

R. E. Boynton reported that in the state of Minnesota between 1915 and 1919 the mortality rate for infants under one year was 130 per 100,000, whereas from 1940 to 1944 it was 9, a decrease of 93%. For all children under 15 years, the mortality was 34.1 from 1915 to 1919, and 3.9 from 1940 to 1944, a decrease of 88%. Among persons of all



**TERRACE** on Mussolini's modern villa near Rome, which in 1945 was a home for Roman orphans, some of whom were undernourished and tended toward tuberculosis

ages the mortality rate was 103.1 in 1915-19, and 27.5 from 1940 to 1944, a reduction of 73%. In 1915 there were 260 deaths from tuberculosis among children under 15 years of age, compared with 26 in the year 1944. Godias Drolet pointed out that while the child population under 15 had remained fairly constant around 1,500,000 in New York city, in 1915 there were 1,200 deaths, and only 110 in 1940.

In China it was estimated that 36,000,000, or approximately 8% of the population, had active tuberculosis. In Guam tuberculosis was the leading cause of death among adults. J. I. Baldo stated that tuberculosis occupies a leading place among causes of death in Venezuela. In urban centres the mortality rate varies from 210 to 407 per 100,000 inhabitants. It was reported that in Rio de Janeiro during 1944, of all deaths tuberculosis was responsible for 17.59%.

**Tuberculosis Control.**—C. L. Newcomb, of the National Tuberculosis association, reported a gross income of \$14,966,000 from the sale of seals in 1944 and predicted \$15,500,000 in 1945. The National Tuberculosis association published several pamphlets and produced films of excellent educational value on various phases of tuberculosis.

For the fiscal year beginning July 1, 1945, congress appropriated \$6,047,000 to the tuberculosis control division of the U.S. public health service for the prevention, treatment and control of tuberculosis. Of this amount, \$5,200,000 was given to the states and territories as direct grants to assist in the development of their public health programs for the control of this disease; the remaining \$847,000 was used by the division to recruit and train professional personnel including doctors, nurses and scientific personnel to carry on demonstrations, especially case-finding and follow-up programs in those states and large cities which did not have facilities and personnel. Approximately \$300,000 of the \$847,000 spent directly by the division was used for research in all phases of tuberculosis control. Some activities were being carried out in the epidemiology of the minimal lesion among 12,000 student nurses in 75 schools and 10 cities throughout the country. A review of BCG (Bacill Calmette Guérin) vaccination was in progress in co-operation with several of the research groups. Detailed demographic studies were being made on tuberculosis morbidity and mortality in the U.S. A sub-laboratory was established to study tuberculosis and allied pulmonary diseases in Kansas City. The staff of the division consisted of 68 medical officers including specialists in the fields of public health, radiology, chest diseases and internal medicine. In addition there were 40 public health nurses on loan to states and local communities.

Several state departments of health created or revived divisions of tuberculosis control.

The effectiveness of tuberculosis control measures is best determined



by the tuberculin test. In rural Kansas, S. L. Cox tested 36,995 children ranging from preschool to senior high school students, of whom 2.7% reacted. In this group were 12,733 from 15 to 18 years, of whom 3.7% reacted. Reports of testing high school students in various parts of the country indicate that the average incidence of infection among them was about 12 to 15%. F. E. Harrington *et al.* reported on the incidence of primary tuberculosis among grade school children in well selected schools. In 1926, 47.3% of the children reacted to tuberculin; in 1936, 18.9%; and in 1944, 7.7%. L. S. Jordan reported ten schools with an enrolment of approximately 2,000, in which 14.3% of the children reacted to tuberculin between 1930 and 1935; 4.3% between 1936 and 1940; and none in 1944.

A. E. Wight reported that every county and state in the nation maintained its modified accredited rating with reference to tuberculosis in cattle. During the fiscal year 1945, 8,000,000 cattle were tested throughout the U.S., and only 0.24% reacted. From 1917 to 1945 inclusive, 279,235,490 tests were administered, and 3,891,950 animals reacted. This activity played an important role in controlling tuberculosis in humans. (See also X-RAY.)

**BIBLIOGRAPHY.**—Carroll E. Palmer, "Nontuberculous Pulmonary Calcification and Sensitivity to Histoplasmin," *Pub. Health Rep.*, 60:513-520 (May 11, 1945); M. J. Seid, "Tuberculin Testing of Pregnant Women," *Am. Rev. Tuberc.*, 51:537-538 (June 1945); W. H. Oatway, Jr., "Tuberculosis Search in Hospitals," *Bull. Nat. Tuberc. Ass'n*, 31:165-166 (Nov. 1945); H. A. Burns, "Tuberculosis in Institutions for the Mentally Ill," *Dis. of Chest*, 11:304-312 (July-Aug. 1945); O. L. Bettag, "Tuberculosis in Prisons," *ibid.*, 11:313-339 (July-Aug. 1945); E. R. Long, "Tuberculosis as a Military Problem," *Am. Rev. Tuberc.*, 51:489-504 (June 1945); *idem*, "Tuberculosis in German Prison Camps," *Bull. Nat. Tuberc. Ass'n*, 31:149-150 (Oct. 1945); J. D. Adamson, W. P. Warner, R. F. Keevil and R. E. Beamish, "Tuberculosis in the Canadian Army 1939 to 1944," *Can. Med. Ass'n Jour.*, 52:123-127 (Feb. 1945); R. A. Wolford, "Symposium on Tuberculosis in Institutions: The Care of the Tuberculous Veteran," *Dis. of Chest*, 11:351-355 (July-Aug. 1945); H. C. Hinshaw and W. H. Feldman, "Streptomycin in Treatment of Clinical Tuberculosis," *Proc. Staff Meet., Mayo Clinic*, 20:313-318 (Sept. 5, 1945); M. I. Levine, "Primary Tuberculosis: Effect of Unrestricted Activity on Prognosis," *Am. J. Dis. Child.*, 68:385-389 (Dec. 1944); R. H. Overholt, "Pulmonary Resection in the Treatment of Pulmonary Tuberculosis," *Am. Rev. Tuberc.*, 51:18-54 (Jan. 1945); Ricardo Tapia Acuña, "Bronchoscopy in Pulmonary Tuberculosis," *Dis. of Chest*, 11:392-397 (Sept.-Oct. 1945); Ruth E. Boynton, "Tuberculosis in American Colleges and Universities," *ibid.*, 11:340-350 (July-Aug. 1945); J. I. Baldo, "The Tuberculosis Problem and the Organization of the Tuberculosis Campaign in Venezuela," *ibid.*, 11:259-265 (May-June 1945); J. A. Myers, F. E. Harrington and E. Garcia Suarez, "Importance of Detecting Tuberculosis in Children," *J.A.M.A.*, 128:852-856 (July 21, 1945); L. S. Jordan, "Continuation of the Mantoux Program in Rural Minnesota," *Journal-Lancet*, 65:142-143 (April 1945).

**FILMS.**—*Tuberculosis* (Encyclopædia Britannica Films Inc.). (J. A. My.)

**Tung Oil:** see VEGETABLE OILS AND ANIMAL FATS.

**Tungsten.** The output of tungsten concentrates containing 60%  $WO_3$  for the major producing countries is shown in Table I, so far as data were available in 1945.

Table I.—World Production of Tungsten Concentrates

	(Short tons)				
	1937	1939	1941	1943	1944
United States . . . . .	3,500	4,298	6,566	11,945	10,282
Canada . . . . .	—	4	35	880	514
Argentina . . . . .	955	1,443	1,896	2,668	2,743
Bolivia . . . . .	1,986	3,678	4,798	7,608	8,747
Brazil . . . . .	7	8	39	1,393	2,448
Peru . . . . .	86	187	371	796	644
Portugal . . . . .	2,281	4,245	6,431	8,242	5,500?
Spain . . . . .	276	406	457	4,301	2,293
Burma . . . . .	7,599	9,081	?	?	?
China . . . . .	19,726	12,765	?	13,272	9,906
Total . . . . .	43,124	44,000	?	?	?

In order to cover a longer period, data are shown for every other year previous to 1943. The extent to which production was built up in so many countries is one of the marvels of the war production program. The results in the United States are especially noteworthy since, so far as is known, the U.S. became the leading producer in 1944. In the earlier years of World War II, Portugal and Spain furnished most of the German supply, but later the buyers of the United Nations adopted the policy of outbidding the German buyers, to reduce the German supply. When the Burma road was closed, and it was necessary to fly war supplies to China, considerable amounts of tungsten were brought out on the return trips.

**United States.**—Statistics of the tungsten industry in the United States, suppressed during the war years, were made

public in 1945 as shown in Table II.

Table II.—U.S. Tungsten Statistics, 1940-44

	(In short tons)				
	1940	1941	1942	1943	1944
Production . . . . .	2,436	3,210	4,489	5,736	4,882
Shipments . . . . .	2,531	3,125	4,441	5,684	4,893
Imports . . . . .	4,833	6,576	7,705	9,339	9,119
Consumption . . . . .	4,978	8,350	8,695	9,657	9,583
Stocks . . . . .	4,257	5,393	6,652	11,988	16,907

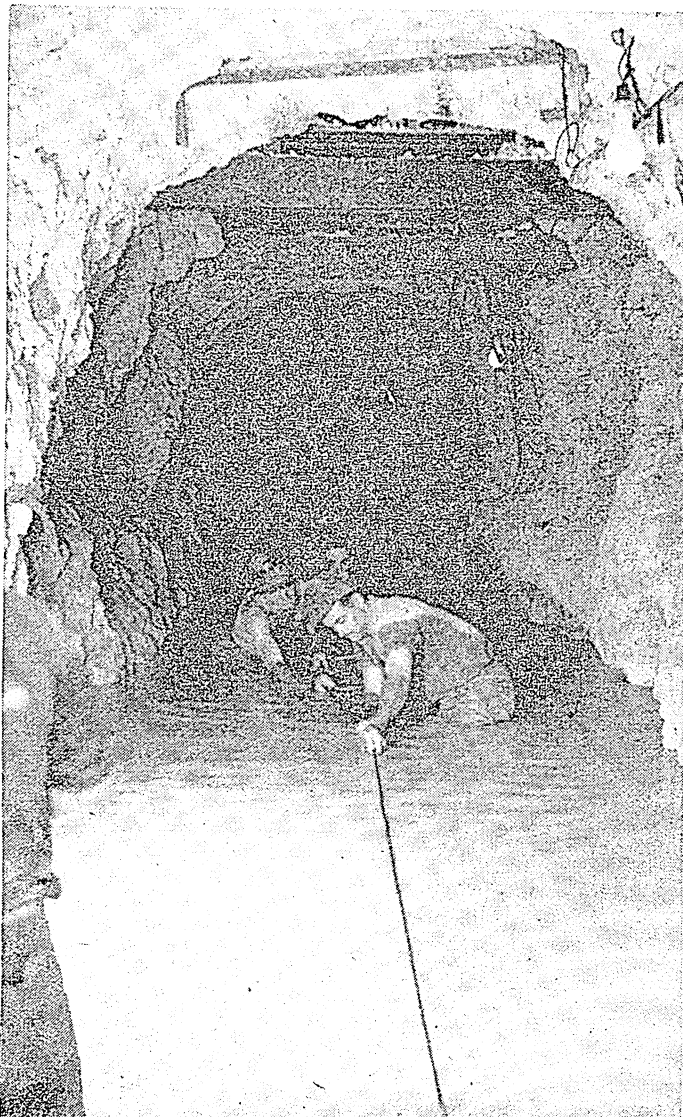
In spite of heavy increases in consumption, production and imports not only maintained a satisfactory supply, but built up large stocks for possible emergency demand. Consumption about doubled over prewar levels, and would have gone much higher except for extensive substitution of molybdenum for tungsten in tool steels. That this was an emergency substitution, and not a permanent trend in use, was made clear when restrictions on the use of tungsten were removed at the end of 1943, and there was an immediate swing back to tungsten, with a sharp decrease in the demand for molybdenum. (See also MINERAL AND METAL PRODUCTION AND PRICES.) (G. A. Ro.)

**Tunisia:** see FRENCH COLONIAL EMPIRE.

**Tunnels.** After hostilities and the actual physical fighting of World War II came to an end during the year 1945, it gradually came to light that tunnels were considerably more of a factor in defense and offense than was known. Again no tunnel construction occurred except that which had some bearing on the world-wide conflict.

After the war, the damages to public utilities in London

SEABEES constructing one of a series of tunnels on Guam in 1945, to provide an additional water supply for the U.S. fleet operating from the island



wrought by dropped and flying rocket bombs were to a limited extent published. The civil defense of that city with its many utilities such as water, gas, drainage, hydraulic and electric supply, telephone, telegraph lines, etc., all confused with several hundred miles of passenger transit tunnels, constituted a huge and baffling problem requiring much preliminary study and great organization forces at immense expense, which, for example, included such precautionary measures as the building of four temporary bridges over the river Thames and many other such like defense arrangements in anticipation of the offensive. To the many miles of London's passenger tunnels about 30 cases of structural damage occurred, but, curiously, it seems the most serious of such cases befell the two comparatively small and only toll foot-way tunnels under the Thames river, including the one of historic interest to engineers called the Tower subway.

The work of construction of the New York Tunnel Authority's Brooklyn-New York Battery highway tunnels connecting Manhattan and Brooklyn under the harbour via Governor's Island was discontinued because of World War II. This work was resumed on Nov. 7, 1945.

On Aug. 4, the province of Ontario opened to the public a new inspection tunnel constructed under the falls of Niagara. From Aug. 1939 until then, these inspection facilities were closed to the public.

About 1930, mining of precious or essential metals became too expensive to recover from the mines at Leadville, Colo. However, in the face of the necessity for essential metals the 1943 U.S. congress made an appropriation to the department of the interior for the sole purpose of building a drainage tunnel in these mines at a level low enough to drain by gravity. The scheme included the main tunnel together with supplementary laterals. Despite enormous difficulties the work made good progress under an efficient and experienced construction organization. The extraordinary difficulties in construction were reminiscent of a few somewhat similar experiences met with in the past. Again and again enormous blow-ins of water and demoralized ground would rush into the heading. Because of excessive loads stretches of the tunnel were timbered and lined with concrete. Various measures were adopted to consolidate the ground in the face of these conditions, when water under pressure of 750 lb. per sq.in. was encountered. To effect consolidation bulkheads were built to confine the bad ground. Holes were drilled through these bulkheads through which a liquid mixture of cement was projected under high pressure; even sawdust and oats were injected in the attempt to seal structural cracks which carried cement back into the tunnel. In general this tunnel is in rock, the difficulties being met with in geologic faults where water to the extent of thousands of gallons per minute poured into the heading. From the latest information available in 1945, the tunnel was progressing normally in limestone and no fear was apprehended that future trouble would not be overcome by use of procedures previously developed. (J. FE.)

**Turkestan, Chinese:** see SINKIANG.

**Turkey.** A republic in the southeastern Balkans and in Asia Minor. Area, 296,500 sq.mi.; pop. (Oct. 20, 1940) 17,820,950. Capital: Ankara. Chief cities: Istanbul (Constantinople) 793,949; Izmir (Smyrna) 183,762; Ankara (Ankara) 157,242; Seyhan (Adana) 88,119; Bursa (Brusa) 77,598; Eskisehir 60,742; Gaziantep 57,132. Religion: predominantly Mohammedan. President: Ismet İnönü. Prime minister (1945) Sükrü Saracoğlu.

**History.**—Turkey completed at the beginning of 1945 the evolution it had started in 1944. On Aug. 7, 1944, Turkey had

broken off diplomatic and commercial relations with Germany. On Jan. 3, 1945, it followed that step by breaking off relations with Japan. In both cases its treaty of alliance with Britain was given as the determining reason. On Feb. 23, 1945, Turkey declared war on Germany and Japan and thus qualified for an invitation as a charter member to the United Nations conference in San Francisco. The declaration of war was approved unanimously by the Turkish parliament. On the same day a formal lend-lease agreement was signed between the United States and Turkey. Turkey was also among the first nations to ratify the United Nations charter, doing so on Aug. 16, 1945. On that occasion a special tribute was paid to the achievements and the friendship of President Franklin D. Roosevelt.

In the forefront of Turkey's political problems in 1945 were its relations with Russia. In June 1945 the Russian ambassador in Ankara, Sergei Alexandrovich Vinogradov, transmitted to the Turkish government a note stating the conditions for a new treaty of friendship between the two countries after the old one had been denounced by Russia on March 20. It was reported on reliable authority, though never officially published, that the Russians demanded the cession by Turkey of the districts of Kars and Ardahan and the establishment of a new regime governing the Straits of Constantinople. A lively agitation among Armenians living in the soviet union claimed Kars and Ardahan as parts of the soviet republic of Armenia. Russia demanded military bases in the straits and the replacement of the International convention by a bilateral treaty. It was also reported that the Russians suggested to the Turks the acceptance of territorial changes in the Balkans, probably a Bulgarian outlet to the Aegean sea which would cut off Turkey from Greece.

The Turks rejected the Russian demands. They were convinced that the cession of the strategic territories of Kars and Ardahan and of military bases in the Straits of Constantinople to Russia would render Turkey defenseless and end its independence. The Turks were opposed to any bilateral settlement of the straits question with Russia. They were willing to accept a reasonable international regime under the security council of the United Nations organization which would guarantee freedom of use of the straits without endangering Turkish national security. Such a suggestion was also made by Secretary of State Byrnes on behalf of the United States in a memorandum to the Turkish government.

The end of World War II resulted in an economic crisis, for prices remained high while the demand for Turkish products, stimulated by the war, suddenly ceased. The Turkish government in its plans for the industrialization of the country, the completion of the railroad net and the erection of a number of powerful hydroelectric plants, the material for which would have formerly been supplied by Germany, was looking for new trade relations with the west. The end of the war brought also a relaxation of censorship and of the strict discipline maintained in the Turkish parliament. The desire for the fuller obligation of the democratic rights guaranteed by the constitution was voiced insistently and the formation of an opposition party for the elections in the spring of 1946 was discussed.

**Education.**—In 1942 there were 11,413 schools with 29,854 teachers and 769,555 male and 331,706 female students. The total expenditure on education by the government in 1941-42 was £T.41,046,894. There were 20 institutions for higher education with 11,779 male and 3,099 women students. Among them was the University of Istanbul which, founded in 1900, was completely reorganized in 1933. In 1941-42 there were 8,713 students, among them 2,106 women. Among the other colleges there was in Ankara a school of law, an institute of history, language and geography, and an institute of advanced agriculture.

**Finance.**—Revenue for 1944-45 was estimated at £T.570,435,500, expenditure at £T.570,434,417. On May 31, 1939, the last date for which figures were published, the public debt amounted to £T.619,385,681, of which £T.331,761,478 represented the consolidated debt. After 1939 numerous loans to meet extraordinary expenditures, mostly for defense, swelled the public debt considerably. The monetary unit is the Turkish pound (£T.), divided into 100 piastres. The Turkish pound has been stabilized on the basis of 521 piastres to the English pound, and was valued at approximately 80 cents U.S. in 1945.

**Trade and Communication.**—In 1943 imports to Turkey amounted to £T.203,000,000; exports from Turkey to £T.247,000,000. Before World War II the chief exporters to Turkey were Germany, followed by the United States, Italy and Great Britain. The same order prevailed among the countries to which Turkey exported. Turkey imported mineral oils and coal, machinery, iron and steel manufactures, cotton piece goods, paper and paper manufactures, chemicals, tea, coffee and cocoa and rubber manufactures. It exported tobacco, cotton, hazelnuts, mohair, olive oil, resins, wool, opium and chrome.

On May 1, 1942, Turkey had a merchant fleet of 168 ships with a gross tonnage of 187,556. The total length of railway lines at the end of 1943 was 4,609 mi., of which 4,339 mi. were owned by the state.

**Agriculture and Industry.**—The main industry of the country is agriculture, which the government has tried to modernize and intensify. Besides cereals, tobacco, opium, figs, raisins, nuts and almonds are grown. In 1942 the tobacco crop amounted to 76,050 short tons. The breeding of sheep and goats is of great importance, and silk, mohair, skins and hides are exported. The Turkish government gave great consideration to a program of industrialization after the late 1920s, and a number of modern factories were constructed. The government granted special credits to the development of mining. The country has important deposits of coal, chrome, manganese and emery. A second five-year plan, proclaimed in 1936, concerned mainly mining and electrification. Its completion was halted by the war.

**BIBLIOGRAPHY.**—Malcolm Burr, "Politics in Turkey," *The Spectator* (July 13, 1945). (H. Ko.)

**Turner, Richmond Kelly** (1885– ), U.S. navy officer, was born May 27 in Portland, Ore. He was graduated from Annapolis, 1908, was commissioned an ensign, 1910, and studied at the Naval Ordnance school in 1916. During World War I he served on a number of battleships. After the war he trained at the Naval Aviation school in Pensacola, becoming a naval aviator, 1927. He was commander of the Asiatic fleet's aircraft squadron, 1928-29, chief of the navy's bureau of aeronautics planning division, 1929-31, and aviation adviser to the U.S. delegation at the Geneva disarmament conference, 1931-32. On July 1, 1935, he was promoted to captain and assigned to the Naval War college. Turner then returned to a desk job to direct the navy's war plans division, 1940; the following year he was promoted to rear admiral. During the following few years, Turner was one of the navy's most active admirals. He commanded amphibious operations in the Guadalcanal, New Georgia, Kwajalein, Saipan and Iwo campaigns and helped plan the Gilberts invasion. He was regarded as one of the navy experts in boat-to-beach operations. He was promoted to vice-admiral, Feb. 10, 1944, and was made a full admiral, May 15, 1945. Washington disclosed, Dec. 29, that Turner was named as one of the U.S. representatives to attend the military talks of the United Nations security council scheduled for Jan. 1946.

**TVA:** see TENNESSEE VALLEY AUTHORITY.

**Twentieth Century Fund:** see SOCIETIES AND ASSOCIATIONS.

**U-Boats:** see SUBMARINE WARFARE.

**Uganda:** see BRITISH EAST AFRICA.

**Ukraine.** The Ukrainian Soviet Socialist Republic is one of the constituent members of the Union of Soviet Socialist Republics. Its area in 1939 was 170,998 sq.mi. with a

population of 30,960,221. Capital: Kiev (pop. 846,293). Other important cities: Kharkov (833,432), Odessa (604,223), Dnepropetrovsk (500,662). The Ukrainian Soviet Socialist Republic extended its territory in 1939 by the inclusion of parts of Poland extending to nearly 40,000 sq.mi. with a population of 7,000,000. On the other hand, the Moldavian Soviet Socialist Republic, until then an autonomous part of the Ukrainian Soviet Socialist Republic, was constituted on Aug. 2, 1940, with the addition of large parts of Rumanian Bessarabia into one of the constituent members of the Union of Soviet Socialist Republics and separated from the Ukraine. But the Bessarabian districts of Khotin, Akerman and Ismail, together with northern Bukovina, were incorporated into the Ukraine which also gained in 1945 by the annexation of the Czechoslovak Carpatho-Ukraine, a territory of 12,617 sq.mi. with a population of 725,357. For the first time all lands inhabited by a Ukrainian majority were united in the Ukrainian soviet republic. Several of these lands like eastern Galicia (formerly Austrian and Polish), northern Bukovina (formerly Austrian and Rumanian) and Carpatho-Ukraine (formerly Hungarian and Czechoslovak) never before formed part of the Russian empire.

The Ukrainian Soviet Socialist Republic was admitted as a member to the United Nations organization in 1945 and participated in the United Nations Conference on International Organization in San Francisco. Chairman of the Ukrainian delegation was Dmitry Zacharovitch Manuisky, one of the well-known old bolshevik leaders and member of the former Communist International, and, in 1945, deputy chairman of the Council of People's Commissars of the Ukrainian Soviet Socialist Republic. (H. Ko.)

**Umezu, Yoshijiro** (1882– ), Japanese army officer, was born in January at Oita. Although a graduate of the Naval academy and the Naval Staff college, he entered army service as commander of an infantry regiment. In 1934 he was named commander of a Japanese garrison in north China, and there directed many of the intrigues which culminated in the Chinese-Japanese war three years later. In 1936 he was returned to Tokyo as vice-minister of war, but in 1939 was again shifted to the Manchurian scene, where he held command of the Kwangtung army and the title of "Japanese ambassador." In reality, he was virtual ruler of the puppet regime. Characterized as a cautious, practical-minded commander, Umezu had long been considered one of the powers of Japan's military, and had been identified with its Asiatic expansionist adventures. After Premier Tojo was removed from the post of chief of general staff, which he held concurrently with his premiership, Umezu succeeded to that position, according to a Tokyo broadcast, July 18, 1944. He signed the Japanese surrender document for the Japanese imperial general staff in the ceremonies aboard the battleship U.S.S. "Missouri" in Tokyo bay, Sept. 2, 1945.

**Unemployment:** see EMPLOYMENT.

**Unemployment Insurance:** see SOCIAL SECURITY.

**Unemployment Relief:** see RELIEF.

**Unfederated Malay States.** One of the three principal subdivisions of British Malaya (see also STRAITS SETTLEMENTS and FEDERATED MALAY STATES). Area, 22,100 sq.mi.; pop. (1940) 1,912,497. There are five of these states with the following areas and populations: Johore, 7,330 sq.mi., pop. 737,590, capital Johore City; Kedah, 3,660 sq.mi., pop. 515,758, capital Alor Star; Kelantan, 5,750 sq.mi., pop. 390,332, capital Kota Bharu; Trengganu, 5,050 sq.mi., pop. 211,041, capital Kuala Treng-



ganu; Perlis, 310 sq.mi., pop. 57,776, capital Kangan. The largest, richest and most populous of these states, Johore, is at the southern tip of the Malay peninsula, opposite Singapore Island. The others, located in the northern part of British Malaya, were quickly overrun by Japanese forces in the first weeks of the World War II campaign which culminated in the capture of Singapore in Feb. 1942. They were transferred to the possession of Siam in 1943 but were handed back to British sovereignty by virtue of the treaty between Great Britain and Siam which was concluded at the end of 1945. Before the Japanese invasion the nominal rulers were native sultans, who conformed to the advice of British residents. Apparently this method of indirect administration continued under the Japanese occupation and the period of annexation by Siam. Rubber is the principal product of these states with rice and copra as secondary crops. (See also JAPAN.) (W. H. CH.)

**Union of South Africa:** see SOUTH AFRICA, THE UNION OF.

## Union of Soviet Socialist Republics.

The former Russian empire, an Eurasian state covering the whole of eastern Europe and northern Asia and much of central Asia, is a federation of soviet socialist republics. In 1939 its area was 8,173,550 sq.mi., its pop. (Jan. 17, 1939, census) 170,467,186. The union then consisted of 11 republics of which the Russian Soviet Federated Socialist Republic was by far the largest (78% of the whole territory and 64% of the population). Of the remaining 36% of the population, almost one-half lived in the Ukrainian S.S.R. (2% of the territory) and the other half in the nine other union republics (20% of the territory). The soviet union is inhabited by almost 100 different nationalities speaking different languages. In Jan. 1939, Great Russians constituted 58.4% of the population, Ukrainians 16.6% and White Russians 3.1%. None of the other nationalities, all of them non-Slavic and most of them non-European, reached 3% of the total population. The most important were Uzbeks 2.9%; Kazaks 1.8%; Tartars 2.5%; Jews 1.8%; Azerbaijanians 1.3%; Georgians 1.3%; Armenians 1.3%. The capital of the U.S.S.R. and of the Russian S.F.S.R. is Moscow (pop. 4,137,018). Ten other cities had a population of more than 500,000 in 1939: Leningrad, formerly St. Petersburg (3,191,304); Kiev (846,293); Kharkov (833,432); Baku (809,347); Gorki, formerly Nizhni Novgorod (644,116); Odessa (604,223); Tashkent (585,005); Tbilisi or Tiflis (519,175); Rostov-on-Don (510,253); Dnepropetrovsk (500,662). In 1939 there were 81 cities in the U.S.S.R. with a population of more than 100,000 inhabitants and 92 cities with a population of 50,000 to 100,000 inhabitants.

In 1939 the U.S.S.R. consisted of the following union republics: Russian S.F.S.R. (capital Moscow; area 6,372,860 sq.mi.; pop. 109,278,914); Ukrainian S.S.R. (Kiev; 171,777 sq.mi.; pop. 30,960,221); White Russian S.S.R. (Minsk; 49,022 sq.mi.; pop. 5,567,976); Azerbaijan S.S.R. (Baku; 33,196 sq.mi.; pop. 3,209,727); Georgian S.S.R. (Tiflis; 27,020 sq.mi.; pop. 3,542,289); Armenian S.S.R. (Erivan; 11,580 sq.mi.; pop. 1,281,599); Turkmen S.S.R. (Ashkhabad; 171,384 sq.mi.; pop. 1,253,985); Uzbek S.S.R. (Tashkent; 145,908 sq.mi.; pop. 6,282,446); Tadzhik S.S.R. (Stalinabad; 55,584 sq.mi.; pop. 1,485,091); Kazakh S.S.R. (Alma-Ata; 1,059,184 sq.mi.; pop. 6,145,937); Kirghiz S.S.R. (Frunze; 76,042 sq.mi.; pop. 1,459,301).

Chairman of the praesidium of the supreme soviet of the U.S.S.R. in 1945, Mikhail Ivanovich Kalinin; chairman of the council of people's commissars of the U.S.S.R., Marshal Joseph Vissarionovich Stalin; vice-chairman, Vyacheslav Mikhailovich Molotov, foreign commissar.

**History.—Expansion.**—In the years between 1939 and 1945



YOUNG WOMAN of the soviet army directing traffic on a Lublin street during the Russian occupation of Poland early in 1945

the U.S.S.R. expanded its territory considerably. It annexed in Europe the three Baltic republics of Estonia (18,353 sq.mi., pop. 1,126,413), Latvia (20,056 sq.mi., pop. 1,950,502) and Lithuania (22,959 sq.mi., pop. 2,879,070) and acquired from Finland 16,173 sq.mi. with a pop. of c. 500,000; from Poland 77,703 sq.mi. with a pop. of c. 12,775,000; from Rumania 19,300 sq.mi. with a pop. of c. 3,500,000. In 1945 the U.S.S.R. added to its territory the Carpatho-Ukraine from Czechoslovakia (12,617 sq.mi. with a pop. of 725,357) and the northern part of eastern Prussia from Germany (c. 7,000 sq.mi. with a pop. of c. 1,000,000). From Japan the U.S.S.R. acquired in 1945 Karafuto (southern Sakhalin), an area of 13,935 sq.mi. with a pop. (1935 census) of 331,943, and the Chishima or Kurile Islands (47 islands of 3,944 sq.mi.). Southern Sakhalin abounds in timber and petroleum; its most important industry is fishing. The importance of the Kuriles is strategic. In addition the formerly "independent" republic of Tannu-Tuva in Outer Mongolia (64,000 sq.mi.) was an-

nexed and transformed into the Tuvian Autonomous Region.

By a treaty of alliance with the national government of the Chinese republic on Aug. 14, 1945, the two main railroads in Manchuria, the Chinese Eastern railway and the South Manchuria railway, were to be joined into one railway system under the name of the Chinese Changchun railway to be the joint property of the U.S.S.R. and China and to be jointly exploited by them. The managing director was to be a Russian. The important naval base of Port Arthur, which had been in Russian imperial control from 1898 to 1904, was to become a naval base at the exclusive disposal of the battleships and merchant ships of the soviet union and of China. It was to be administered by a commission of three Russians and two Chinese with the chairman a Russian. The Russian government alone was to be responsible for the defense of Port Arthur. The nearby port of Dairen was to become a free port where the Russians would lease piers and warehouses and which would be administered by a soviet citizen. All these agreements were to run for 30 years.

*Reorganization.*—The U.S.S.R. was reorganized during World War II into a federation of 16 republics. To the 11 republics existing in 1939 were added: the Karelo-Finnish S.S.R., consisting of the territory ceded by Finland and the former autonomous S.S.R. Karelia (cap. Petrozavodsk; area 75,656 sq.mi.), the Moldavian S.S.R. consisting of most of Rumanian Bessarabia and the former Moldavian autonomous S.S.R. (area 13,124 sq.mi.), the Estonian S.S.R., the Latvian S.S.R. and the Lithuanian S.S.R. While the U.S.S.R. in 1939 was constituted of three European republics and eight Asiatic republics (three Trans-Caucasian and five central Asiatic), in 1945 the federation included an equal number of European and Asiatic republics.

On the other hand, several former autonomous republics and regions in the U.S.S.R. lost their autonomy during World War II. The German Volga A.S.S.R., one of the oldest autonomous administrations in bolshevik Russia, was abolished after the German invasion of Russia and its inhabitants dispersed into Siberia. Apparently the soviet authorities thought that the soviet citizens of German descent would be more influenced by their race than by their class allegiance, and proceeded with their transfer although the invading Germans never reached the territory of the former German Volga A.S.S.R. The four other abolished autonomous administrations were those of the Crimean Tatar A.S.S.R., of the Kalmyk A.S.S.R. with the capital of Elista, of the Chechen-Ingush A.S.S.R. around the important oil wells of Grozny in the Caucasus and of the Karachaevo-cherkesian autonomous region around Mt. Elbrus in the Caucasus. All these four regions were occupied by the Germans during World War II. The termination of their autonomy was probably due to the disloyalty of the populations. What happened to the populations was unknown; the indigenous languages seemed doomed because the soviet government renamed all the towns with Russian names.

*Victory over Germany and Japan.*—The soviet union mobilized the total war effort of its people against Germany, and for a short time in Aug. 1945 against Japan, by an appeal to Russian patriotism. Victory found the Russian troops in occupation of large parts of Germany and Austria, and of the former German satellites, Rumania, Bulgaria and Hungary. In these countries, as well as in Poland, Yugoslavia, Albania and Czechoslovakia, regimes came into power which were regarded as "friendly" to the soviet union. In Yugoslavia, Poland, Rumania and Bulgaria, these regimes were under communist control. The soviet union maintained large armies of occupation, probably as a consequence of the domestic food situation, for the armies of occupation lived largely "on the occupied lands." In Asia the soviet union concluded a favourable treaty with China which gave Russia economic and strategic positions of importance in Manchu-

ria. But on the whole Russia's relations with the Chinese national government under Generalissimo Chiang Kai-shek were friendly. Russia did not support officially the Chinese communists in their struggle with the Chinese government; on the contrary, it gave correct support to the legitimate government and facilitated the reoccupation of Manchuria by Chinese government troops. Russia also occupied the northern, highly industrialized part of Korea and claimed a share in the occupation and control of Japan proper. By the end of 1945 Russia and the United States had arrived at an agreement about the administration of Korea and Japan. Much international concern was caused by Russia's claims on Turkey and Iran where Russia apparently tried to realize the aggressive aspirations of the former imperial Russian government which revolutionary Russia in 1918 had officially and solemnly repudiated. From Turkey Russia demanded territories in eastern Anatolia and bases on the Straits of Constantinople, while in Iran the Russians were believed to favour autonomous and perhaps even separatist movements in the north which might lead either to the disintegration of Iran or to the establishment of a "friendly" government under soviet control over the whole of Iran. While by the end of 1945 the democracies and Russia seemed to arrive at agreed solutions in eastern Europe and the far east, Russia's demands on Turkey and Iran threatened to keep the tensions with the democracies acute.

*Relations with the Allies.*—With the defeat of the common enemies, the wartime alliance of the soviet union, Great Britain and the United States was subjected to much strain. This was the result not only of opposite ideologies but of conflicting national interests and security requirements. Nevertheless co-operation among the Big Three was maintained. They met during 1945 in not less than four conferences. In the first two (Yalta in the Crimea and Berlin [Potsdam] in Germany) the heads of the three nations conferred. At Yalta Marshal Stalin met with President Roosevelt and Prime Minister Churchill; at Berlin, where again the Russians were hosts in their zone of occupation, Marshal Stalin met with President Truman, and it was during that conference that Prime Minister Attlee replaced Churchill. As a result of the decisions of the Berlin conference the foreign ministers of the Big Three met in London in September. When this conference ended without agreement, the foreign ministers met again, at the suggestion of the U.S. secretary of state, at Moscow in December. Their agreement there smoothed the way for the opening of the United Nations assembly in London in Jan. 1946.

At the United Nations conference in San Francisco in the spring of 1945 the soviet union was represented by a delegation under the leadership of Foreign Commissar Molotov. In addition to the U.S.S.R., two of its constituent republics, the Ukrainian S.S.R. and the Byelorussian or White Russian S.S.R., became members of the United Nations organization and were represented at the United Nations conference. The U.S.S.R. did not join, however, some of the international bodies organized in 1945 in connection with the United Nations organization like the educational and food organizations. Nor did it ratify before the end of 1945 the Bretton Woods agreement. (See also BERLIN CONFERENCE; UNITED NATIONS CONFERENCE ON INTERNATIONAL ORGANIZATION; YALTA CONFERENCE.)

*The U.S.S.R. and the Democracies.*—Much of the international tension may be explained by the lack of communication between the soviet union and the democracies. The soviet union and all the territories occupied by its armies were on the whole inaccessible to foreigners. Travel in these territories was discouraged as was travel of soviet citizens abroad. U.S. and British press representatives in Moscow complained about the restrictions imposed upon their work in gathering and transmitting in-

formation.

The disagreement about "freedom" was fundamental. The Russians maintained that true freedom, including freedom of the press, existed only in the soviet union. When the 10,000th issue of the official Bolshevik party newspaper, *Pravda*, appeared on Sept. 24, 1945, an occasion on which the paper received from the government the Order of Lenin, its editor David Zaslavsky wrote: "What some countries of the West call freedom of speech is nothing but a rope on which a capitalist publisher keeps his journalists. If the rope is long enough, freedom of speech is relatively long. If the rope is short freedom of speech is short cropped. . . . The freedom of the soviet press is in service to the people. The Soviet journalist is free because no exterior opinions can influence him. The soviet journalist is a worker. He gets a salary for his work but does not work for money. He does not sell himself nor does he trade his ideas nor his news. Does any foreign correspondent have such freedom? Abroad the journalist's profession is a career. With us it is a combat post."

Similarly the Moscow monthly *Bolshevik* maintained: "In the conditions of bourgeois democracy the workers do not have the minimum material requirements for actual use of the rights that are proclaimed. They do not have at their disposal printing presses and paper. Newspapers, clubs, theatres—all are the property of private individuals or groups."

When, in the absence of Marshal Stalin who was resting in the Caucasus, Molotov delivered the great annual address in celebration of the anniversary of the Bolshevik Revolution of Nov. 1917, he stressed the point that only the soviet union represents "true democracy." He spoke of "a flourishing of true democracy of the people [in the U.S.S.R.] that they did not know in the old days and that cannot exist in any other states, divided as they are into classes of oppressors and oppressed, a thing that soviet power has long put an end to in our country. . . . Unlike parliamentary democracy, the democracy of the soviets is a true democracy of the people."

**Nation and Party.**—Though Molotov in his speech mentioned the patriotic character of World War II, he stressed emphatically that it was the soviet government and the Bolshevik Revolution which gave to Russia and the Russian people the strength for their great victories. "The soviet people called its war . . . the great patriotic war. By the example of the soviet people, patriots of other states learned how one must fight for one's motherland, for its liberty and independence." This Russian strength was in Molotov's opinion due to "the leadership of the party of Lenin and Stalin," above all to "the great Stalin, the far-seeing and tried leader of the soviet union." He regarded the Bolshevik Revolution of Nov. 1917 as a great patriotic feat which had saved Russia from "being degraded to the status of a second rate power."

Accordingly the efforts of communist indoctrination and of teaching the pure doctrine of Marx and Lenin in the official interpretation were intensified by the end of the year. The strict unity and regimentation of the soviet state rested on the monolithic unity and discipline of the Communist party, of which Marshal Stalin was general secretary. With the end of the war the emphasis seemed to shift again to party doctrine and party leadership.

**Economic Reconstruction.**—In Sept. 1945 the fourth Five Year plan was announced. As in former plans, the emphasis was on heavy capital goods, steel production and armaments, especially also on a great increase in navy and naval bases. Labour productivity and industrial efficiency were to be improved as a condition "for expanding the soviet economy and developing its great new frontier" in Asia. To fulfil the requirements, the competitive methods in wages and other incentives known to capitalist society were developed in the soviet economy. Russia

intended to become also an export centre of machines for all the countries in eastern and southeastern Europe where Russia wished to replace Germany as the chief supplier of industrial goods. At the same time new constructions were to continue to shift eastward beyond the Urals; from these Asiatic centres Russia could supply the markets of Asia.

Consumers' goods continued to be subordinate to the production of heavy capital goods. Yet the soviet government hoped to raise slowly the very low standard of living of the Russian people to the much higher standard of the masses in the democracies. Efforts were made to meet the constantly rising demand for better living conditions, and by the end of the year there had been a noticeable improvement in the food situation and in the supply of consumers' goods. Living conditions were eased. The eight-hour working day was restored and the payment of increased wages for overtime was reintroduced. The special war tax on workers was repealed on Jan. 1, 1946, which saved about 15% for the worker.

Throughout the soviet union the reconstruction of the devastated provinces was progressing with great energy. Production increased in all fields. Progress was in no way confined to the economic field. Cultural activities had not been neglected even during the most critical periods of the war. The resumption and reinvigoration of all fields of education showed conspicuous success. The Academy of Sciences of the U.S.S.R., founded in 1725, celebrated in July 1945 its 220 years' anniversary with many British and U.S. scientists present. The academy counted 140 full and 200 corresponding members. Sergei I. Vavilov, professor of physics, was elected the new president.

**Education.**—The school system throughout the soviet union was based in 1945 upon uniform text books and the same syllabus, though in the non-Russian schools a number of hours were allowed for the native language, literature and history. All schools were state schools. The growing emphasis was on a firm and conscious discipline in the classroom and on military training. Coeducation, formerly accepted in the U.S.S.R., was being abolished and separate schools for boys and girls were established; the boys' curriculum stressing military education, the girls' curriculum, housework. Under the people's Commissariat of Defense were the newly established Suvorov military schools, residential secondary schools for the training of future officers. In the academic year 1945-46, 772 colleges and institutions of higher learning were functioning in the U.S.S.R. with a student body of 560,000. The number was almost equal to that in the last prewar year (1940-41) with 782 institutions and 564,573 students.

**Religion.**—On Feb. 2 Metropolitan Alexei, the acting patriarch after the death of Sergius on May 15, 1944, was unanimously elected patriarch of the Russian Orthodox Church. Under his leadership the church not only wholeheartedly co-operated with the soviet government but also tried to unite the Orthodox Churches throughout the world in loyalty to the Russian Orthodox Church and under its discipline.

**Trade.**—In 1938 the five principal countries from which Russia imported were: the United States (405,800,000 rubles), Britain (240,800,000), Netherlands (102,500,000), China (68,000,000) and Germany (67,000,000). The five principal countries to which Russia exported were Britain (375,000,000), Belgium (116,800,000), United States (96,700,000), Netherlands (92,800,000) and Germany (88,000,000).

The U.S.S.R. share in world exports amounted to 1.3% in 1936 and 1937 and to 1.1% in 1938; its share in world imports was 1.2% in 1936, 0.9% in 1937 and 1.2% in 1938. From June 22, 1941, on large supplies (armaments, raw materials and equipment) arrived from Britain and from Canada, and from Oct. 1, 1941, on from the United States and continued until the end of the war in 1945.

**Agriculture, Manufacturing, Mineral Production.**—In 1938 there were in the soviet union 17,500,000 horses, 63,200,000 cattle, 102,500,000 sheep and goats and 30,600,000 pigs. Production of the most important raw materials and goods amounted in 1938 in short tons: wheat 46,062,000; rye 23,071,000; oats 18,728,000; barley 9,039,000; maize 2,965,000; rice 349,000; potatoes 46,252,000; beet sugar (1940) 2,365,000; tea (1940) 14,220; cotton (1940) 882,000; cotton seed (1940) 1,896,000; wool (1938) 151,000; flax (1939) 698,000; hemp (1939) 121,000; raw silk (1940) 1,900; rayon (1940) 8,000; wood pulp (1938) 11,905,000; crude petroleum (1940) 32,738,000; natural gas 2,600,000,000 cu.ft.; coal (1940) 165,818,000; iron ore (metal content) (1940) 15,432,000; pig iron and ferroalloys (1940) 16,479,000; steel ingots and castings (1940) 21,054,000; manganese ore (metal content) (1940) 1,433,000; bauxite (1938) 276,000; aluminum (1940) 61,000; chrome ore (1940) 106,000; silver (1938) 240,000; gold (1937) c. 5,291,000 oz.

In 1945 the production of gold rose considerably in the soviet union. Though no figures were published after 1933, the gold reserves of the U.S.S.R. were estimated at \$2,000,000,000 to \$10,000,000,000. New extremely rich fields were discovered in 1923 in the Nizhne Kolymsk region near the sea of Okhotsk, where a great construction program known as Dalstroy was under way in 1945, controlled by the Russian



state secret police, the N.K.V.D.

(See also BULGARIA; FINLAND; POLAND; RUMANIA.)

BIBLIOGRAPHY.—*Information Bulletin of the Embassy of the U.S.S.R.* (Washington, D.C.); *The Anglo-Soviet Journal* (London); George B. Cressey, *The Basis Of Soviet Strength* (1945); Joseph Stalin, *The Great Patriotic War of the Soviet Union* (1945); M. I. Kalinin, *The Soviet President Speaks* (London, 1945); N. Voronin, *Rebuilding the Liberated Areas of the Soviet Union* (London, 1945); Frederick L. Schuman, *Soviet Politics* (1946); Arthur Koestler, *The Yogi and the Commissar* (1945); Alexander Barmine, *One Who Survived* (1945); Robert J. Kerner, "Russian Naval Aims," *Foreign Affairs* (Jan. 1946); Michael T. Florinsky, "The Soviet Union and Europe," *Forum* (Dec. 1945); "What Does Alexii Want?" *The Christian Century* (Jan. 2, 1946). (H. Ko.)

**Unitarian Church.** The outstanding development in Unitarian history during 1945 was the great expansion of the work of the Unitarian Service committee which necessitated the securing of new headquarters at 9 Park street, Boston, Mass. The personnel was tripled and was at work in 15 countries on five continents. The committee was registered with the president's War Relief Control board so that its work was integrated with U.N.N.R.A., Red Cross, etc., avoiding any duplication.

Sample operations of the committee were medical clinic, Marseilles; medical mission to Italy to study mass malnutrition, called by U.N.R.R.A. "the most significant proposal for the relief of suffering in Europe yet made to us by a private relief agency"; children's home, Côte Basque, France; school kits, tools, etc., sent to Europe, besides 17,000 outfits of clothes for children; continuous clothing collection; youth workcamps; Paris workshop and sewing room; Polish medical mission; aid to refugees in Lisbon; hundreds of thousands of issues of publications showing war needs and conditions. A drive for 100 tons of canned food for Europe by Jan. 1, was opened Dec. 9, throughout the Unitarian denomination.

Half of this quota was filled in the first two weeks. The food was distributed by the service committee personnel to known persons among the neediest and was thus kept out of the black market.

The Unitarian denomination showed a marked increase in membership both in the U.S. and abroad. With the strengthening of liberal movements, Unitarianism increased in Belgium, Czechoslovakia, England, Denmark, Estonia, France, Germany, Holland, Hungary, India, Norway, the Philippines, Rumania, South Africa, Sweden and Switzerland, where the International Association for Liberal Christianity and Religious Freedom had branches.

Dr. Herbert Hitchen, director of the Department of Foreign Churches received requests from liberals all over the world for co-operation and help and was to go to Europe for conferences.

Publication by the denomination greatly increased. Its publishing organ, the Beacon Press, had an output 33% above that of 1944. The official magazine of the American Unitarian association, the *Christian Register*, gained 20% in circulation. Likewise there was a large increase in pamphleteering in the effort to make the denomination more widely known throughout the country. Dr. Winfred Overholser, superintendent of St. Elizabeth's hospital, Washington, D.C., and professor of psychiatry at George Washington School of Medicine was nominated as moderator of the American Unitarian association to succeed Justice Harold H. Burton of the supreme court. (J. H. L.)

**United Church of Canada.** The United Church of Canada, which in 1925 united the Presbyterian Church in Canada, the Methodist Church (Canada) and the Congregational Churches of Canada, reported for 1944 a membership of 739,079, with 1,738,510 persons under pastoral oversight, a Sunday school enrolment of 473,736 and 6,892 preaching places. The church owned prop-

erty worth more than \$87,053,089 and raised a total of \$15,018,052 for all purposes.

The missionary and maintenance givings of the church in 1944 showed an increase of \$155,825 over those of the year 1943. Because of inflation in China, it was agreed that the extra financial needs of the board of overseas missions be met out of any available surplus in the missionary and maintenance receipts for the year 1945.

Among the important features in the life of the United Church during 1945 was the launching of a crusade for Christ and His Kingdom, under the leadership of the moderator, to enable the church to cultivate more evangelistic earnestness through all its varied ministrations; the beginning of conversations with the Church of England in Canada and the Canada conference of the Evangelical church covering the problem of union; the appointment of Miss Harriet Christie to bring greetings and confer with women in Great Britain serving in the Canadian armed forces; the raising of more than \$100,000 as an aid to the restoration of Protestant churches in Europe; the setting up of a commission for the guidance of the church on the international control of atomic power and the preparation and presentation of an important brief, in association with other Canadian Protestant churches, covering the problem of Roman Catholic separate schools, to the royal commission on education appointed by the province of Ontario. (G. A. St.)

**United Kingdom:** see GREAT BRITAIN AND NORTHERN IRELAND, UNITED KINGDOM OF.

**United Nations** (Jan. 1, 1946): see ARABIA; ARGENTINA; AUSTRALIA, COMMONWEALTH OF\*; BELGIUM\*; BOLIVIA; BRAZIL; BYELORUSSIA; CANADA, DOMINION OF\*; CHILE; CHINA\*; COLOMBIA; COSTA RICA\*; CUBA\*; CZECHOSLOVAKIA\*; DENMARK; DOMINICAN REPUBLIC\*; ECUADOR; EGYPT; ETHIOPIA; FRANCE; GREAT BRITAIN AND NORTHERN IRELAND, UNITED KINGDOM OF\*; GREECE\*; GUATEMALA\*; HAITI\*; HONDURAS\*; INDIA\*; IRAN; IRAQ; LEBANON; LIBERIA; LUXEMBOURG\*; MEXICO; NETHERLANDS\*; NEW ZEALAND, DOMINION OF\*; NICARAGUA\*; NORWAY\*; PANAMA\*; PARAGUAY; PERU; PHILIPPINES, COMMONWEALTH OF THE; POLAND\*; SALVADOR, EL\*; SOUTH AFRICA, THE UNION OF\*; SYRIA; TURKEY; UKRAINE; UNION OF SOVIET SOCIALIST REPUBLICS\*; UNITED STATES\*; URUGUAY; VENEZUELA; YUGOSLAVIA\*. Those marked \* were signatories to the original declaration of the United Nations Jan. 1, 1942. Ethiopia, Mexico and the Philippines adhered subsequently in 1942; Bolivia, Brazil, Colombia, Iran and Iraq in 1943; France and Liberia in 1944; Arabia, Chile, Ecuador, Egypt, Lebanon, Paraguay, Peru, Syria, Turkey, Uruguay and Venezuela in 1945. Argentina, Byelorussia, Denmark and the Ukraine also joined in 1945. All were signatories to the United Nations charter.

**United Nations Charter for World Security:** see UNITED NATIONS CONFERENCE ON INTERNATIONAL ORGANIZATION.

## United Nations Conference on International Organization.

Following the publication of the Dumbarton Oaks proposals for international organization in Sept. 1944 it was generally understood that a full conference of the United Nations would be convoked after the other United Nations would have had time to study the proposals. Another necessary preliminary measure was a solution to the troublesome problem of voting arrangements in the new Security council, a matter which the Dumbarton Oaks conferees had been unable to settle. This last difficulty was cleared away by an agreement reached at the Crimea conference in Jan. 1945, and it was officially announced in the final Crimea communiqué that the full conference of the United Nations, sponsored by

Great Britain, the United States and the soviet union (and by France and China, also, if they would agree), would open in San Francisco on April 25, 1945.

**The Organization of the Conference.**—Although the organizational plan which had been drafted in the state department had been submitted to the other sponsoring powers, there had been no time for extensive negotiation on the matter before the opening date. Consequently, it was necessary, at the outset, to bring the heads of delegations together to consider the proposed plan and the suggested rules of procedure. The general scheme as approved by the heads of delegations was as follows: Under the final authority of the conference in plenary session, there was a steering committee consisting of the chairmen of all delegations. This committee made general policy and procedural decisions concerning the work of the conference. Technically, it was not the final authority, but in view of its composition, its decisions were of very great weight. Thus, as an example, if a delegation objected to a decision which had been taken against its will in one of the technical committees, it could bring the matter before the steering committee, and the decision of that body in the form of a recommendation was then brought to the attention of the technical committee for re-examination.

More limited in size was the executive committee composed of the heads of delegations of the four sponsoring governments, China, Great Britain, the soviet union and the United States, together with ten other delegation heads chosen by the steering committee. These were: Australia, Brazil, Canada, Chile, Czechoslovakia, France, Iran, Mexico, Netherlands and Yugoslavia. The primary stated function of this executive committee was to prepare recommendations to be submitted to the steering committee. In view of the restricted membership of this committee it was inevitable that many of the most important procedural decisions of the conference were in fact made by it.

To assist the executive committee there was created a co-ordination committee consisting of representatives from the same 14 countries. The primary function of this group was to determine the general outline and type of the charter to be drafted, to examine the drafts of sections of the charter as they emanated from the technical committees in order to eliminate inconsistencies in phraseology and substance and to recommend to the executive committee a final charter draft. In order to provide expert assistance to this co-ordination committee there was set up a small advisory committee of jurists to make recommendations on the precise terminology of the final draft.

Finally, a credentials committee, consisting of representatives from Ecuador, Luxembourg, Nicaragua, Saudi Arabia, Syria and Yugoslavia, was created to examine official credentials.

The substantive work of the conference was assigned to an entirely different set of conference organs. The subject matter of the Dumbarton Oaks proposals was separated into four large divisions: the over-all purposes, powers and principles of the organization; the general assembly, its composition, functions and powers; the Security council, its composition, functions and powers; and the international court of justice. Each of these segments of the work was placed under the jurisdiction of a commission composed of a representative of each participating state. Under the authority of each commission there were two or more technical committees each of which likewise had representation from each national delegation. Thus, under the first commission there were two committees: (1) preamble, purposes and principles of the charter; and (2) membership, amending procedure and the secretariat. Under the second commission four committees were established: (1) structure and procedures of the assembly; (2) political and security functions of the assembly; (3) economic and social co-operation; and (4) the trusteeship system. The third commission had four committees:

(1) structure and procedures of the Security council; (2) pacific settlement of international disputes; (3) enforcement arrangements; and (4) regional security arrangements. The fourth commission had two committees: (1) the international court of justice and (2) legal problems.

Some difficulties were experienced in making satisfactory arrangements for the officerships of these organizational and substantive organs of the conference. The original proposal that the plenary sessions, the steering committee and the executive committee should be presided over by the chairman of the host delegation, the United States, did not meet with the favour of the soviet delegation which argued that the chairmanship should rotate among the heads of the four sponsoring delegations. Eventually, a compromise was reached whereby the four presided in rotation over the plenary sessions, but Edward R. Stettinius, Jr., as head of the U.S. delegation, presided in the name of his colleagues over the steering and executive committees. Another, but less troublesome, difficulty developed over the selection of presiding officers for the commissions and the technical committees. The underlying theory was that, in order to distribute positions as widely as possible, most of the committee chairmanships should be assigned to representatives of the smaller states. The political advantage thus gained was to some extent offset procedurally by the fact that this system resulted in the selection of presiding officers who, in some instances, were by no means familiar with the generally practised rules of parliamentary procedure. Also, committee sessions were prolonged by the extra translations of speeches made by committee chairmen who were unfamiliar with either English or French.

The membership of the conference was another matter which had to be dealt with at this initial organizational stage. Originally, invitations were issued by the United States on behalf of the other sponsors to the other 42 United Nations. During the period of the conference invitations were extended to Argentina, the Byelorussian S.S.R., Denmark and the Ukrainian S.S.R. Delegates from these four states attended the later sessions and signed the final charter. The reorganization of the Polish government, projected at the Yalta conference, had not been completed satisfactorily at the time of the conference, so there were no Polish delegates in attendance. Poland, however, did sign the charter later and thus became an original member of the organization.

The language problem also presented numerous difficulties. The conference agreed that the final charter should be drafted in five languages, English, French, Russian, Spanish and Chinese, each of which should be equally authentic, but it rejected the original proposal that English should be the sole working language. Consequently, it was agreed that English and French would be the working languages on a basis of full equality with each other. In the plenary sessions, a speech in a third language would be interpreted into either English or French at the choice of the speaker. In many cases, interpretation was made into both languages. In committee sessions, all remarks made in a third language were interpreted into both English and French. This was a time-consuming but necessary procedure.

The records of the conference consisted of the verbatim reports of the commission and plenary sessions, the digests of committee meetings, the printed daily *Journal* and a brief daily *Précis* containing the skeletonized summary of action taken in the various conference organs.

At the Dumbarton Oaks conversations, the press had been excluded from all meetings, and publicity consisted only of daily communiqués. Clearly, such a restricted publicity procedure would not suffice for the San Francisco conference and, after some discussion, agreement was reached that the press repre-

sentatives would be admitted to all plenary sessions and commission meetings.

The press was excluded from committee meetings of all categories but the secretariat prepared a brief communiqué for each technical committee meeting. This was given to the press after it had been approved by the chairman of the committee. In addition, committee chairmen frequently held press conferences in a large room, prepared for that purpose, at the conclusion of committee sessions.

Voting arrangements were adopted after prolonged discussion. Each delegation had one vote in all bodies on which it was represented. Decisions on procedural matters required a majority of the votes of the delegations present and voting. Substantive decisions required a two-thirds vote, and the executive committee was authorized to make the decision in case of disagreement as to whether a particular question was procedural or substantive. Votes were regularly taken by a show of hands, but a standing vote was occasionally taken in commission and plenary sessions, and a roll-call vote was taken in committee meetings on issues of unusual importance.

**The Procedure of the Conference.**—The conference opened on April 25 with an address of welcome from President Truman, who spoke from Washington.

During the first eight plenary sessions the heads of 37 delegations addressed the conference, stating the general views of their respective states concerning the nature and functions which should be possessed by the future United Nations organization. Many of these delegates took the opportunity to point out what they believed to be basic shortcomings of the League of Nations which must be corrected if the new organization were to achieve its stated goal of maintaining international peace and security.

In view of the international political and military situation, it was recognized that the foreign ministers of 50 states could not remain for any great length of time in San Francisco. It was also clear that much time would be lost in communication with the various capitals if these luminaries left the conference and placed their delegations in charge of persons who did not have sufficient discretionary authority. Consequently, when the long period of initial statements drew to a close, the steering committee decided that, except for an initial organization meeting, the four commissions would not function until after the conclusion of the committee phase of the conference. Consequently, the 12 technical committees began their work on May 4, and the conference settled down to active work.

The basic documentation for the committees was of three categories: the Dumbarton Oaks draft proposals; the thick volume of comments and alternative proposals from the other United Nations, which had been printed and distributed by the secretariat; and the amendments to the Dumbarton Oaks draft which had been agreed upon by the four sponsoring powers. Since each committee had been assigned the task of examining certain sections of the Dumbarton draft, the various committee secretaries prepared special cross-referenced summaries of the other United Nations' comments and proposals relating to their work. In order to avoid endless confusion and delay, it was decided that after the May 4 deadline no new proposals could be presented by a delegation except with the approval of the executive committee. Actually, the existing proposals were so numerous and varied, that this prohibition did not prove irksome to anyone.

Except for the assignment of work to be covered and the stipulations concerning voting arrangements, the 12 technical committees received little or no procedural direction from the steering committee. In consequence, there was no uniformity in the methods followed. Some decided to examine all the pro-

posed amendments and changes to their sections of the Dumbarton Oaks draft before they voted any final texts. Others examined all the proposals relating to a particular paragraph of the Dumbarton draft, reached a decision and voted a final text of that paragraph before passing on to the next one. Still others began their work by requesting the committee *rapporteur* to prepare a preliminary report, setting forth the chief problems before the committee and an analysis of the major proposals suggested by the other states. In some committees, single sentences and paragraphs of the approved text were sent on to the co-ordination committee; in others, no report of any kind was made until after all the parts of the text had been considered in their relation to each other, and a comprehensive final report had been agreed upon.

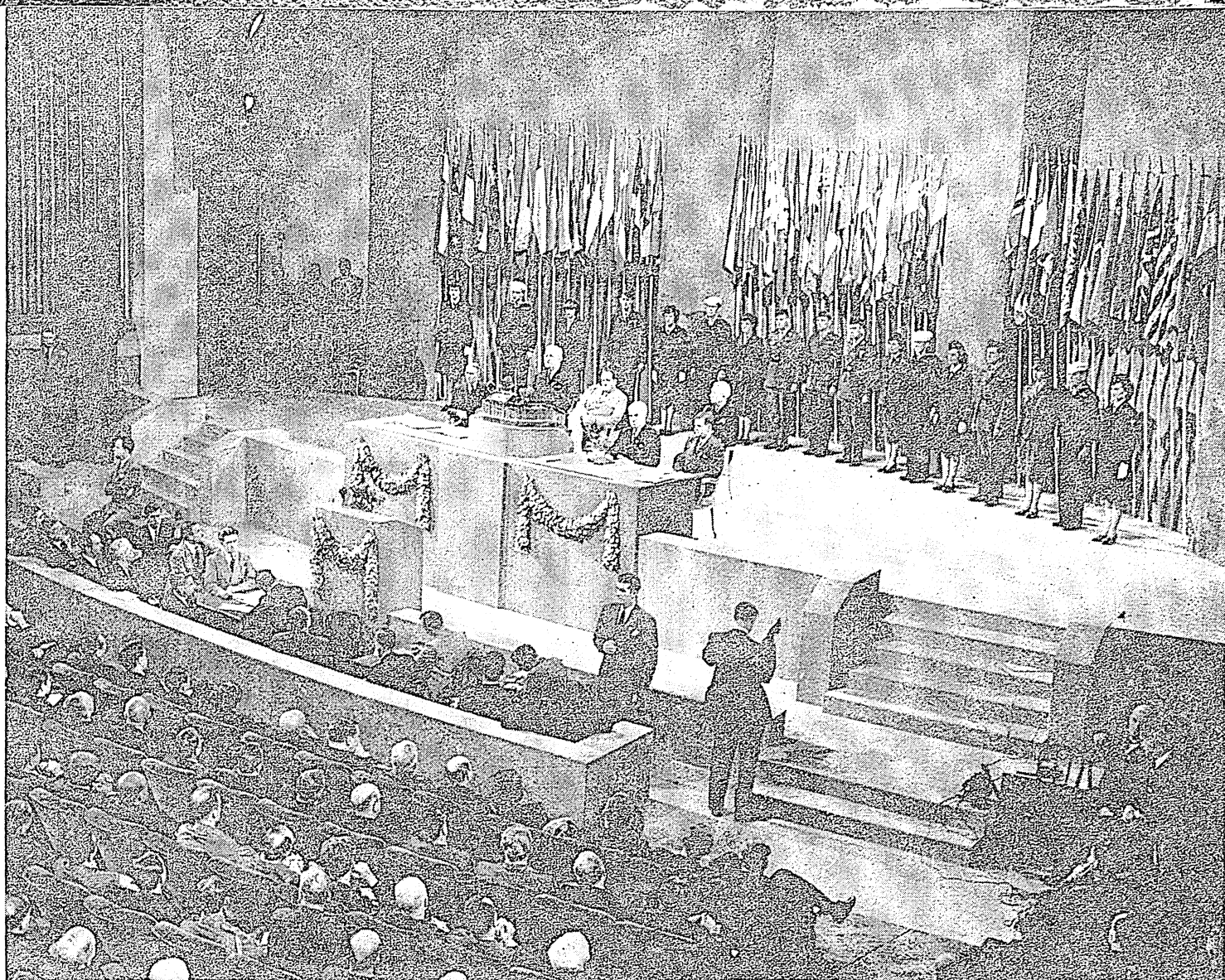
The formal deliberations of the conference, as distinguished from outside group negotiations, were largely confined to the committee sessions where the debates were protracted and, at times, heated. In all, this committee stage covered the period from May 4 until June 19, the date on which the last committee held its last formal meeting. This was a long period, much longer, in fact, than had been anticipated by the sponsoring powers at the opening of the conference.

As the committees plunged into their work, it soon became apparent that the major line of cleavage on issues was between the sponsoring powers and their smaller satellites, on the one hand, and those small and middle-sized states which, having no political ties such as to limit their freedom of action, were vocal in criticizing the draft charter because of its substantial departures from the principle of state equality. Australia and New Zealand assumed strong positions of leadership in the latter group, but the Netherlands, Belgium, Norway and many others joined vigorously in the fray. The sponsoring powers followed the general policy of trying to reach agreement on controversial issues outside the committee rooms, so as to present a united front in defense of the Dumbarton draft, or at least in defense of a compromise offer to which they could agree.

The position of France was somewhat equivocal. Though not a participant in the Dumbarton Oaks conversations or the Yalta conference, France was assured a permanent seat on the Security council. In a sense, therefore, the French were torn between a desire to go along with the other great powers and the desire to force a greater recognition of their status of equality by taking an independent stand on debatable issues. The policy which they generally followed was that of supporting the great powers' positions but indicating at the same time that they had made their decisions entirely for individual reasons. The Latin-American states, for the most part, vacillated between approval of the United States positions and support of the small-power stand. Czechoslovakia, Yugoslavia, the Byelorussian S.S.R. and the Ukrainian S.S.R. generally sided with the U.S.S.R.

The sponsoring powers did not always find it easy to reach agreement among themselves in the matter of making concessions to the small-state group. Most widely publicized of their difficulties was that of deciding how far the Yalta voting formula for the Security council extended to decisions relating to the pacific settlement of disputes. For a time it seemed as if this attempt to agree on the limits of the much publicized "veto" power of the permanent members of the Security council might actually wreck the conference, but an eventual compromise was reached. The method of reaching a solution to this problem may serve to illustrate the way in which the conference moved through the committee stage. This particular issue arose as a result of questions, or, rather, requests for interpretation concerning the meaning of the Yalta formula, directed from a number of smaller powers to the sponsors. A tentative reply was given in a committee session by a representative of one of the





PRES. TRUMAN delivering the address which closed the final session of the United Nations Conference on International Organization at San Francisco on June 26, 1945

sponsors who apparently had not consulted the other members of the Big Four. As a procedural step, the critic states were asked then to submit all their requests for interpretation to the secretariat where they were compiled into a formal questionnaire. This document was submitted to the representatives of the sponsoring powers through a special subcommittee established for the purpose. After long negotiation among the Big Four, agreement was reached on a general statement concerning replies to some, but not all, of the questions raised. Allegedly, the others were answered by implication. In handing this statement to the other members of the subcommittee, the sponsor representatives indicated that it would be useless to press them further for explanations as the statement represented their final answer. When the subcommittee transmitted this reply to the full committee, debate was short because it was generally recognized that a refusal to accept the statement, incomplete though it was, might doom the conference to failure. Consequently, the committee voted, with numerous abstentions, to approve the report.

This was to some extent typical of committee procedure. Where debate indicated substantial support of a proposed change in the Dumbarton draft, the sponsors consulted among themselves in an effort to decide whether they should (1) accept the changed wording, (2) propose a substitute draft of their own which might present an acceptable compromise, or (3) stand firmly on the original draft and indicate to the other powers

that if they failed to approve it they would take on themselves the responsibility for the possible failure of the conference. Thus, in matters of fundamental importance the final decision was determined by the sponsors to a far greater extent than by the voting processes in the committees. In matters of lesser moment, the sponsors allowed themselves at times to be outvoted, and they were often divided in their own voting, but the victories thus obtained by the critics were usually of secondary importance.

Technically, the committees were subordinate to the four commissions and were required to report to them. In reality, in order to save time, sections of the final text were in most cases forwarded directly in piece-meal fashion to the co-ordination committee as soon as they were approved by the committees. Substantial difficulties developed at this point because the co-ordination committee, whose duty it was to prepare the final draft in charter language, frequently altered phraseology, in the interests of consistency or smoothness, which had been adopted by the committee after prolonged debate as the precise textual expression which was desired. Eventually, the difficulty was met by asking the secretary of the technical committee to sit with the co-ordination committee when his own committee texts were under examination.

As the committee stage began to draw to a close, the *rapporteurs* prepared their reports to the commission, analyzing the nature of the conclusions reached by the committees and appending the final texts as reported to the co-ordination committee. Once these reports were approved, the final task of the

technical committees was completed.

When the co-ordination committee had finished its difficult and exacting task, the final step was to have the completed text and the reports of the *rapporteurs* of the four commissions approved by the conference in plenary session.

When the final printed texts in the five official languages of the charter and the new statute of the court of international justice were officially signed on June 26, the day President Truman addressed the closing session of the conference, the delegates also placed their signatures on another document, the Interim agreement, which set forth the subsequent procedure to be followed in establishing the United Nations organization. This agreement established a new executive committee, consisting of the same states as those which had served on the executive committee of the conference and a preparatory commission, composed of one representative of each national delegation. The new executive committee was directed to assist the preparatory commission in making arrangements for the holding of the first general assembly meeting of the U.N.O., to make plans for the secretariat of the organization and to canvass the whole problem of taking over those properties and functions of the League of Nations which were desired by the new organization. These bodies were directed to make their temporary headquarters in London. As a result of their work during the months of November and December it was agreed that the first general assembly meeting should be held in London in Jan. 1946.

**BIBLIOGRAPHY.**—The official records of the conference were declassified and, eventually, were to be published under the auspices of the United Nations Information service. (See also SOCIAL SECURITY.) (G. L. Kk.)

**Charter of the United Nations.**—The full texts of the charter of the United Nations and the statute of the International Court of Justice are set out below.

## CHARTER OF THE UNITED NATIONS

**We the peoples of the United Nations determined**

to save succeeding generations from the scourge of war, which twice in our lifetime has brought untold sorrow to mankind, and

to reaffirm faith in fundamental human rights, in the dignity and worth of the human person, in the equal rights of men and women and of nations large and small, and

to establish conditions under which justice and respect for the obligations arising from treaties and other sources of international law can be maintained, and

to promote social progress and better standards of life in larger freedom, **and for these ends**

to practice tolerance and live together in peace with one another as good neighbors, and

to unite our strength to maintain international peace and security, and to ensure, by the acceptance of principles and the institution of methods, that armed force shall not be used, save in the common interest, and

to employ international machinery for the promotion of the economic and social advancement of all peoples,

**have resolved to combine our efforts to accomplish these aims.**

Accordingly, our respective Governments, through representatives assembled in the city of San Francisco, who have exhibited their full powers found to be in good and due form, have agreed to the present Charter of the United Nations and do hereby establish an international organization to be known as the United Nations.

### CHAPTER I Purposes and Principles

#### Article 1

The Purposes of the United Nations are:

1. To maintain international peace and security, and to that end: to take effective collective measures for the prevention and removal of threats to the peace, and for the suppression of acts of aggression or other breaches of the peace, and to bring about by peaceful means, and in conformity with the principles of justice and international law, adjustment or settlement of international disputes or situations which might lead to a breach of the peace;

2. To develop friendly relations among nations based on respect for the principle of equal rights and self-determination of peoples, and to take other appropriate measures to strengthen universal peace;

3. To achieve international cooperation in solving international problems of an economic, social, cultural, or humanitarian character, and in promoting and encouraging respect for human rights and for fundamental freedoms for all without distinction as to race, sex, language, or religion; and

4. To be a center for harmonizing the actions of nations in the attainment of these common ends.

#### Article 2

The Organization and its Members, in pursuit of the Purposes stated in Article 1, shall act in accordance with the following Principles.

1. The Organization is based on the principle of the sovereign equality of all its Members.

2. All Members, in order to ensure to all of them the rights and benefits resulting from membership, shall fulfil in good faith the obligations assumed by them in accordance with the present Charter.

3. All Members shall settle their international disputes by peaceful means in such a manner that international peace and security, and justice, are not endangered.

4. All Members shall refrain in their international relations from the threat or use of force against the territorial integrity or political independence of any state, or in any other manner inconsistent with the Purposes of the United Nations.

5. All Members shall give the United Nations every assistance in any action it takes in accordance with the present Charter, and shall refrain from giving assistance to any state against which the United Nations is taking preventive or enforcement action.

6. The Organization shall ensure that states which are not Members of the United Nations act in accordance with these Principles so far as may be necessary for the maintenance of international peace and security.

7. Nothing contained in the present Charter shall authorize the United Nations to intervene in matters which are essentially within the domestic jurisdiction of any state or shall require the Members to submit such matters to settlement under the present Charter; but this principle shall not prejudice the application of enforcement measures under Chapter VII.

## CHAPTER II

### Membership

#### Article 3

The original Members of the United Nations shall be the states which, having participated in the United Nations Conference on International Organization at San Francisco, or having previously signed the Declaration by United Nations of January 1, 1942, sign the present Charter and ratify it in accordance with Article 110.

#### Article 4

1. Membership in the United Nations is open to all other peace-loving states which accept the obligations contained in the present Charter and, in the judgment of the Organization, are able and willing to carry out these obligations.

2. The admission of any such state to membership in the United Nations will be effected by a decision of the General Assembly upon the recommendation of the Security Council.

#### Article 5

A Member of the United Nations against which preventive or enforcement action has been taken by the Security Council may be suspended from the exercise of the rights and privileges of membership by the General Assembly upon the recommendation of the Security Council. The exercise of these rights and privileges may be restored by the Security Council.

#### Article 6

A Member of the United Nations which has persistently violated the Principles contained in the present Charter may be expelled from the Organization by the General Assembly upon the recommendation of the Security Council.

## CHAPTER III

### Organs

#### Article 7

1. There are established as the principal organs of the United Nations: a General Assembly, a Security Council, an Economic and Social Council, a Trusteeship Council, an International Court of Justice, and a Secretariat.

2. Such subsidiary organs as may be found necessary may be established in accordance with the present Charter.

#### Article 8

The United Nations shall place no restrictions on the eligibility of men and women to participate in any capacity and under conditions of equality in its principal and subsidiary organs.

## CHAPTER IV

### The General Assembly

#### COMPOSITION

#### Article 9

1. The General Assembly shall consist of all the Members of the United Nations.

2. Each Member shall have not more than five representatives in the General Assembly.

#### FUNCTIONS AND POWERS

#### Article 10

The General Assembly may discuss any questions or any matters within the scope of the present Charter or relating to the powers and functions of any organs provided for in the present Charter, and, except as provided in Article 12, may make recommendations to the Members of the United Nations or to the Security Council or to both on any such questions or matters.

#### Article 11

1. The General Assembly may consider the general principles of cooperation in the maintenance of international peace and security, including the principles governing disarmament and the regulation of armaments, and may make recommendations with regard to such principles to the Members or to the Security Council or to both.

2. The General Assembly may discuss any questions relating to the



maintenance of international peace and security brought before it by any Member of the United Nations, or by the Security Council, or by a state which is not a Member of the United Nations in accordance with Article 35, paragraph 2, and, except as provided in Article 12, may make recommendations with regard to any such questions to the state or states concerned or to the Security Council or to both. Any such question on which action is necessary shall be referred to the Security Council by the General Assembly either before or after discussion.

3. The General Assembly may call the attention of the Security Council to situations which are likely to endanger international peace and security.

4. The powers of the General Assembly set forth in this Article shall not limit the general scope of Article 10.

#### Article 12

1. While the Security Council is exercising in respect of any dispute or situation the functions assigned to it in the present Charter, the General Assembly shall not make any recommendation with regard to that dispute or situation unless the Security Council so requests.

2. The Secretary-General, with the consent of the Security Council, shall notify the General Assembly at each session of any matters relative to the maintenance of international peace and security which are being dealt with by the Security Council and shall similarly notify the General Assembly, or the Members of the United Nations if the General Assembly is not in session, immediately the Security Council ceases to deal with such matters.

#### Article 13

1. The General Assembly shall initiate studies and make recommendations for the purpose of:

a. promoting international cooperation in the political field and encouraging the progressive development of international law and its codification;

b. promoting international cooperation in the economic, social, cultural, educational, and health fields, and assisting in the realization of human rights and fundamental freedoms for all without distinction as to race, sex, language, or religion.

2. The further responsibilities, functions, and powers of the General Assembly with respect to matters mentioned in paragraph 1 (b) above are set forth in Chapters IX and X.

#### Article 14

Subject to the provisions of Article 12, the General Assembly may recommend measures for the peaceful adjustment of any situation, regardless of origin, which it deems likely to impair the general welfare or friendly relations among nations, including situations resulting from a violation of the provisions of the present Charter setting forth the Purposes and Principles of the United Nations.

#### Article 15

1. The General Assembly shall receive and consider annual and special reports from the Security Council; these reports shall include an account of the measures that the Security Council has decided upon or taken to maintain international peace and security.

2. The General Assembly shall receive and consider reports from the other organs of the United Nations.

#### Article 16

The General Assembly shall perform such functions with respect to the international trusteeship system as are assigned to it under Chapters XII and XIII, including the approval of the trusteeship agreements for areas not designated as strategic.

#### Article 17

1. The General Assembly shall consider and approve the budget of the Organization.

2. The expenses of the Organization shall be borne by the Members as apportioned by the General Assembly.

3. The General Assembly shall consider and approve any financial and budgetary arrangements with specialized agencies referred to in Article 57 and shall examine the administrative budgets of such specialized agencies with a view to making recommendations to the agencies concerned.

#### VOTING

##### Article 18

1. Each member of the General Assembly shall have one vote.

2. Decisions of the General Assembly on important questions shall be made by a two-thirds majority of the members present and voting. These questions shall include: recommendations with respect to the maintenance of international peace and security, the election of the nonpermanent members of the Security Council, the election of the members of the Economic and Social Council, the election of members of the Trusteeship Council in accordance with paragraph 1 (c) of Article 86, the admission of new Members to the United Nations, the suspension of the rights and privileges of membership, the expulsion of Members, questions relating to the operation of the trusteeship system, and budgetary questions.

3. Decisions on other questions, including the determination of additional categories of questions to be decided by a two-thirds majority, shall be made by a majority of the members present and voting.

##### Article 19

A Member of the United Nations which is in arrears in the payment of its financial contributions to the Organization shall have no vote in the General Assembly if the amount of its arrears equals or exceeds the amount of the contributions due from it for the preceding two full years. The General Assembly may, nevertheless, permit such a Member to vote if it is satisfied that the failure to pay is due to conditions beyond the control of the Member.

#### PROCEDURE

##### Article 20

The General Assembly shall meet in regular annual sessions and in such special sessions as occasion may require. Special sessions shall be convoked by the Secretary-General at the request of the Security Council or of a majority of the Members of the United Nations.

##### Article 21

The General Assembly shall adopt its own rules of procedure. It shall elect its President for each session.

##### Article 22

The General Assembly may establish such subsidiary organs as it

deems necessary for the performance of its functions.

#### CHAPTER V

### The Security Council

#### COMPOSITION

##### Article 23

1. The Security Council shall consist of eleven Members of the United Nations. The Republic of China, France, the Union of Soviet Socialist Republics, the United Kingdom of Great Britain and Northern Ireland, and the United States of America shall be permanent members of the Security Council. The General Assembly shall elect six other Members of the United Nations to be non-permanent members of the Security Council, due regard being specially paid, in the first instance to the contribution of Members of the United Nations to the maintenance of international peace and security and to the other purposes of the Organization, and also to equitable geographical distribution.

2. The non-permanent members of the Security Council shall be elected for a term of two years. In the first election of the non-permanent members, however, three shall be chosen for a term of one year. A retiring member shall not be eligible for immediate re-election.

3. Each member of the Security Council shall have one representative.

#### FUNCTIONS AND POWERS

##### Article 24

1. In order to ensure prompt and effective action by the United Nations, its Members confer on the Security Council primary responsibility for the maintenance of international peace and security, and agree that in carrying out its duties under this responsibility the Security Council acts on their behalf.

2. In discharging these duties the Security Council shall act in accordance with the Purposes and Principles of the United Nations. The specific powers granted to the Security Council for the discharge of these duties are laid down in Chapters VI, VII, VIII, and XII.

3. The Security Council shall submit annual and, when necessary, special reports to the General Assembly for its consideration.

##### Article 25

The Members of the United Nations agree to accept and carry out the decisions of the Security Council in accordance with the present Charter.

##### Article 26

In order to promote the establishment and maintenance of international peace and security with the least diversion for armaments of the world's human and economic resources, the Security Council shall be responsible for formulating, with the assistance of the Military Staff Committee referred to in Article 47, plans to be submitted to the Members of the United Nations for the establishment of a system for the regulation of armaments.

#### VOTING

##### Article 27

1. Each member of the Security Council shall have one vote.

2. Decisions of the Security Council on procedural matters shall be made by an affirmative vote of seven members.

3. Decisions of the Security Council on all other matters shall be made by an affirmative vote of seven members including the concurring votes of the permanent members; provided that, in decisions under Chapter VI, and under paragraph 3 of Article 52, a party to a dispute shall abstain from voting.

#### PROCEDURE

##### Article 28

1. The Security Council shall be so organized as to be able to function continuously. Each member of the Security Council shall for this purpose be represented at all times at the seat of the Organization.

2. The Security Council shall hold periodic meetings at which each of its members may, if it so desires, be represented by a member of the government or by some other specially designated representative.

3. The Security Council may hold meetings at such places other than the seat of the Organization as in its judgment will best facilitate its work.

##### Article 29

The Security Council may establish such subsidiary organs as it deems necessary for the performance of its functions.

##### Article 30

The Security Council shall adopt its own rules of procedure, including the method of selecting its President.

##### Article 31

Any Member of the United Nations which is not a member of the Security Council may participate, without vote, in the discussion of any question brought before the Security Council whenever the latter considers that the interests of that Member are specially affected.

##### Article 32

Any Member of the United Nations which is not a Member of the Security Council or any state which is not a Member of the United Nations, if it is a party to a dispute under consideration by the Security Council, shall be invited to participate, without vote, in the discussion relating to the dispute. The Security Council shall lay down such conditions as it deems just for the participation of a state which is not a Member of the United Nations.

#### CHAPTER VI

### Pacific Settlement of Disputes

##### Article 33

1. The parties to any dispute, the continuance of which is likely to endanger the maintenance of international peace and security, shall, first of all, seek a solution by negotiation, enquiry, mediation, conciliation, arbitration, judicial settlement, resort to regional agencies or arrangements, or other peaceful means of their own choice.

2. The Security Council shall, when it deems necessary, call upon the parties to settle their dispute by such means.

##### Article 34

The Security Council may investigate any dispute, or any situation



which might lead to international friction or give rise to a dispute, in order to determine whether the continuance of the dispute or situation is likely to endanger the maintenance of international peace and security.

#### Article 35

1. Any Member of the United Nations may bring any dispute, or any situation of the nature referred to in Article 34, to the attention of the Security Council or of the General Assembly.

2. A state which is not a Member of the United Nations may bring to the attention of the Security Council or of the General Assembly any dispute to which it is a party if it accepts in advance, for the purposes of the dispute, the obligations of pacific settlement provided in the present Charter.

3. The proceedings of the General Assembly in respect of matters brought to its attention under this Article will be subject to the provisions of Articles 11 and 12.

#### Article 36

1. The Security Council may, at any stage of a dispute of the nature referred to in Article 33 or of a situation of like nature, recommend appropriate procedures or methods of adjustment.

2. The Security Council should take into consideration any procedures for the settlement of the dispute which have already been adopted by the parties.

3. In making recommendations under this Article the Security Council should also take into consideration that legal disputes should as a general rule be referred by the parties to the International Court of Justice in accordance with the provisions of the Statute of the Court.

#### Article 37

1. Should the parties to a dispute of the nature referred to in Article 33 fail to settle it by the means indicated in that Article, they shall refer it to the Security Council.

2. If the Security Council deems that the continuance of the dispute is in fact likely to endanger the maintenance of international peace and security, it shall decide whether to take action under Article 36 or to recommend such terms of settlement as it may consider appropriate.

#### Article 38

Without prejudice to the provisions of Articles 33 to 37, the Security Council may, if all the parties to any dispute so request, make recommendations to the parties with a view to a pacific settlement of the dispute.

### CHAPTER VII

#### Action With Respect to Threats to the Peace, Breaches of the Peace, and Acts of Aggression

#### Article 39

The Security Council shall determine the existence of any threat to the peace, breach of the peace, or act of aggression and shall make recommendations, or decide what measures shall be taken in accordance with Articles 41 and 42, to maintain or restore international peace and security.

#### Article 40

In order to prevent an aggravation of the situation, the Security Council may, before making the recommendations or deciding upon the measures provided for in Article 39, call upon the parties concerned to comply with such provisional measures as it deems necessary or desirable. Such provisional measures shall be without prejudice to the rights, claims, or position of the parties concerned. The Security Council shall duly take account of failure to comply with such provisional measures.

#### Article 41

The Security Council may decide what measures not involving the use of armed force are to be employed to give effect to its decisions, and it may call upon the Members of the United Nations to apply such measures. These may include complete or partial interruption of economic relations and of rail, sea, air, postal, telegraphic, radio, and other means of communication, and the severance of diplomatic relations.

#### Article 42

Should the Security Council consider that measures provided for in Article 41 would be inadequate or have proved to be inadequate, it may take such action by air, sea, or land forces as may be necessary to maintain or restore international peace and security. Such action may include demonstrations, blockade, and other operations by air, sea, or land forces of Members of the United Nations.

#### Article 43

1. All Members of the United Nations, in order to contribute to the maintenance of international peace and security, undertake to make available to the Security Council, on its call and in accordance with a special agreement or agreements, armed forces, assistance, and facilities, including rights of passage, necessary for the purpose of maintaining international peace and security.

2. Such agreement or agreements shall govern the numbers and types of forces, their degree of readiness and general location, and the nature of the facilities and assistance to be provided.

3. The agreement or agreements shall be negotiated as soon as possible on the initiative of the Security Council. They shall be concluded between the Security Council and Members or between the Security Council and groups of Members and shall be subject to ratification by the signatory states in accordance with their respective constitutional processes.

#### Article 44

When the Security Council has decided to use force it shall, before calling upon a Member not represented on it to provide armed forces in fulfillment of the obligations assumed under Article 43, invite that Member, if the Member so desires, to participate in the decisions of the Security Council concerning the employment of contingents of that Member's armed forces.

#### Article 45

In order to enable the United Nations to take urgent military measures, Members shall hold immediately available national air-force contingents for combined international enforcement action. The strength and degree of readiness of these contingents and plans for their combined action shall be determined, within the limits laid down in the special agreement or

agreements referred to in Article 43, by the Security Council with the assistance of the Military Staff Committee.

#### Article 46

Plans for the application of armed force shall be made by the Security Council with the assistance of the Military Staff Committee.

#### Article 47

1. There shall be established a Military Staff Committee to advise and assist the Security Council on all questions relating to the Security Council's military requirements for the maintenance of international peace and security, the employment and command of forces placed at its disposal, the regulation of armaments, and possible disarmament.

2. The Military Staff Committee shall consist of the Chiefs of Staff of the permanent members of the Security Council or their representatives. Any Member of the United Nations not permanently represented on the Committee shall be invited by the Committee to be associated with it when the efficient discharge of the Committee's responsibilities requires the participation of that Member in its work.

3. The Military Staff Committee shall be responsible under the Security Council for the strategic direction of any armed forces placed at the disposal of the Security Council. Questions relating to the command of such forces shall be worked out subsequently.

4. The Military Staff Committee, with the authorization of the Security Council and after consultation with appropriate regional agencies, may establish regional subcommittees.

#### Article 48

1. The action required to carry out the decisions of the Security Council for the maintenance of international peace and security shall be taken by all the Members of the United Nations or by some of them, as the Security Council may determine.

2. Such decisions shall be carried out by the Members of the United Nations directly and through their action in the appropriate international agencies of which they are members.

#### Article 49

The Members of the United Nations shall join in affording mutual assistance in carrying out the measures decided upon by the Security Council.

#### Article 50

If preventive or enforcement measures against any state are taken by the Security Council, any other state, whether a Member of the United Nations or not, which finds itself confronted with special economic problems arising from the carrying out of those measures shall have the right to consult the Security Council with regard to a solution of those problems.

#### Article 51

Nothing in the present Charter shall impair the inherent right of individual or collective self-defense if an armed attack occurs against a Member of the United Nations, until the Security Council has taken the measures necessary to maintain international peace and security. Measures taken by Members in the exercise of this right of self-defense shall be immediately reported to the Security Council and shall not in any way affect the authority and responsibility of the Security Council under the present Charter to take at any time such action as it deems necessary in order to maintain or restore international peace and security.

### CHAPTER VIII

#### Regional Arrangements

#### Article 52

1. Nothing in the present Charter precludes the existence of regional arrangements or agencies for dealing with such matters relating to the maintenance of international peace and security as are appropriate for regional action, provided that such arrangements or agencies and their activities are consistent with the Purposes and Principles of the United Nations.

2. The Members of the United Nations entering into such arrangements or constituting such agencies shall make every effort to achieve pacific settlement of local disputes through such regional arrangements or by such regional agencies before referring them to the Security Council.

3. The Security Council shall encourage the development of pacific settlement of local disputes through such regional arrangements or by such regional agencies either on the initiative of the states concerned or by reference from the Security Council.

4. This Article in no way impairs the application of Articles 34 and 35.

#### Article 53

1. The Security Council shall, where appropriate, utilize such regional arrangements or agencies for enforcement action under its authority. But no enforcement action shall be taken under regional arrangements or by regional agencies without the authorization of the Security Council, with the exception of measures against any enemy state, as defined in paragraph 2 of this Article, provided for pursuant to Article 107 or in regional arrangements directed against renewal of aggressive policy on the part of any such state, until such time as the Organization may, on request of the Governments concerned, be charged with the responsibility for preventing further aggression by such a state.

2. The term enemy state as used in paragraph 1 of this Article applies to any state which during the Second World War has been an enemy of any signatory of the present Charter.

#### Article 54

The Security Council shall at all times be kept fully informed of activities undertaken or in contemplation under regional arrangements or by regional agencies for the maintenance of international peace and security.

### CHAPTER IX

#### International Economic and Social Cooperation

#### Article 55

With a view to the creation of conditions of stability and well-being which are necessary for peaceful and friendly relations among nations based on respect for the principle of equal rights and self-determination of peoples, the United Nations shall promote:

- a. higher standards of living, full employment, and conditions of economic and social progress and development;
- b. solutions of international economic, social, health, and related problems; and international cultural and educational cooperation; and
- c. universal respect for, and observance of, human rights and fundamental freedoms for all without distinction as to race, sex, language, or religion.

*Article 56*

All Members pledge themselves to take joint and separate action in cooperation with the Organization for the achievement of the purposes set forth in Article 55.

*Article 57*

1. The various specialized agencies, established by intergovernmental agreement and having wide international responsibilities, as defined in their basic instruments, in economic, social, cultural, educational, health, and related fields, shall be brought into relationship with the United Nations in accordance with the provisions of Article 63.

2. Such agencies thus brought into relationship with the United Nations are hereinafter referred to as specialized agencies.

*Article 58*

The Organization shall make recommendations for the coordination of the policies and activities of the specialized agencies.

*Article 59*

The Organization shall, where appropriate, initiate negotiations among the states concerned for the creation of any new specialized agencies required for the accomplishment of the purposes set forth in Article 55.

*Article 60*

Responsibility for the discharge of the functions of the Organization set forth in this Chapter shall be vested in the General Assembly and, under the authority of the General Assembly, in the Economic and Social Council, which shall have for this purpose the powers set forth in Chapter X.

## CHAPTER X

## The Economic and Social Council

## COMPOSITION

*Article 61*

1. The Economic and Social Council shall consist of eighteen Members of the United Nations elected by the General Assembly.

2. Subject to the provisions of paragraph 3, six members of the Economic and Social Council shall be elected each year for a term of three years. A retiring member shall be eligible for immediate re-election.

3. At the first election, eighteen members of the Economic and Social Council shall be chosen. The term of office of six members so chosen shall expire at the end of one year, and of six other members at the end of two years, in accordance with arrangements made by the General Assembly.

4. Each member of the Economic and Social Council shall have one representative.

## FUNCTIONS AND POWERS

*Article 62*

1. The Economic and Social Council may make or initiate studies and reports with respect to international economic, social, cultural, educational, health, and related matters and may make recommendations with respect to any such matters to the General Assembly, to the Members of the United Nations, and to the specialized agencies concerned.

2. It may make recommendations for the purpose of promoting respect for, and observance of, human rights and fundamental freedoms for all.

3. It may prepare draft conventions for submission to the General Assembly, with respect to matters falling within its competence.

4. It may call, in accordance with the rules prescribed by the United Nations, international conferences on matters falling within its competence.

*Article 63*

1. The Economic and Social Council may enter into agreements with any of the agencies referred to in Article 57, defining the terms on which the agency concerned shall be brought into relationship with the United Nations. Such agreements shall be subject to approval by the General Assembly.

2. It may coordinate the activities of the specialized agencies through consultation with and recommendations to such agencies and through recommendations to the General Assembly and to the Members of the United Nations.

*Article 64*

1. The Economic and Social Council may take appropriate steps to obtain regular reports from the specialized agencies. It may make arrangements with the Members of the United Nations and with the specialized agencies to obtain reports on the steps taken to give effect to its own recommendations and to recommendations on matters falling within its competence made by the General Assembly.

2. It may communicate its observations on these reports to the General Assembly.

*Article 65*

The Economic and Social Council may furnish information to the Security Council and shall assist the Security Council upon its request.

*Article 66*

1. The Economic and Social Council shall perform such functions as fall within its competence in connection with the carrying out of the recommendations of the General Assembly.

2. It may, with the approval of the General Assembly, perform services at the request of Members of the United Nations and at the request of specialized agencies.

3. It shall perform such other functions as are specified elsewhere in the present Charter or as may be assigned to it by the General Assembly.

## VOTING

*Article 67*

1. Each member of the Economic and Social Council shall have one vote.

2. Decisions of the Economic and Social Council shall be made by a majority of the members present and voting.

## PROCEDURE

*Article 68*

The Economic and Social Council shall set up commissions in economic and social fields and for the promotion of human rights, and such other commissions as may be required for the performance of its functions.

*Article 69*

The Economic and Social Council shall invite any Member of the United Nations to participate, without vote, in its deliberations on any matter of particular concern to that Member.

*Article 70*

The Economic and Social Council may make arrangements for representatives of the specialized agencies to participate, without vote, in its deliberations and in those of the commissions established by it, and for its representatives to participate in the deliberations of the specialized agencies.

*Article 71*

The Economic and Social Council may make suitable arrangements for consultation with non-governmental organizations which are concerned with matters within its competence. Such arrangements may be made with international organizations and, where appropriate, with national organizations after consultation with the Member of the United Nations concerned.

*Article 72*

1. The Economic and Social Council shall adopt its own rules of procedure, including the method of selecting its President.

2. The Economic and Social Council shall meet as required in accordance with its rules, which shall include provision for the convening of meetings on the request of a majority of its members.

## CHAPTER XI

## Declaration Regarding Non-Self-Governing Territories

*Article 73*

Members of the United Nations which have or assume responsibilities for the administration of territories whose peoples have not yet attained a full measure of self-government recognize the principle that the interests of the inhabitants of these territories are paramount, and accept as a sacred trust the obligation to promote to the utmost, within the system of international peace and security established by the present Charter, the well-being of the inhabitants of these territories, and, to this end:

a. to ensure, with due respect for the culture of the peoples concerned, their political, economic, social, and educational advancement, their just treatment, and their protection against abuses;

b. to develop self-government, to take due account of the political aspirations of the peoples, and to assist them in the progressive development of their free political institutions, according to the particular circumstances of each territory and its peoples and their varying stages of advancement;

c. to further international peace and security;

d. to promote constructive measures of development, to encourage research, and to cooperate with one another and, when and where appropriate, with specialized international bodies with a view to the practical achievement of the social, economic, and scientific purposes set forth in this Article; and

e. to transmit regularly to the Secretary-General for information purposes, subject to such limitation as security and constitutional considerations may require, statistical and other information of a technical nature relating to economic, social, and educational conditions in the territories for which they are respectively responsible other than those territories to which Chapters XII and XIII apply.

*Article 74*

Members of the United Nations also agree that their policy in respect of the territories to which this Chapter applies, no less than in respect of their metropolitan areas, must be based on the general principle of goodneighborliness, due account being taken of the interests and well-being of the rest of the world, in social, economic, and commercial matters.

## CHAPTER XII

## International Trusteeship System

*Article 75*

The United Nations shall establish under its authority an international trusteeship system for the administration and supervision of such territories as may be placed thereunder by subsequent individual agreements. These territories are hereinafter referred to as trust territories.

*Article 76*

The basic objectives of the trusteeship system, in accordance with the Purposes of the United Nations laid down in Article 1 of the present Charter, shall be:

a. to further international peace and security;

b. to promote the political, economic, social, and educational advancement of the inhabitants of the trust territories, and their progressive development towards self-government or independence as may be appropriate to the particular circumstances of each territory and its peoples and the freely expressed wishes of the peoples concerned, and as may be provided by the terms of each trusteeship agreement;

c. to encourage respect for human rights and for fundamental freedoms for all without distinction as to race, sex, language, or religion, and to encourage recognition of the interdependence of the peoples of the world; and

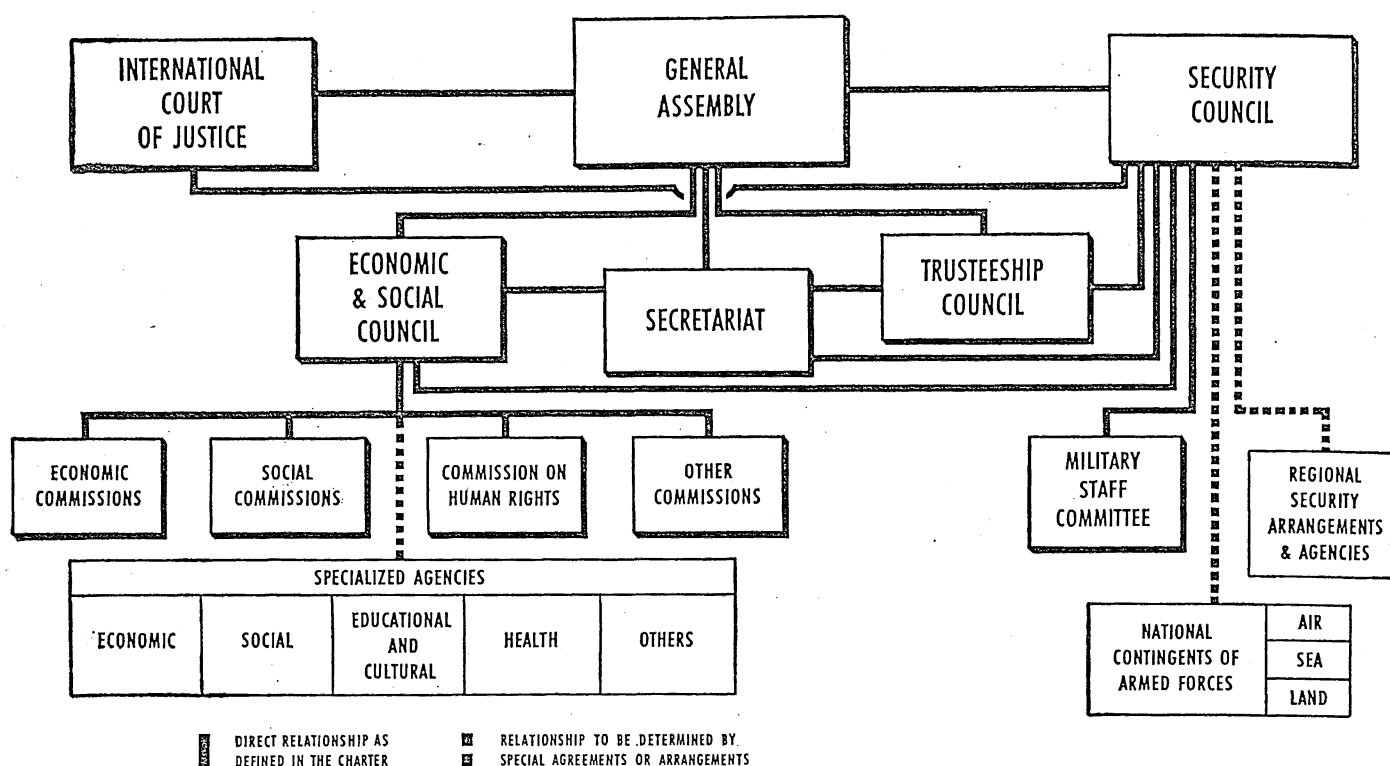
d. to ensure equal treatment in social, economic, and commercial matters for all Members of the United Nations and their nationals, and also equal treatment for the latter in the administration of justice, without prejudice to the attainment of the foregoing objectives and subject to the provisions of Article 80.

*Article 77*

1. The trusteeship system shall apply to such territories in the following categories as may be placed thereunder by means of trusteeship agreements:

- a. territories now held under mandate;
- b. territories which may be detached from enemy states as a result of the Second World War; and

# UNITED NATIONS CONFERENCE ORGANIZATION OF THE UNITED NATIONS



c. territories voluntarily placed under the system by states responsible for their administration.

2. It will be a matter for subsequent agreement as to which territories in the foregoing categories will be brought under the trusteeship system and upon what terms.

#### Article 78

The trusteeship system shall not apply to territories which have become Members of the United Nations, relationship among which shall be based on respect for the principle of sovereign equality.

#### Article 79

The terms of trusteeship for each territory to be placed under the trusteeship system, including any alteration or amendment, shall be agreed upon by the states directly concerned, including the mandatory power in the case of territories held under mandate by a Member of the United Nations, and shall be approved as provided for in Articles 83 and 85.

#### Article 80

1. Except as may be agreed upon in individual trusteeship agreements, made under Articles 77, 79, and 81, placing each territory under the trusteeship system, and until such agreements have been concluded, nothing in this Chapter shall be construed in or of itself to alter in any manner the rights whatsoever of any states or any peoples or the terms of existing international instruments to which Members of the United Nations may respectively be parties.

2. Paragraph 1 of this Article shall not be interpreted as giving grounds for delay or postponement of the negotiation and conclusion of agreements for placing mandated and other territories under the trusteeship system as provided for in Article 77.

#### Article 81

The trusteeship agreement shall in each case include the terms under which the trust territory will be administered and designate the authority which will exercise the administration of the trust territory. Such authority, hereinafter called the administering authority, may be one or more states or the Organization itself.

#### Article 82

There may be designated, in any trusteeship agreement, a strategic area or areas which may include part or all of the trust territory to which the agreement applies, without prejudice to any special agreement or agreements made under Article 43.

#### Article 83

1. All functions of the United Nations relating to strategic areas, including the approval of the terms of the trusteeship agreements and of their alteration or amendment, shall be exercised by the Security Council.

2. The basic objectives set forth in Article 76 shall be applicable to the people of each strategic area.

3. The Security Council shall, subject to the provisions of the trusteeship agreements and without prejudice to security considerations, avail itself of the assistance of the Trusteeship Council to perform those functions of the United Nations under the trusteeship system relating to political, economic, social, and educational matters in the strategic areas.

#### Article 84

It shall be the duty of the administering authority to ensure that the trust territory shall play its part in the maintenance of international peace and security. To this end the administering authority may make use of volunteer forces, facilities, and assistance from the trust territory in carrying out the obligations towards the Security Council undertaken in this

regard by the administering authority, as well as for local defense and the maintenance of law and order within the trust territory.

#### Article 85

1. The functions of the United Nations with regard to trusteeship agreements for all areas not designated as strategic, including the approval of the terms of the trusteeship agreements and of their alteration or amendment, shall be exercised by the General Assembly.

2. The Trusteeship Council, operating under the authority of the General Assembly, shall assist the General Assembly in carrying out these functions.

### CHAPTER XIII

## The Trusteeship Council

### COMPOSITION

#### Article 86

1. The Trusteeship Council shall consist of the following Members of the United Nations:

- a. those Members administering trust territories;
  - b. such of those Members mentioned by name in Article 23 as are not administering trust territories; and
  - c. as many other Members elected for three-year terms by the General Assembly as may be necessary to ensure that the total number of members of the Trusteeship Council is equally divided between those Members of the United Nations which administer trust territories and those which do not.
2. Each member of the Trusteeship Council shall designate one specially qualified person to represent it therein.

### FUNCTIONS AND POWERS

#### Article 87

The General Assembly and, under its authority, the Trusteeship Council, in carrying out their functions, may:

- a. consider reports submitted by the administering authority;
- b. accept petitions and examine them in consultation with the administering authority;
- c. provide for periodic visits to the respective trust territories at times agreed upon with the administering authority; and
- d. take these and other actions in conformity with the terms of the trusteeship agreements.

#### Article 88

The Trusteeship Council shall formulate a questionnaire on the political, economic, social, and educational advancement of the inhabitants of each trust territory, and the administering authority for each trust territory within the competence of the General Assembly shall make an annual report to the General Assembly upon the basis of such questionnaire.

### VOTING

#### Article 89

1. Each member of the Trusteeship Council shall have one vote.
2. Decisions of the Trusteeship Council shall be made by a majority of the members present and voting.

### PROCEDURE

#### Article 90

1. The Trusteeship Council shall adopt its own rules of procedure, including the method of selecting its President.
2. The Trusteeship Council shall meet as required in accordance with



its rules, which shall include provision for the convening of meetings on the request of a majority of its members.

#### Article 91

The Trusteeship Council shall, when appropriate, avail itself of the assistance of the Economic and Social Council and of the specialized agencies in regard to matters with which they are respectively concerned.

### CHAPTER XIV

#### The International Court of Justice

#### Article 92

The International Court of Justice shall be the principal judicial organ of the United Nations. It shall function in accordance with the annexed Statute, which is based upon the Statute of the Permanent Court of International Justice and forms an integral part of the present Charter.

#### Article 93

1. All Members of the United Nations are *ipso facto* parties to the Statute of the International Court of Justice.

2. A state which is not a Member of the United Nations may become a party to the Statute of the International Court of Justice on conditions to be determined in each case by the General Assembly upon the recommendation of the Security Council.

#### Article 94

1. Each Member of the United Nations undertakes to comply with the decision of the International Court of Justice in any case to which it is a party.

2. If any party to a case fails to perform the obligations incumbent upon it under a judgment rendered by the Court, the other party may have recourse to the Security Council, which may, if it deems necessary, make recommendations or decide upon measures to be taken to give effect to the judgment.

#### Article 95

Nothing in the present Charter shall prevent Members of the United Nations from entrusting the solution of their differences to other tribunals by virtue of agreements already in existence or which may be concluded in the future.

#### Article 96

1. The General Assembly or the Security Council may request the International Court of Justice to give an advisory opinion on any legal question.

2. Other organs of the United Nations and specialized agencies, which may at any time be so authorized by the General Assembly, may also request advisory opinions of the Court on legal questions arising within the scope of their activities.

### CHAPTER XV

#### The Secretariat

#### Article 97

The Secretariat shall comprise a Secretary-General and such staff as the Organization may require. The Secretary-General shall be appointed by the General Assembly upon the recommendation of the Security Council. He shall be the chief administrative officer of the Organization.

#### Article 98

The Secretary-General shall act in that capacity in all meetings of the General Assembly, of the Security Council, of the Economic and Social Council, and of the Trusteeship Council, and shall perform such other functions as are entrusted to him by these organs. The Secretary-General shall make an annual report to the General Assembly on the work of the Organization.

#### Article 99

The Secretary-General may bring to the attention of the Security Council any matter which in his opinion may threaten the maintenance of international peace and security.

#### Article 100

1. In the performance of their duties the Secretary-General and the staff shall not seek or receive instructions from any government or from any other authority external to the Organization. They shall refrain from any action which might reflect on their position as international officials responsible only to the Organization.

2. Each Member of the United Nations undertakes to respect the exclusively international character of the responsibilities of the Secretary-General and the staff and not to seek to influence them in the discharge of their responsibilities.

#### Article 101

1. The staff shall be appointed by the Secretary-General under regulations established by the General Assembly.

2. Appropriate staffs shall be permanently assigned to the Economic and Social Council, the Trusteeship Council, and, as required, to other organs of the United Nations. These staffs shall form a part of the Secretariat.

3. The paramount consideration in the employment of the staff and in the determination of the conditions of service shall be the necessity of securing the highest standards of efficiency, competence, and integrity. Due regard shall be paid to the importance of recruiting the staff on as wide a geographical basis as possible.

### CHAPTER XVI

#### Miscellaneous Provisions

#### Article 102

1. Every treaty and every international agreement entered into by any Member of the United Nations after the present Charter comes into force shall as soon as possible be registered with the Secretariat and published by it.

2. No party to any such treaty or international agreement which has not been registered in accordance with the provisions of paragraph 1 of this Article may invoke that treaty or agreement before any organ of the United Nations.

#### Article 103

In the event of a conflict between the obligations of the Members of

the United Nations under the present Charter and their obligations under any other international agreement, their obligations under the present Charter shall prevail.

#### Article 104

The Organization shall enjoy in the territory of each of its Members such legal capacity as may be necessary for the exercise of its functions and the fulfillment of its purposes.

#### Article 105

1. The Organization shall enjoy in the territory of each of its Members such privileges and immunities as are necessary for the fulfillment of its purposes.

2. Representatives of the Members of the United Nations and officials of the Organization shall similarly enjoy such privileges and immunities as are necessary for the independent exercise of their functions in connection with the Organization.

3. The General Assembly may make recommendations with a view to determining the details of the application of paragraphs 1 and 2 of this Article or may propose conventions to the Members of the United Nations for this purpose.

### CHAPTER XVII

#### Transitional Security Arrangements

#### Article 106

Pending the coming into force of such special agreements referred to in Article 43 as in the opinion of the Security Council enable it to begin the exercise of its responsibilities under Article 42, the parties to the Four-Nation Declaration, signed at Moscow, October 30, 1943, and France, shall, in accordance with the provisions of paragraph 5 of that Declaration, consult with one another and as occasion requires with other Members of the United Nations with a view to such joint action on behalf of the Organization as may be necessary for the purpose of maintaining international peace and security.

#### Article 107

Nothing in the present Charter shall invalidate or preclude action, in relation to any state which during the Second World War has been an enemy of any signatory to the present Charter, taken or authorized as a result of that war by the Governments having responsibility for such action.

### CHAPTER XVIII

#### Amendments

#### Article 108

Amendments to the present Charter shall come into force for all Members of the United Nations when they have been adopted by a vote of two thirds of the members of the General Assembly and ratified in accordance with their respective constitutional processes by two thirds of the Members of the United Nations, including all the permanent members of the Security Council.

#### Article 109

1. A General Conference of the Members of the United Nations for the purpose of reviewing the present Charter may be held at a date and place to be fixed by a two-thirds vote of the members of the General Assembly and by a vote of any seven members of the Security Council. Each Member of the United Nations shall have one vote in the conference.

2. Any alteration of the present Charter recommended by a two-thirds vote of the conference shall take effect when ratified in accordance with their respective constitutional processes by two thirds of the Members of the United Nations including all the permanent members of the Security Council.

3. If such a conference has not been held before the tenth annual session of the General Assembly following the coming into force of the present Charter, the proposal to call such a conference shall be placed on the agenda of that session of the General Assembly, and the conference shall be held if so decided by a majority vote of the members of the General Assembly and by a vote of any seven members of the Security Council.

### CHAPTER XIX

#### Ratification and Signature

#### Article 110

1. The present Charter shall be ratified by the signatory states in accordance with their respective constitutional processes.

2. The ratifications shall be deposited with the Government of the United States of America, which shall notify all the signatory states of each deposit as well as the Secretary-General of the Organization when he has been appointed.

3. The present Charter shall come into force upon the deposit of ratifications by the Republic of China, France, the Union of Soviet Socialist Republics, the United Kingdom of Great Britain and Northern Ireland, and the United States of America, and by a majority of the other signatory states. A protocol of the ratifications deposited shall thereupon be drawn up by the Government of the United States of America which shall communicate copies thereof to all the signatory states.

4. The states signatory to the present Charter which ratify it after it has come into force will become original Members of the United Nations on the date of the deposit of their respective ratifications.

#### Article 111

The present Charter, of which the Chinese, French, Russian, English, and Spanish texts are equally authentic, shall remain deposited in the archives of the Government of the United States of America. Duly certified copies thereof shall be transmitted by that Government to the Governments of the other signatory states.

IN FAITH WHEREOF the representatives of the Governments of the United Nations have signed the present Charter.

DONE at the city of San Francisco the twenty-sixth day of June, one thousand nine hundred and forty-five.

## STATUTE OF THE INTERNATIONAL COURT OF JUSTICE

## Article 1

THE INTERNATIONAL COURT OF JUSTICE established by the Charter of the United Nations as the principal judicial organ of the United Nations shall be constituted and shall function in accordance with the provisions of the present Statute.

## CHAPTER I

## Organization of the Court

## Article 2

The Court shall be composed of a body of independent judges, elected regardless of their nationality from among persons of high moral character, who possess the qualifications required in their respective countries for appointment to the highest judicial offices, or are juris-consults of recognized competence in international law.

## Article 3

1. The Court shall consist of fifteen members, no two of whom may be nationals of the same state.

2. A person who for the purposes of membership in the Court could be regarded as a national of more than one state shall be deemed to be a national of the one in which he ordinarily exercises civil and political rights.

## Article 4

1. The members of the Court shall be elected by the General Assembly and by the Security Council from a list of persons nominated by the national groups in the Permanent Court of Arbitration, in accordance with the following provisions.

2. In the case of Members of the United Nations not represented in the Permanent Court of Arbitration, candidates shall be nominated by national groups appointed for this purpose by their governments under the same conditions as those prescribed for members of the Permanent Court of Arbitration by Article 44 of the Convention of The Hague of 1907 for the pacific settlement of international disputes.

3. The conditions under which a state which is a party to the present Statute but is not a Member of the United Nations may participate in electing the members of the Court shall, in the absence of a special agreement, be laid down by the General Assembly upon recommendation of the Security Council.

## Article 5

1. At least three months before the date of the election, the Secretary-General of the United Nations shall address a written request to the members of the Permanent Court of Arbitration belonging to the states which are parties to the present Statute, and to the members of the national groups appointed under Article 4, paragraph 2, inviting them to undertake, within a given time, by national groups, the nomination of persons in a position to accept the duties of a member of the Court.

2. No group may nominate more than four persons, not more than two of whom shall be of their own nationality. In no case may the number of candidates nominated by a group be more than double the number of seats to be filled.

## Article 6

Before making these nominations, each national group is recommended to consult its highest court of justice, its legal faculties and schools of law, and its national academies and national sections of international academies devoted to the study of law.

## Article 7

1. The Secretary-General shall prepare a list in alphabetical order of all the persons thus nominated. Save as provided in Article 12, paragraph 2, these shall be the only persons eligible.

2. The Secretary-General shall submit this list to the General Assembly and to the Security Council.

## Article 8

The General Assembly and the Security Council shall proceed independently of one another to elect the members of the Court.

## Article 9

At every election, the electors shall bear in mind not only that the persons to be elected should individually possess the qualifications required, but also that in the body as a whole the representation of the main forms of civilization and of the principal legal systems of the world should be assured.

## Article 10

1. Those candidates who obtain an absolute majority of votes in the General Assembly and in the Security Council shall be considered as elected.

2. Any vote of the Security Council, whether for the election of judges or for the appointment of members of the conference envisaged in Article 12, shall be taken without any distinction between permanent and non-permanent members of the Security Council.

3. In the event of more than one national of the same state obtaining an absolute majority of the votes both of the General Assembly and of the Security Council, the eldest of these only shall be considered as elected.

## Article 11

If, after the first meeting held for the purpose of the election, one or more seats remain to be filled, a second and, if necessary, a third meeting shall take place.

## Article 12

1. If, after the third meeting, one or more seats still remain unfilled, a joint conference consisting of six members, three appointed by the General Assembly and three by the Security Council, may be formed at any time at the request of either the General Assembly or the Security Council, for the purpose of choosing by the vote of an absolute majority one name for each seat still vacant, to submit to the General Assembly and the Security Council for their respective acceptance.

2. If the joint conference is unanimously agreed upon any person who fulfils the required conditions, he may be included in its list, even though he was not included in the list of nominations referred to in Article 7.

3. If the joint conference is satisfied that it will not be successful in procuring an election, those members of the Court who have already been elected shall, within a period to be fixed by the Security Council, proceed to fill the vacant seats by selection from among those candidates who have obtained votes either in the General Assembly or in the Security Council.

4. In the event of an equality of votes among the judges, the eldest judge shall have a casting vote.

## Article 13

1. The members of the Court shall be elected for nine years and may be re-elected; provided, however, that of the judges elected at the first election, the terms of five judges shall expire at the end of three years and the terms of five more judges shall expire at the end of six years.

2. The judges whose terms are to expire at the end of the above-mentioned initial periods of three and six years shall be chosen by lot to be drawn by the Secretary-General immediately after the first election has been completed.

3. The members of the Court shall continue to discharge their duties until their places have been filled. Though replaced, they shall finish any cases which they may have begun.

4. In the case of the resignation of a member of the Court, the resignation shall be addressed to the President of the Court for transmission to the Secretary-General. This last notification makes the place vacant.

## Article 14

Vacancies shall be filled by the same method as that laid down for the first election, subject to the following provision: the Secretary-General shall, within one month of the occurrence of the vacancy, proceed to issue the invitations provided for in Article 5, and the date of the election shall be fixed by the Security Council.

## Article 15

A member of the Court elected to replace a member whose term of office has not expired shall hold office for the remainder of his predecessor's term.

## Article 16

1. No member of the Court may exercise any political or administrative function, or engage in any other occupation of a professional nature.

2. Any doubt on this point shall be settled by the decision of the Court.

## Article 17

1. No member of the Court may act as agent, counsel, or advocate in any case.

2. No member may participate in the decision of any case in which he has previously taken part as agent, counsel, or advocate for one of the parties, or as a member of a national or international court, or of a commission of enquiry, or in any other capacity.

3. Any doubt on this point shall be settled by the decision of the Court.

## Article 18

1. No member of the Court can be dismissed unless, in the unanimous opinion of the other members, he has ceased to fulfil the required conditions.

2. Formal notification thereof shall be made to the Secretary-General by the Registrar.

3. This notification makes the place vacant.

## Article 19

The members of the Court, when engaged on the business of the Court, shall enjoy diplomatic privileges and immunities.

## Article 20

Every member of the Court shall, before taking up his duties, make a solemn declaration in open court that he will exercise his powers impartially and conscientiously.

## Article 21

1. The Court shall elect its President and Vice-President for three years; they may be re-elected.

2. The Court shall appoint its Registrar and may provide for the appointment of such other officers as may be necessary.

## Article 22

1. The seat of the Court shall be established at The Hague. This, however, shall not prevent the Court from sitting and exercising its functions elsewhere whenever the Court considers it desirable.

2. The President and the Registrar shall reside at the seat of the Court.

## Article 23

1. The Court shall remain permanently in session, except during the judicial vacations, the dates and duration of which shall be fixed by the Court.

2. Members of the Court are entitled to periodic leave, the dates and duration of which shall be fixed by the Court, having in mind the distance between The Hague and the home of each judge.

3. Members of the Court shall be bound, unless they are on leave or prevented from attending by illness or other serious reasons duly explained to the President, to hold themselves permanently at the disposal of the Court.

## Article 24

1. If, for some special reason, a member of the Court considers that he should not take part in the decision of a particular case, he shall so inform the President.

2. If the President considers that for some special reason one of the members of the Court should not sit in a particular case, he shall give him notice accordingly.

3. If in any such case the member of the Court and the President disagree, the matter shall be settled by the decision of the Court.

## Article 25

1. The full Court shall sit except when it is expressly provided otherwise in the present Statute.

2. Subject to the condition that the number of judges available to constitute the Court is not thereby reduced below eleven, the Rules of the Court may provide for allowing one or more judges, according to circumstances and in rotation, to be dispensed from sitting.

3. A quorum of nine judges shall suffice to constitute the Court.

## Article 26

1. The Court may from time to time form one or more chambers, composed of three or more judges as the Court may determine, for dealing with particular categories of cases; for example, labor cases and cases relating to transit and communications.

2. The Court may at any time form a chamber for dealing with a particular case. The number of judges to constitute such a chamber shall be determined by the Court with the approval of the parties.

3. Cases shall be heard and determined by the chambers provided for in this Article if the parties so request.

## Article 27

A judgment given by any of the chambers provided for in Articles 26 and 29 shall be considered as rendered by the Court.

## Article 28

The chambers provided for in Articles 26 and 29 may, with the consent of the parties, sit and exercise their functions elsewhere than at The Hague.

## Article 29

With a view to the speedy despatch of business, the Court shall form annually a chamber composed of five judges which, at the request of the parties, may hear and determine cases by summary procedure. In addition, two judges shall be selected for the purpose of replacing judges who find it impossible to sit.

## Article 30

1. The Court shall frame rules for carrying out its functions. In particular, it shall lay down rules of procedure.

2. The Rules of the Court may provide for assessors to sit with the Court or with any of its chambers, without the right to vote.

## Article 31

1. Judges of the nationality of each of the parties shall retain their right to sit in the case before the Court.

2. If the Court includes upon the Bench a judge of the nationality of one of the parties, any other party may choose a person to sit as judge. Such person shall be chosen preferably from among those persons who have been nominated as candidates as provided in Articles 4 and 5.

3. If the Court includes upon the Bench no judge of the nationality of the parties, each of these parties may proceed to choose a judge as provided in paragraph 2 of this Article.

4. The provisions of this Article shall apply to the case of Articles 26 and 29. In such cases, the President shall request one or, if necessary, two of the members of the Court forming the chamber to give place to the members of the Court of the nationality of the parties concerned, and, failing such, or if they are unable to be present, to the judges specially chosen by the parties.

5. Should there be several parties in the same interest, they shall, for the purpose of the preceding provisions, be reckoned as one party only. Any doubt upon this point shall be settled by the decision of the Court.

6. Judges chosen as laid down in paragraphs 2, 3, and 4 of this Article shall fulfil the conditions required by Articles 2, 17 (paragraph 2), 20, and 24 of the present Statute. They shall take part in the decision on terms of complete equality with their colleagues.

## Article 32

1. Each member of the Court shall receive an annual salary.

2. The President shall receive a special annual allowance.

3. The Vice-President shall receive a special allowance for every day on which he acts as President.

4. The judges chosen under Article 31, other than members of the Court, shall receive compensation for each day on which they exercise their functions.

5. These salaries, allowances, and compensation shall be fixed by the General Assembly. They may not be decreased during the term of office.

6. The salary of the Registrar shall be fixed by the General Assembly on the proposal of the Court.

7. Regulations made by the General Assembly shall fix the conditions under which retirement pensions may be given to members of the Court and to the Registrar, and the conditions under which members of the Court and the Registrar shall have their traveling expenses refunded.

8. The above salaries, allowances, and compensation shall be free of all taxation.

## Article 33

The expenses of the Court shall be borne by the United Nations in such a manner as shall be decided by the General Assembly.

CHAPTER II  
Competence of the Court

## Article 34

1. Only states may be parties in cases before the Court.

2. The Court, subject to and in conformity with its Rules, may request of public international organizations information relevant to cases before it, and shall receive such information presented by such organizations on their own initiative.

3. Whenever the construction of the constituent instrument of a public international organization or of an international convention adopted thereunder is in question in a case before the Court, the Registrar shall so notify the public international organization concerned and shall communicate to it copies of all the written proceedings.

## Article 35

1. The Court shall be open to the states parties to the present Statute.

2. The conditions under which the Court shall be open to other states shall, subject to the special provisions contained in treaties in force, be laid down by the Security Council, but in no case shall such conditions place the parties in a position of inequality before the Court.

3. When a state which is not a Member of the United Nations is a party to a case, the Court shall fix the amount which that party is to contribute towards the expenses of the Court. This provision shall not apply if such state is bearing a share of the expenses of the Court.

## Article 36

1. The jurisdiction of the Court comprises all cases which the parties

refer to it and all matters specially provided for in the Charter of the United Nations or in treaties and conventions in force.

2. The states parties to the present Statute may at any time declare that they recognize as compulsory *ipso facto* and without special agreement, in relation to any other state accepting the same obligation, the jurisdiction of the Court in all legal disputes concerning:

- a. the interpretation of a treaty;
- b. any question of international law;
- c. the existence of any fact which, if established, would constitute a breach of an international obligation;
- d. the nature or extent of the reparation to be made for the breach of an international obligation.

3. The declarations referred to above may be made unconditionally or on condition of reciprocity on the part of several or certain states, or for a certain time.

4. Such declarations shall be deposited with the Secretary-General of the United Nations, who shall transmit copies thereof to the parties to the Statute and to the Registrar of the Court.

5. Declarations made under Article 36 of the Statute of the Permanent Court of International Justice and which are still in force shall be deemed, as between the parties to the present Statute, to be acceptances of the compulsory jurisdiction of the International Court of Justice for the period which they still have to run and in accordance with their terms.

6. In the event of a dispute as to whether the Court has jurisdiction, the matter shall be settled by the decision of the Court.

## Article 37

Whenever a treaty or convention in force provides for reference of a matter to a tribunal to have been instituted by the League of Nations, or to the Permanent Court of International Justice, the matter shall, as between the parties to the present Statute, be referred to the International Court of Justice.

## Article 38

1. The Court, whose function is to decide in accordance with international law such disputes as are submitted to it, shall apply:

- a. international conventions, whether general or particular, establishing rules expressly recognized by the contesting states;
- b. international custom, as evidence of a general practice accepted as law;
- c. the general principles of law recognized by civilized nations;
- d. subject to the provisions of Article 59, judicial decisions and the teachings of the most highly qualified publicists of the various nations, as subsidiary means for the determination of rules of law.

2. This provision shall not prejudice the power of the Court to decide a case *ex aequo et bono*, if the parties agree thereto.

## CHAPTER III

## Procedure

## Article 39

1. The official languages of the Court shall be French and English. If the parties agree that the case shall be conducted in French, the judgment shall be delivered in French. If the parties agree that the case shall be conducted in English, the judgment shall be delivered in English.

2. In the absence of an agreement as to which language shall be employed, each party may, in the pleadings, use the language which it prefers; the decision of the Court shall be given in French and English. In this case the Court shall at the same time determine which of the two texts shall be considered as authoritative.

3. The Court shall, at the request of any party, authorize a language other than French or English to be used by that party.

## Article 40

1. Cases are brought before the Court, as the case may be, either by the notification of the special agreement or by a written application addressed to the Registrar. In either case the subject of the dispute and the parties shall be indicated.

2. The Registrar shall forthwith communicate the application to all concerned.

3. He shall also notify the Members of the United Nations through the Secretary-General, and also any other states entitled to appear before the Court.

## Article 41

1. The Court shall have the power to indicate, if it considers that circumstances so require, any provisional measures which ought to be taken to preserve the respective rights of either party.

2. Pending the final decision, notice of the measures suggested shall forthwith be given to the parties and to the Security Council.

## Article 42

1. The parties shall be represented by agents.

2. They may have the assistance of counsel or advocates before the Court.

3. The agents, counsel, and advocates of parties before the Court shall enjoy the privileges and immunities necessary to the independent exercise of their duties.

## Article 43

1. The procedure shall consist of two parts: written and oral.

2. The written proceedings shall consist of the communication to the Court and to the parties of memorials, counter-memorials and, if necessary, replies; also all papers and documents in support.

3. These communications shall be made through the Registrar, in the order and within the time fixed by the Court.

4. A certified copy of every document produced by one party shall be communicated to the other party.

5. The oral proceedings shall consist of the hearing by the Court of witnesses, experts, agents, counsel, and advocates.

## Article 44

1. For the service of all notices upon persons other than the agents, counsel, and advocates, the Court shall apply direct to the government of the state upon whose territory the notice has to be served.



2. The same provision shall apply whenever steps are to be taken to procure evidence on the spot.

#### Article 45

The hearing shall be under the control of the President or, if he is unable to preside, of the Vice-President; if neither is able to preside, the senior judge present shall preside.

#### Article 46

The hearing in Court shall be public, unless the Court shall decide otherwise, or unless the parties demand that the public be not admitted.

#### Article 47

1. Minutes shall be made at each hearing and signed by the Registrar and the President.

2. These minutes alone shall be authentic.

#### Article 48

The Court shall make orders for the conduct of the case, shall decide the form and time in which each party must conclude its arguments, and make all arrangements connected with the taking of evidence.

#### Article 49

The Court may, even before the hearing begins, call upon the agents to produce any document or to supply any explanations. Formal note shall be taken of any refusal.

#### Article 50

The Court may, at any time, entrust any individual, body, bureau, commission, or other organization that it may select, with the task of carrying out an enquiry or giving an expert opinion.

#### Article 51

During the hearing any relevant questions are to be put to the witnesses and experts under the conditions laid down by the Court in the rules of procedure referred to in Article 30.

#### Article 52

After the Court has received the proofs and evidence within the time specified for the purpose, it may refuse to accept any further oral or written evidence that one party may desire to present unless the other side consents.

#### Article 53

1. Whenever one of the parties does not appear before the Court, or fails to defend its case, the other party may call upon the Court to decide in favor of its claim.

2. The Court must, before doing so, satisfy itself, not only that it has jurisdiction in accordance with Articles 36 and 37, but also that the claim is well founded in fact and law.

#### Article 54

1. When, subject to the control of the Court, the agents, counsel, and advocates have completed their presentation of the case, the President shall declare the hearing closed.

2. The Court shall withdraw to consider the judgment.

3. The deliberations of the Court shall take place in private and remain secret.

#### Article 55

1. All questions shall be decided by a majority of the judges present.

2. In the event of an equality of votes, the President or the judge who acts in his place shall have a casting vote.

#### Article 56

1. The judgment shall state the reasons on which it is based.

2. It shall contain the names of the judges who have taken part in the decision.

#### Article 57

If the judgment does not represent in whole or in part the unanimous opinion of the judges, any judge shall be entitled to deliver a separate opinion.

#### Article 58

The judgment shall be signed by the President and by the Registrar. It shall be read in open court, due notice having been given to the agents.

#### Article 59

The decision of the Court has no binding force except between the parties and in respect of that particular case.

#### Article 60

The judgment is final and without appeal. In the event of dispute as to the meaning or scope of the judgment, the Court shall construe it upon the request of any party.

#### Article 61

1. An application for revision of a judgment may be made only when it is based upon the discovery of some fact of such a nature as to be a decisive factor, which fact was, when the judgment was given, unknown to the Court and also to the party claiming revision, always provided that such ignorance was not due to negligence.

2. The proceedings for revision shall be opened by a judgment of the Court expressly recording the existence of the new fact, recognizing that it has such a character as to lay the case open to revision, and declaring the application admissible on this ground.

3. The Court may require previous compliance with the terms of the judgment before it admits proceedings in revision.

4. The application for revision must be made at latest within six months of the discovery of the new fact.

5. No application for revision may be made after the lapse of ten years from the date of the judgment.

#### Article 62

1. Should a state consider that it has an interest of a legal nature which may be affected by the decision in the case, it may submit a request to the Court to be permitted to intervene.

2. It shall be for the Court to decide upon this request.

#### Article 63

1. Whenever the construction of a convention to which states other than those concerned in the case are parties is in question, the Registrar shall notify all such states forthwith.

2. Every state so notified has the right to intervene in the proceedings;

but if it uses this right, the construction given by the judgment will be equally binding upon it.

#### Article 64

Unless otherwise decided by the Court, each party shall bear its own costs.

### CHAPTER IV

### Advisory Opinions

#### Article 65

1. The Court may give an advisory opinion on any legal question at the request of whatever body may be authorized by or in accordance with the Charter of the United Nations to make such a request.

2. Questions upon which the advisory opinion of the Court is asked shall be laid before the Court by means of a written request containing an exact statement of the question upon which an opinion is required, and accompanied by all documents likely to throw light upon the question.

#### Article 66

1. The Registrar shall forthwith give notice of the request for an advisory opinion to all states entitled to appear before the Court.

2. The Registrar shall also, by means of a special and direct communication, notify any state entitled to appear before the Court or international organization considered by the Court, or, should it not be sitting, by the President, as likely to be able to furnish information on the question, that the Court will be prepared to receive, within a time limit to be fixed by the President, written statements, or to hear, at a public sitting to be held for the purpose, oral statements relating to the question.

3. Should any such state entitled to appear before the Court have failed to receive the special communication referred to in paragraph 2 of this Article, such state may express a desire to submit a written statement or to be heard; and the Court will decide.

4. States and organizations having presented written or oral statements or both shall be permitted to comment on the statements made by other states or organizations in the form, to the extent, and within the time limits which the Court, or, should it not be sitting, the President, shall decide in each particular case. Accordingly, the Registrar shall in due time communicate any such written statements to states and organizations having submitted similar statements.

#### Article 67

The Court shall deliver its advisory opinions in open court, notice having been given to the Secretary-General and to the representatives of Members of the United Nations, of other states and of international organizations immediately concerned.

#### Article 68

In the exercise of its advisory functions the Court shall further be guided by the provisions of the present Statute which apply in contentious cases to the extent to which it recognizes them to be applicable.

### CHAPTER V

### Amendment

#### Article 69

Amendments to the present Statute shall be effected by the same procedure as is provided by the Charter of the United Nations for amendments to that Charter, subject however to any provisions which the General Assembly upon recommendation of the Security Council may adopt concerning the participation of states which are parties to the present Statute but are not Members of the United Nations.

#### Article 70

The Court shall have power to propose such amendments to the present Statute as it may deem necessary, through written communications to the Secretary-General, for consideration in conformity with the provisions of Article 69.

**United Nations Food and Agriculture Organization:**  
see AGRICULTURE.

## United Nations Information Organization.

During the one-hundredth meeting of the United Nations Information board on Jan. 4, 1945, a resolution of organization and statutes were formally signed in Washington, D.C., on behalf of the ranking information officers of 19 governments. The organization had been in existence and had worked for four years to develop the means of co-operation in the essential task of keeping public opinion informed about matters of common interest to the United Nations.

In line with the organization's objective to further understanding of the United Nations concept, its activities during 1945 were primarily devoted to active participation in the United Nations Conference on International Organization at San Francisco through the loan of several officers to the international secretariat of the conference, and to information work on behalf of or about United Nations agencies. The United Nations Information organization published, in co-operation with the Library of Congress, the complete documentation of

the conference in 15 volumes. It made available for research purposes the only complete set then in the United States of the documents of the executive committee of the preparatory commission of the United Nations.

In Nov. 1945, the secretary general was appointed special assistant for overseas services within the secretariat of the preparatory commission in London, and the United Nations Information organization was publishing and distributing in the U.S. the documentation of the preparatory commission. The organization also handled certain phases of information on behalf of the Food and Agriculture organization of the United Nations, of U.N.R.R.A. and of the Provisional International Civil Aviation organization. (W. B. M.)

## United Nations Monetary and Financial

**Program.** On Dec. 28, 1945, the representatives of 28 nations, meeting at the state department in Washington, D.C., signed documents confirming ratifications by their governments of the Bretton Woods agreements. The ratifying nations were Belgium, Bolivia, Brazil, Canada, China, Colombia, Costa Rica, Ecuador, Egypt, Ethiopia, France, Greece, Guatemala, Honduras, Iceland, India, Iraq, Luxembourg, the Netherlands, Norway, Paraguay, the Philippine commonwealth, Poland, Union of South Africa, United Kingdom, United States of America, Uruguay and Yugoslavia. The combined quotas of these nations in the fund and their subscriptions to the bank exceeded the 65% requirements, hence the two institutions formally came into existence. Their headquarters were to be in the United States.

Before Dec. 31, seven additional countries, Mexico, Cuba, Czechoslovakia, Peru, Chile, the Dominican Republic and Iran, signed the necessary documents, thus becoming charter members. Nine of the 44 governments who had participated in the Bretton Woods conference allowed the deadline to pass without signing. They included Australia, New Zealand and the U.S.S.R.

The new international institutions had their origin in two proposals, the White plan, a memorandum prepared in 1941 by Harry D. White, head of the division of monetary research, U.S. department of the treasury, and a British counterpart of this plan prepared by Lord Keynes, acting as adviser to the British treasury. After both plans had been circulated privately among a limited number of government officials and expert advisers, the U.S. treasury in April 1943 published its plan for an International Stabilization fund of the United and Associated Nations, and on the same day the British plan for an International Clearing union was made public. A supplementary U.S. project for a Bank for Reconstruction and Development was published in Nov. 1943. All these proposals were then submitted to the ministers of finance of the United Nations. Extended discussions followed on the technical level among the experts of 30 countries. In April 1944 a joint statement of experts was issued, recommending the establishment of an International Monetary fund. This statement formed the basis for discussion at the Bretton Woods conference (July 1944) at which delegations of 44 nations drafted Articles of Agreement of the Fund and of a Bank for Reconstruction and Development. The final step was the submission of the articles to the various national legislatures for ratification.

Before this took place, however, there ensued a vigorous discussion in the U.S. press, on the radio and in public meetings. The American Bankers association strongly opposed the Monetary fund; the Business and Industry committee in Bretton Woods and a group of 200 economists, including the acknowledged leaders of the profession, gave it their support. An important factor in securing action by congress was the favourable

tone of the report issued by the Committee on Economic Development in March 1945. The bill ratifying the agreements, without amendment but with some interpretative clarifications, passed the house of representatives on June 7, 1945, by a vote of 345 to 18, was approved by the senate on July 19, 61 to 16, and signed by President Truman on July 31. British ratification was delayed until Dec. 27, pending the outcome of protracted negotiations for a loan from the U.S. France undertook a radical devaluation of its currency immediately before ratification. In ratifying the fund the U.S. undertook to supply its quota, \$2,750,000,000 of the total resources of \$8,800,000,000.

The fund and the bank are two separate, but supplementary, institutions. A primary purpose of the fund was to bring about a high degree of stability in the relative values of the dollar, the pound, the franc, and other national currencies, and thus to avoid the disastrous unilateral and competitive depreciations which followed World War I. An exchange rate for each country was to be fixed in terms of gold when it entered the fund. Day-to-day exchange rate fluctuations were to be kept within rather narrow limits, and no country was to be allowed to change its exchange parity value more than 10% without first consulting the fund. Substantial changes in exchange parities, each member agreed, were to be made only to correct a fundamental disequilibrium in its balance of payments. All members renounced discriminatory currency practices.

A second objective of great importance was freeing international trade from exchange control. The framers of the agreement recognized that capital transfers should be subject to national controls but sought to free payments on current account, thus making it possible for exporters of any country to convert freely their credits in foreign countries into their own national currencies. This objective would not be accomplished at once. The fund would not require countries suffering from wartime destruction of export industries to remove controls during a five-year postwar transitional period. They would be obligated, however, to "have continuous regard in their exchange policies to the purposes of the fund" and to take all possible measures to restore freedom of payments.

Underlying all other objectives in the establishment of the fund was the expansion of international trade on a multilateral basis. The pooling of currencies was the means by which the fund would aid countries which were having temporary difficulties in balancing their payments to avoid exchange depreciation, as well as restrictions on imports and other species of economic warfare. In simple terms, membership in the fund would give a country, within specified limits, the privilege of exchanging its own currency for that of other members. Thus, temporary pressures in exchange rates could be relieved.

The fund was not intended to correct chronic shortages of foreign exchange, such as result from a permanent disequilibrium in a country's accounts with the rest of the world. This, among others, was one of the principal objectives of the International Bank for Reconstruction and Development. The subscribed capital of the bank was fixed at \$9,100,000,000; of this the United States, the largest stockholder, was to subscribe \$3,175,000,000, but of this amount only \$635,000,000, or 20%, had to be paid in. A surety fund would constitute 80% of the bank's capital.

The purpose of the bank was to facilitate long-term productive investment for the replacement of capital goods destroyed in countries ravaged by war, and to supply the needs of industrially undeveloped areas, such as the Latin American republics. The bank was also authorized to grant long-term stabilization loans. The bank would not displace, but would supplement, private lending. Its principal business would be the guarantee of private loans, as to interest and principal, after adequate inves-

tigation. The bank was to undertake, also, the supervision of guaranteed loans to make sure that the funds were used for the purposes intended. Direct loans might be made, either by selling the bank's obligations in a member country and lending the proceeds directly to borrowers or by loaning directly out of capital assets. The total volume of such loans, however, was limited to 20% of the bank's assets. Like guaranteed loans, direct loans might be made only for productive purposes; they were to be endorsed by a member government. A further condition was that private capital was not available at reasonable terms.

Only countries holding membership in the International Monetary fund might subscribe to the bank and obtain loans through the use of its facilities. Thus the close interdependence of the functions of the two institutions was effectively recognized. The stability of exchange rates and freedom of international payments, which were the objectives of the fund, were essential conditions for the expansion of international investment; on the other hand the fund could not successfully operate, as its opponents pointed out, unless fundamental causes of economic imbalance were removed. For this purpose large and well-advised long-term investments were essential. (P. W. BL.)

The text of the Articles of Agreement of the International Monetary Fund and the International Bank for Reconstruction and Development, as set forth in the final act of the United Nations Monetary and Financial conference, held at Bretton Woods, N.H., July 1-22, 1944, follows:

### Articles of Agreement of the International Monetary Fund

The Governments on whose behalf the present Agreement is signed agree as follows:

#### INTRODUCTORY ARTICLE

The International Monetary Fund is established and shall operate in accordance with the following provisions:

#### ARTICLE I

##### PURPOSES

The purposes of the International Monetary Fund are:

- (i) To promote international monetary cooperation through a permanent institution which provides the machinery for consultation and collaboration on international monetary problems.
- (ii) To facilitate the expansion and balanced growth of international trade, and to contribute thereby to the promotion and maintenance of high levels of employment and real income and to the development of the productive resources of all members as primary objectives of economic policy.
- (iii) To promote exchange stability, to maintain orderly exchange arrangements among members, and to avoid competitive exchange depreciation.
- (iv) To assist in the establishment of a multilateral system of payments in respect of current transactions between members and in the elimination of foreign exchange restrictions which hamper the growth of world trade.
- (v) To give confidence to members by making the Fund's resources available to them under adequate safeguards, thus providing them with opportunity to correct maladjustments in their balance of payments without resorting to measures destructive of national or international prosperity.
- (vi) In accordance with the above, to shorten the duration and lessen the degree of disequilibrium in the international balances of payments of members.

The Fund shall be guided in all its decisions by the purposes set forth in this Article.

#### ARTICLE II

##### MEMBERSHIP

#### Section 1. *Original members*

The original members of the Fund shall be those of the countries represented at the United Nations Monetary and Financial Conference whose governments accept membership before the date specified in Article XX, Section 2 (e).

#### Section 2. *Other members*

Membership shall be open to the governments of other countries at such times and in accordance with such terms as may be prescribed by the Fund.

#### ARTICLE III

##### QUOTAS AND SUBSCRIPTIONS

#### Section 1. *Quotas*

Each member shall be assigned a quota. The quotas of the members represented at the United Nations Monetary and Financial Conference which accept membership before the date specified in Article XX, Section 2 (e), shall be those set forth in Schedule A. The quotas of other members shall be determined by the Fund.

#### Section 2. *Adjustment of quotas*

The Fund shall at intervals of five years review, and if it deems it

appropriate propose an adjustment of, the quotas of the members. It may also, if it thinks fit, consider at any other time the adjustment of any particular quota at the request of the member concerned. A four-fifths majority of the total voting power shall be required for any change in quotas and no quota shall be changed without the consent of the member concerned.

#### Section 3. *Subscriptions: time, place, and form of payment*

(a) The subscription of each member shall be equal to its quota and shall be paid in full to the Fund at the appropriate depository on or before the date when the member becomes eligible under Article XX, Section 4 (c) or (d), to buy currencies from the Fund.

(b) Each member shall pay in gold, as a minimum, the smaller of

- (i) twenty-five percent of its quota; or
- (ii) ten percent of its net official holdings of gold and United States dollars as at the date when the Fund notifies members under Article XX, Section 4 (a) that it will shortly be in a position to begin exchange transactions.

Each member shall furnish to the Fund the data necessary to determine its net official holdings of gold and United States dollars.

(c) Each member shall pay the balance of its quota in its own currency.

(d) If the net official holdings of gold and United States dollars of any member as at the date referred to in (b) (ii) above are not ascertainable because its territories have been occupied by the enemy, the Fund shall fix an appropriate alternative date for determining such holdings. If such date is later than that on which the country becomes eligible under Article XX, Section 4 (c) or (d), to buy currencies from the Fund, the Fund and the member shall agree on a provisional gold payment to be made under (b) above, and the balance of the member's subscription shall be paid in the member's currency, subject to appropriate adjustment between the member and the Fund when the net official holdings have been ascertained.

#### Section 4. *Payments when quotas are changed*

(a) Each member which consents to an increase in its quota shall, within thirty days after the date of its consent, pay to the Fund twenty-five percent of the increase in gold and the balance in its own currency. If, however, on the date when the member consents to an increase, its monetary reserves are less than its new quota, the Fund may reduce the proportion of the increase to be paid in gold.

(b) If a member consents to a reduction in its quota, the Fund shall, within thirty days after the date of the consent, pay to the member an amount equal to the reduction. The payment shall be made in the member's currency and in such amount of gold as may be necessary to prevent reducing the Fund's holdings of the currency below seventy-five percent of the new quota.

#### Section 5. *Substitution of securities for currency*

The Fund shall accept from any member in place of any part of the member's currency which in the judgment of the Fund is not needed for its operations, notes or similar obligations issued by the member or the depository designated by the member under Article XIII, Section 2, which shall be non-negotiable, non-interest bearing and payable at their par value on demand by crediting the account of the Fund in the designated depository. This Section shall apply not only to currency subscribed by members but also to any currency otherwise due to, or acquired by, the Fund.

#### ARTICLE IV

##### PAR VALUES OF CURRENCIES

#### Section 1. *Expression of par values*

(a) The par value of the currency of each member shall be expressed in terms of gold as a common denominator or in terms of the United States dollar of the weight and fineness in effect on July 1, 1944.

(b) All computations relating to currencies of members for the purpose of applying the provisions of this Agreement shall be on the basis of their par values.

#### Section 2. *Gold purchases based on par values*

The Fund shall prescribe a margin above and below par value for transactions in gold by members, and no member shall buy gold at a price above par value plus the prescribed margin, or sell gold at a price below par value minus the prescribed margin.

#### Section 3. *Foreign exchange dealings based on parity*

The maximum and the minimum rates for exchange transactions between the currencies of members taking place within their territories shall not differ from parity

- (i) in the case of spot exchange transactions, by more than one percent; and
- (ii) in the case of other exchange transactions, by a margin which exceeds the margin for spot exchange transactions by more than the Fund considers reasonable.

#### Section 4. *Obligations regarding exchange stability*

(a) Each member undertakes to collaborate with the Fund to promote exchange stability, to maintain orderly exchange arrangements with other members, and to avoid competitive exchange alterations.

(b) Each member undertakes, through appropriate measures consistent with this Agreement, to permit within its territories exchange transactions between its currency and the currencies of other members only within the limits prescribed under Section 3 of this Article. A member whose monetary authorities, for the settlement of international transactions, in fact freely buy and sell gold within the limits prescribed by the Fund under Section 2 of this Article shall be deemed to be fulfilling this undertaking.

#### Section 5. *Changes in par values*

(a) A member shall not propose a change in the par value of its currency except to correct a fundamental disequilibrium.

(b) A change in the par value of a member's currency may be made only on the proposal of the member and only after consultation with the Fund.

(c) When a change is proposed, the Fund shall first take into account the changes, if any, which have already taken place in the initial par



value of the member's currency as determined under Article XX, Section 4. If the proposed change, together with all previous changes, whether increases or decreases,

- (i) does not exceed ten percent of the initial par value, the Fund shall raise no objection,
- (ii) does not exceed a further ten percent of the initial par value, the Fund may either concur or object, but shall declare its attitude within seventy-two hours if the member so requests,
- (iii) is not within (i) or (ii) above, the Fund may either concur or object, but shall be entitled to a longer period in which to declare its attitude.

(d) Uniform changes in par values made under Section 7 of this Article shall not be taken into account in determining whether a proposed change falls within (i), (ii), or (iii) of (c) above.

(e) A member may change the par value of its currency without the concurrence of the Fund if the change does not affect the international transactions of members of the Fund.

(f) The Fund shall concur in a proposed change which is within the terms of (c) (ii) or (c) (iii) above if it is satisfied that the change is necessary to correct a fundamental disequilibrium. In particular, provided it is so satisfied, it shall not object to a proposed change because of the domestic social or political policies of the member proposing the change.

#### Section 6. Effect of unauthorized changes

If a member changes the par value of its currency despite the objection of the Fund, in cases where the Fund is entitled to object, the member shall be ineligible to use the resources of the Fund unless the Fund otherwise determines; and if, after the expiration of a reasonable period, the difference between the member and the Fund continues, the matter shall be subject to the provisions of Article XV, Section 2 (b).

#### Section 7. Uniform changes in par values

Notwithstanding the provisions of Section 5 (b) of this Article, the Fund by a majority of the total voting power may make uniform proportionate changes in the par values of the currencies of all members, provided each such change is approved by every member which has ten percent or more of the total of the quotas. The par value of a member's currency shall, however, not be changed under this provision if, within seventy-two hours of the Fund's action, the member informs the Fund that it does not wish the par value of its currency to be changed by such action.

#### Section 8. Maintenance of gold value of the Fund's assets

(a) The gold value of the Fund's assets shall be maintained notwithstanding changes in the par or foreign exchange value of the currency of any member.

(b) Whenever (i) the par value of a member's currency is reduced, or (ii) the foreign exchange value of a member's currency has, in the opinion of the Fund, depreciated to a significant extent within that member's territories, the member shall pay to the Fund within a reasonable time an amount of its own currency equal to the reduction in the gold value of its currency held by the Fund.

(c) Whenever the par value of a member's currency is increased, the Fund shall return to such member within a reasonable time an amount in its currency equal to the increase in the gold value of its currency held by the Fund.

(d) The provisions of this Section shall apply to a uniform proportionate change in the par values of the currencies of all members, unless at the time when such a change is proposed the Fund decides otherwise.

#### Section 9. Separate currencies within a member's territories

A member proposing a change in the par value of its currency shall be deemed, unless it declares otherwise, to be proposing a corresponding change in the par value of the separate currencies of all territories in respect of which it has accepted this Agreement under Article XX, Section 2 (g). It shall, however, be open to a member to declare that its proposal relates either to the metropolitan currency alone, or only to one or more specified separate currencies, or to the metropolitan currency and one or more specified separate currencies.

### ARTICLE V

#### TRANSACTIONS WITH THE FUND

##### Section 1. Agencies dealing with the Fund

Each member shall deal with the Fund only through its Treasury, central bank, stabilization fund or other similar fiscal agency and the Fund shall deal only with or through the same agencies.

##### Section 2. Limitation on the Fund's operations

Except as otherwise provided in this Agreement, operations on the account of the Fund shall be limited to transactions for the purpose of supplying a member, on the initiative of such member, with the currency of another member in exchange for gold or for the currency of the member desiring to make the purchase.

##### Section 3. Conditions governing use of the Fund's resources

(a) A member shall be entitled to buy the currency of another member from the Fund in exchange for its own currency subject to the following conditions:

- (i) The member desiring to purchase the currency represents that it is presently needed for making in that currency payments which are consistent with the provisions of this Agreement;
- (ii) The Fund has not given notice under Article VII, Section 3, that its holdings of the currency desired have become scarce;
- (iii) The proposed purchase would not cause the Fund's holdings of the purchasing member's currency to increase by more than twenty-five percent of its quota during the period of twelve months ending on the date of the purchase nor to exceed two hundred percent of its quota, but the twenty-five percent limitation shall apply only to the extent that the Fund's holdings of the member's currency have been brought above seventy-five percent of its quota if they had been below that amount;
- (iv) The Fund has not previously declared under Section 5 of this Article, Article IV, Section 6, Article VI, Section 1, or Article



U.S. LOAN of about \$4,400,000,000 to Great Britain on Dec. 6, 1945 (subject to approval by Congress), was seen by Werner of the *Chicago Sun*, in the cartoon, "Ice Breaker," as a means of trade expansion between the two nations and a step toward the Bretton Woods goal of ending commercial nationalism

XV, Section 2 (a), that the member desiring to purchase is ineligible to use the resources of the Fund.

(b) A member shall not be entitled without the permission of the Fund to use the Fund's resources to acquire currency to hold against forward exchange transactions.

##### Section 4. Waiver of conditions

The Fund may in its discretion, and on terms which safeguard its interests, waive any of the conditions prescribed in Section 3 (a) of this Article, especially in the case of members with a record of avoiding large or continuous use of the Fund's resources. In making a waiver it shall take into consideration periodic or exceptional requirements of the member requesting the waiver. The Fund shall also take into consideration a member's willingness to pledge as collateral security gold, silver, securities, or other acceptable assets having a value sufficient in the opinion of the Fund to protect its interests and may require as a condition of waiver the pledge of such collateral security.

##### Section 5. Ineligibility to use the Fund's resources

Whenever the Fund is of the opinion that any member is using the resources of the Fund in a manner contrary to the purposes of the Fund, it shall present to the member a report setting forth the views of the Fund and prescribing a suitable time for reply. After presenting such a report to a member, the Fund may limit the use of its resources by the member. If no reply to the report is received from the member within the prescribed time, or if the reply received is unsatisfactory, the Fund may continue to limit the member's use of the Fund's resources or may, after giving reasonable notice to the member, declare it ineligible to use the resources of the Fund.

##### Section 6. Purchases of currencies from the Fund for gold

(a) Any member desiring to obtain, directly or indirectly, the currency of another member for gold shall, provided that it can do so with equal advantage, acquire it by the sale of gold to the Fund.

(b) Nothing in this Section shall be deemed to preclude any member from selling in any market gold newly produced from mines located within its territories.

##### Section 7. Repurchase by a member of its currency held by the Fund

(a) A member may repurchase from the Fund and the Fund shall sell for gold any part of the Fund's holdings of its currency in excess of its quota.

(b) At the end of each financial year of the Fund, a member shall repurchase from the Fund with gold or convertible currencies, as determined in accordance with Schedule B, part of the Fund's holdings of its currency under the following conditions:

- (i) Each member shall use in repurchases of its own currency from the Fund an amount of its monetary reserves equal in value to one-half of any increase that has occurred during the year in the Fund's holdings of its currency plus one-half of any increase, or minus one-half of any decrease, that has occurred during the year in the member's monetary reserves. This rule

ARTICLE VII  
SCARCE CURRENCIES

shall not apply when a member's monetary reserves have decreased during the year by more than the Fund's holdings of its currency have increased.

- (ii) If after the repurchase described in (i) above (if required) has been made, a member's holdings of another member's currency (or of gold acquired from that member) are found to have increased by reason of transactions in terms of that currency with other members or persons in their territories, the member whose holdings of such currency (or gold) have thus increased shall use the increase to repurchase its own currency from the Fund.
- (c) None of the adjustments described in (b) above shall be carried to a point at which
- (i) the member's monetary reserves are below its quota, or
  - (ii) the Fund's holdings of its currency are below seventy-five percent of its quota, or
  - (iii) the Fund's holdings of any currency required to be used are above seventy-five percent of the quota of the member concerned.

Section 8. *Charges*

(a) Any member buying the currency of another member from the Fund in exchange for its own currency shall pay a service charge uniform for all members of three-fourths percent in addition to the parity price. The Fund in its discretion may increase this service charge to not more than one percent or reduce it to not less than one-half percent.

(b) The Fund may levy a reasonable handling charge on any member buying gold from the Fund or selling gold to the Fund.

(c) The Fund shall levy charges uniform for all members which shall be payable by any member on the average daily balances of its currency held by the Fund in excess of its quota. These charges shall be at the following rates:

- (i) *On amounts not more than twenty-five percent in excess of the quota:* no charge for the first three months; one-half percent per annum for the next nine months; and thereafter an increase in the charge of one-half percent for each subsequent year.
- (ii) *On amounts more than twenty-five percent and not more than fifty percent in excess of the quota:* an additional one-half percent for the first year; and an additional one-half percent for each subsequent year.
- (iii) *On each additional bracket of twenty-five percent in excess of the quota:* an additional one-half percent for the first year; and an additional one-half percent for each subsequent year.

(d) Whenever the Fund's holdings of a member's currency are such that the charge applicable to any bracket for any period has reached the rate of four percent per annum, the Fund and the member shall consider means by which the Fund's holdings of the currency can be reduced. Thereafter, the charges shall rise in accordance with the provisions of (c) above until they reach five percent and failing agreement, the Fund may then impose such charges as it deems appropriate.

(e) The rates referred to in (c) and (d) above may be changed by a three-fourths majority of the total voting power.

(f) All charges shall be paid in gold. If, however, the member's monetary reserves are less than one-half of its quota, it shall pay in gold only that proportion of the charges due which such reserves bear to one-half of its quota, and shall pay the balance in its own currency.

ARTICLE VI  
CAPITAL TRANSFERS

Section 1. *Use of the Fund's resources for capital transfers*

(a) A member may not make net use of the Fund's resources to meet a large or sustained outflow of capital, and the Fund may request a member to exercise controls to prevent such use of the resources of the Fund. If, after receiving such a request, a member fails to exercise appropriate controls, the Fund may declare the member ineligible to use the resources of the Fund.

(b) Nothing in this Section shall be deemed

- (i) to prevent the use of the resources of the Fund for capital transactions of reasonable amount required for the expansion of exports or in the ordinary course of trade, banking or other business or
- (ii) to affect capital movements which are met out of a member's own resources of gold and foreign exchange, but members undertake that such capital movements will be in accordance with the purposes of the Fund.

Section 2. *Special provisions for capital transfers*

If the Fund's holdings of the currency of a member have remained below seventy-five percent of its quota for an immediately preceding period of not less than six months, such member, if it has not been declared ineligible to use the resources of the Fund under Section 1 of this Article, Article IV, Section 6, Article V, Section 5, or Article XV; Section 2 (a), shall be entitled, notwithstanding the provisions of Section 1 (a) of this Article, to buy the currency of another member from the Fund with its own currency for any purpose, including capital transfers. Purchases for capital transfers under this Section shall not, however, be permitted if they have the effect of raising the Fund's holdings of the currency of the member desiring to purchase above seventy-five percent of its quota, or of reducing the Fund's holdings of the currency desired below seventy-five percent of the quota of the member whose currency is desired.

Section 3. *Controls of capital transfers*

Members may exercise such controls as are necessary to regulate international capital movements, but no member may exercise these controls in a manner which will restrict payments for current transactions or which will unduly delay transfers of funds in settlement of commitments, except as provided in Article VII, Section 3 (b), and in Article XIV, Section 2.

Section 1. *General scarcity of currency*

If the Fund finds that a general scarcity of a particular currency is developing, the Fund may so inform members and may issue a report setting forth the causes of the scarcity and containing recommendations designed to bring it to an end. A representative of the member whose currency is involved shall participate in the preparation of the report.

Section 2. *Measures to replenish the Fund's holdings of scarce currencies*

The Fund may, if it deems such action appropriate to replenish its holdings of any member's currency, take either or both of the following steps:

- (i) Propose to the member that, on terms and conditions agreed between the Fund and the member, the latter lend its currency to the Fund or that, with the approval of the member, the Fund borrow such currency from some other source either within or outside the territories of the member, but no member shall be under any obligation to make such loans to the Fund or to approve the borrowing of its currency by the Fund from any other source.
- (ii) Require the member to sell its currency to the Fund for gold.

Section 3. *Scarcity of the Fund's holdings*

(a) If it becomes evident to the Fund that the demand for a member's currency seriously threatens the Fund's ability to supply that currency, the Fund, whether or not it has issued a report under Section 1 of this Article, shall formally declare such currency scarce and shall thenceforth apportion its existing and accruing supply of the scarce currency with due regard to the relative needs of members, the general international economic situation and any other pertinent considerations. The Fund shall also issue a report concerning its action.

(b) A formal declaration under (a) above shall operate as an authorization to any member, after consultation with the Fund, temporarily to impose limitations on the freedom of exchange operations in the scarce currency. Subject to the provisions of Article IV, Sections 3 and 4, the member shall have complete jurisdiction in determining the nature of such limitations, but they shall be no more restrictive than is necessary to limit the demand for the scarce currency to the supply held by, or accruing to, the member in question; and they shall be relaxed and removed as rapidly as conditions permit.

(c) The authorization under (b) above shall expire whenever the Fund formally declares the currency in question to be no longer scarce.

Section 4. *Administration of restrictions*

Any member imposing restrictions in respect of the currency of any other member pursuant to the provisions of Section 3 (b) of this Article shall give sympathetic consideration to any representations by the other member regarding the administration of such restrictions.

Section 5. *Effect of other international agreements on restrictions*

Members agree not to invoke the obligations of any engagements entered into with other members prior to this Agreement in such a manner as will prevent the operation of the provisions of this Article.

ARTICLE VIII  
GENERAL OBLIGATIONS OF MEMBERS

Section 1. *Introduction*

In addition to the obligations assumed under other articles of this Agreement, each member undertakes the obligations set out in this Article.

Section 2. *Avoidance of restrictions on current payments*

(a) Subject to the provisions of Article VII, Section 3 (b), and Article XIV, Section 2, no member shall, without the approval of the Fund, impose restrictions on the making of payments and transfers for current international transactions.

(b) Exchange contracts which involve the currency of any member and which are contrary to the exchange control regulations of that member maintained or imposed consistently with this Agreement shall be unenforceable in the territories of any member. In addition, members may, by mutual accord, cooperate in measures for the purpose of making the exchange control regulations of either member more effective, provided that such measures and regulations are consistent with this Agreement.

Section 3. *Avoidance of discriminatory currency practices*

No member shall engage in, or permit any of its fiscal agencies referred to in Article V, Section 1, to engage in, any discriminatory currency arrangements or multiple currency practices except as authorized under this Agreement or approved by the Fund. If such arrangements and practices are engaged in at the date when this Agreement enters into force the member concerned shall consult with the Fund as to their progressive removal unless they are maintained or imposed under Article XIV, Section 2, in which case the provisions of Section 4. of that Article shall apply.

Section 4. *Convertibility of foreign held balances*

(a) Each member shall buy balances of its currency held by another member if the latter, in requesting the purchase, represents

- (i) that the balances to be bought have been recently acquired as a result of current transactions; or
- (ii) that their conversion is needed for making payments for current transactions.

The buying member shall have the option to pay either in the currency of the member making the request or in gold.

(b) The obligation in (a) above shall not apply

- (i) when the convertibility of the balances has been restricted consistently with Section 2 of this Article, or Article VI, Section 3; or
- (ii) when the balances have accumulated as a result of transactions effected before the removal by a member of restrictions main-

- (iii) tained or imposed under Article XIV, Section 2; or
- (iv) when the balances have been acquired contrary to the exchange regulations of the member which is asked to buy them; or
- (v) when the currency of the member requesting the purchase has been declared scarce under Article VII, Section 3 (a); or
- (v) when the member requested to make the purchase is for any reason not entitled to buy currencies of other members from the Fund for its own currency.

## Section 5. *Furnishing of information*

(a) The Fund may require members to furnish it with such information as it deems necessary for its operations, including, as the minimum necessary for the effective discharge of the Fund's duties, national data on the following matters:

- (i) Official holdings at home and abroad, of (1) gold, (2) foreign exchange.
- (ii) Holdings at home and abroad by banking and financial agencies, other than official agencies, of (1) gold, (2) foreign exchange.
- (iii) Production of gold.
- (iv) Gold exports and imports according to countries of destination and origin.
- (v) Total exports and imports of merchandise, in terms of local currency values, according to countries of destination and origin.
- (vi) International balance of payments, including (1) trade in goods and services, (2) gold transactions, (3) known capital transactions, and (4) other items.
- (vii) International investment position, *i. e.*, investments within the territories of the member owned abroad and investments abroad owned by persons in its territories so far as it is possible to furnish this information.
- (viii) National income.
- (ix) Price indices, *i. e.*, indices of commodity prices in wholesale and retail markets and of export and import prices.
- (x) Buying and selling rates for foreign currencies.
- (xi) Exchange controls, *i. e.*, a comprehensive statement of exchange controls in effect at the time of assuming membership in the Fund and details of subsequent changes as they occur.
- (xii) Where official clearing arrangements exist, details of amounts awaiting clearance in respect of commercial and financial transactions, and of the length of time during which such arrears have been outstanding.

(b) In requesting information the Fund shall take into consideration the varying ability of members to furnish the data requested. Members shall be under no obligation to furnish information in such detail that the affairs of individuals or corporations are disclosed. Members undertake, however, to furnish the desired information in as detailed and accurate a manner as is practicable, and, so far as possible, to avoid mere estimates.

(c) The Fund may arrange to obtain further information by agreement with members. It shall act as a centre for the collection and exchange of information on monetary and financial problems, thus facilitating the preparation of studies designed to assist members in developing policies which further the purposes of the Fund.

## Section 6. *Consultation between members regarding existing international agreements*

Where under this Agreement a member is authorized in the special or temporary circumstances specified in the Agreement to maintain or establish restrictions on exchange transactions, and there are other engagements between members entered into prior to this Agreement which conflict with the application of such restrictions, the parties to such engagements will consult with one another with a view to making such mutually acceptable adjustments as may be necessary. The provisions of this Article shall be without prejudice to the operation of Article VII, Section 5.

## ARTICLE IX

### STATUS, IMMUNITIES AND PRIVILEGES

#### Section 1. *Purposes of Article*

To enable the Fund to fulfill the functions with which it is entrusted, the status, immunities and privileges set forth in this Article shall be accorded to the Fund in the territories of each member.

#### Section 2. *Status of the Fund*

The Fund shall possess full juridical personality, and, in particular, the capacity:

- (i) to contract;
- (ii) to acquire and dispose of immovable and movable property;
- (iii) to institute legal proceedings.

#### Section 3. *Immunity from judicial process*

The Fund, its property and its assets, wherever located and by whomsoever held, shall enjoy immunity from every form of judicial process except to the extent that it expressly waives its immunity for the purpose of any proceedings or by the terms of any contract.

#### Section 4. *Immunity from other action*

Property and assets of the Fund, wherever located and by whomsoever held, shall be immune from search, requisition, confiscation, expropriation or any other form of seizure by executive or legislative action.

#### Section 5. *Immunity of archives*

The archives of the Fund shall be inviolable.

#### Section 6. *Freedom of assets from restrictions*

To the extent necessary to carry out the operations provided for in this Agreement, all property and assets of the Fund shall be free from restrictions, regulations, controls and moratoria of any nature.

#### Section 7. *Privilege for communications*

The official communications of the Fund shall be accorded by members the same treatment as the official communications of other members.

#### Section 8. *Immunities and privileges of officers and employees*

All governors, executive directors, alternates, officers and employees of the Fund

- (i) shall be immune from legal process with respect to acts performed by them in their official capacity except when the Fund waives this immunity.
- (ii) not being local nationals, shall be granted the same immunities from immigration restrictions, alien registration requirements and national service obligations and the same facilities as regards exchange restrictions as are accorded by members to the representatives, officials, and employees of comparable rank of other members.
- (iii) shall be granted the same treatment in respect of travelling facilities as is accorded by members to representatives, officials and employees of comparable rank of other members.

## Section 9. *Immunities from taxation*

(a) The Fund, its assets, property, income and its operations and transactions authorized by this Agreement, shall be immune from all taxation and from all customs duties. The Fund shall also be immune from liability for the collection or payment of any tax or duty.

(b) No tax shall be levied on or in respect of salaries and emoluments paid by the Fund to executive directors, alternates, officers or employees of the Fund who are not local citizens, local subjects, or other local nationals.

(c) No taxation of any kind shall be levied on any obligation or security issued by the Fund, including any dividend or interest thereon, by whomsoever held

- (i) which discriminates against such obligation or security solely because of its origin; or
- (ii) if the sole jurisdictional basis for such taxation is the place or currency in which it is issued, made payable or paid, or the location of any office or place of business maintained by the Fund.

## Section 10. *Application of Article*

Each member shall take such action as is necessary in its own territories for the purpose of making effective in terms of its own law the principles set forth in this Article and shall inform the Fund of the detailed action which it has taken.

## ARTICLE X

### RELATIONS WITH OTHER INTERNATIONAL ORGANIZATIONS

The Fund shall cooperate within the terms of this Agreement with any general international organization and with public international organizations having specialized responsibilities in related fields. Any arrangements for such cooperation which would involve a modification of any provision of this Agreement may be effected only after amendment to this Agreement under Article XVII.

## ARTICLE XI

### RELATIONS WITH NON-MEMBER COUNTRIES

#### Section 1. *Undertakings regarding relations with non-member countries*

Each member undertakes:

- (i) Not to engage in, nor to permit any of its fiscal agencies referred to in Article V, Section 1, to engage in, any transactions with a non-member or with persons in a non-member's territories which would be contrary to the provisions of this Agreement or the purposes of the Fund;
- (ii) Not to cooperate with a non-member or with persons in a non-member's territories in practices which would be contrary to the provisions of this Agreement or the purposes of the Fund; and
- (iii) To cooperate with the Fund with a view to the application in its territories of appropriate measures to prevent transactions with non-members or with persons in their territories which would be contrary to the provisions of this Agreement or the purposes of the Fund.

#### Section 2. *Restrictions on transactions with non-member countries*

Nothing in this Agreement shall affect the right of any member to impose restrictions on exchange transactions with non-members or with persons in their territories unless the Fund finds that such restrictions prejudice the interests of members and are contrary to the purposes of the Fund.

## ARTICLE XII

### ORGANIZATION AND MANAGEMENT

#### Section 1. *Structure of the Fund*

The Fund shall have a Board of Governors, Executive Directors, a Managing Director and a staff.

#### Section 2. *Board of Governors*

(a) All powers of the Fund shall be vested in the Board of Governors, consisting of one governor and one alternate appointed by each member in such manner as it may determine. Each governor and each alternate shall serve for five years, subject to the pleasure of the member appointing him, and may be reappointed. No alternate may vote except in the absence of his principal. The Board shall select one of the governors as chairman.

(b) The Board of Governors may delegate to the Executive Directors authority to exercise any powers of the Board, except the power to:

- (i) Admit new members and determine the conditions of their admission.
- (ii) Approve a revision of quotas.
- (iii) Approve a uniform change in the par value of the currencies of all members.
- (iv) Make arrangements to cooperate with other international organizations (other than informal arrangements of a temporary or administrative character).
- (v) Determine the distribution of the net income of the Fund.
- (vi) Require a member to withdraw.



- (vii) Decide to liquidate the Fund.
- (viii) Decide appeals from interpretations of this Agreement given by the Executive directors.

(c) The Board of Governors shall hold an annual meeting and such other meetings as may be provided for by the Board or called by the Executive Directors. Meetings of the Board shall be called by the Directors whenever requested by five members or by members having one quarter of the total voting power.

(d) A quorum for any meeting of the Board of Governors shall be a majority of the governors exercising not less than two-thirds of the total voting power.

(e) Each governor shall be entitled to cast the number of votes allotted under Section 5 of this Article to the member appointing him.

(f) The Board of Governors may by regulation establish a procedure whereby the Executive Directors, when they deem such action to be in the best interests of the Fund, may obtain a vote of the governors on a specific question without calling a meeting of the Board.

(g) The Board of Governors, and the Executive Directors to the extent authorized, may adopt such rules and regulations as may be necessary or appropriate to conduct the business of the Fund.

(h) Governors and alternates shall serve as such without compensation from the Fund, but the Fund shall pay them reasonable expenses incurred in attending meetings.

(i) The Board of Governors shall determine the remuneration to be paid to the Executive Directors and the salary and terms of the contract of service of the Managing Director.

### Section 3. Executive Directors

(a) The Executive Directors shall be responsible for the conduct of the general operations of the Fund, and for this purpose shall exercise all the powers delegated to them by the Board of Governors.

(b) There shall be not less than twelve directors who need not be governors, and of whom

- (i) Five shall be appointed by the five members having the largest quotas;
- (ii) Not more than two shall be appointed when the provisions of (c) below apply;
- (iii) Five shall be elected by the members not entitled to appoint directors, other than the American Republics; and
- (iv) Two shall be elected by the American Republics not entitled to appoint directors.

For the purposes of this paragraph, members means governments of countries whose names are set forth in Schedule A, whether they become members in accordance with Article XX or in accordance with Article II, Section 2. When governments of other countries become members, the Board of Governors may, by a four-fifths majority of the total voting power, increase the number of directors to be elected.

(c) If, at the second regular election of directors and thereafter, the members entitled to appoint directors under (b) (i) above do not include the two members, the holdings of whose currencies by the Fund have been, on the average over the preceding two years, reduced below their quotas by the largest absolute amounts in terms of gold as a common denominator, either one or both of such members, as the case may be, shall be entitled to appoint a director.

(d) Subject to Article XX, Section (3) (b) elections of elective directors shall be conducted at intervals of two years in accordance with the provisions of Schedule C, supplemented by such regulations as the Fund deems appropriate. Whenever the Board of Governors increases the number of directors to be elected under (b) above, it shall issue regulations making appropriate changes in the proportion of votes required to elect directors under the provisions of Schedule C.

(e) Each director shall appoint an alternate with full power to act for him when he is not present. When the directors appointing them are present, alternates may participate in meetings but may not vote.

(f) Directors shall continue in office until their successors are appointed or elected. If the office of an elected director becomes vacant more than ninety days before the end of his term, another director shall be elected for the remainder of the term by the members who elected the former director. A majority of the votes cast shall be required for election. While the office remains vacant, the alternate of the former director shall exercise his powers, except that of appointing an alternate.

(g) The Executive Directors shall function in continuous session at the principal office of the Fund and shall meet as often as the business of the Fund may require.

(h) A quorum for any meeting of the Executive Directors shall be a majority of the directors representing not less than one-half of the voting power.

(i) Each appointed director shall be entitled to cast the number of votes allotted under Section 5 of this Article to the member appointing him. Each elected director shall be entitled to cast the number of votes which counted towards his election. When the provisions of Section 5 (b) of this Article are applicable, the votes which a director would otherwise be entitled to cast shall be increased or decreased correspondingly. All the votes which a director is entitled to cast shall be cast as a unit.

(j) The Board of Governors shall adopt regulations under which a member not entitled to appoint a director under (b) above may send a representative to attend any meeting of the Executive Directors when a request made by, or a matter particularly affecting, that member is under consideration.

(k) The Executive Directors may appoint such committees as they deem advisable. Membership of committees need not be limited to governors or directors or their alternates.

### Section 4. Managing Director and staff

(a) The Executive Directors shall select a Managing Director who shall not be a governor or an executive director. The Managing Director shall be chairman of the Executive Directors, but shall have no vote except a deciding vote in case of an equal division. He may participate in meetings of the Board of Governors, but shall not vote at such meetings. The Managing Director shall cease to hold office when the Executive Directors so decide.

(b) The Managing Director shall be chief of the operating staff of the Fund and shall conduct, under the direction of the Executive Directors, the ordinary business of the Fund. Subject to the general control of the Executive Directors, he shall be responsible for the organization, appointment and dismissal of the staff of the Fund.

(c) The Managing Director and the staff of the Fund, in the discharge of their functions, shall owe their duty entirely to the Fund and to no other authority. Each member of the Fund shall respect the international character of this duty and shall refrain from all attempts to influence any of the staff in the discharge of his functions.

(d) In appointing the staff the Managing Director shall, subject to the paramount importance of securing the highest standards of efficiency and of technical competence, pay due regard to the importance of recruiting personnel on as wide a geographical basis as possible.

### Section 5. Voting

(a) Each member shall have two hundred fifty votes plus one additional vote for each part of its quota equivalent to one hundred thousand United States dollars.

(b) Whenever voting is required under Article V, Section 4 or 5, each member shall have the number of votes to which it is entitled under (a) above, adjusted:

- (i) by the addition of one vote for the equivalent of each four hundred thousand United States dollars of net sales of its currency up to the date when the vote is taken, or
- (ii) by the subtraction of one vote for the equivalent of each four hundred thousand United States dollars of its net purchases of the currencies of other members up to the date when the vote is taken

provided, that neither net purchases nor net sales shall be deemed at any time to exceed an amount equal to the quota of the member involved.

(c) For the purpose of all computations under this Section, United States dollars shall be deemed to be of the weight and fineness in effect on July 1, 1944, adjusted for any uniform change under Article IV, Section 7, if a waiver is made under Section 8 (d) of that Article.

(d) Except as otherwise specifically provided, all decisions of the Fund shall be made by a majority of the votes cast.

### Section 6. Distribution of net income

(a) The Board of Governors shall determine annually what part of the Fund's net income shall be placed to reserve and what part, if any, shall be distributed.

(b) If any distribution is made, there shall first be distributed a two percent non-cumulative payment to each member on the amount by which seventy-five percent of its quota exceeded the Fund's average holdings of its currency during that year. The balance shall be paid to all members in proportion to their quotas. Payments to each member shall be made in its own currency.

### Section 7. Publication of reports

(a) The Fund shall publish an annual report containing an audited statement of its accounts, and shall issue, at intervals of three months or less, a summary statement of its transactions and its holdings of gold and currencies of members.

(b) The Fund may publish such other reports as it deems desirable for carrying out its purposes.

### Section 8. Communication of views to members

The Fund shall at all times have the right to communicate its views informally to any member on any matter arising under this Agreement. The Fund may, by a two-thirds majority of the total voting power, decide to publish a report made to a member regarding its monetary or economic conditions and developments which directly tend to produce a serious disequilibrium in the international balance of payments of members. If the member is not entitled to appoint an executive director, it shall be entitled to representation in accordance with Section 3 (j) of this Article. The Fund shall not publish a report involving changes in the fundamental structure of the economic organization of members.

## ARTICLE XIII

### OFFICES AND DEPOSITORIES

#### Section 1. Location of offices

The principal office of the Fund shall be located in the territory of the member having the largest quota, and agencies or branch offices may be established in the territories of other members.

#### Section 2. Depositories

(a) Each member country shall designate its central bank as a depository for all the Fund's holdings of its currency, or if it has no central bank it shall designate such other institution as may be acceptable to the Fund.

(b) The Fund may hold other assets, including gold, in the depositories designated by the five members having the largest quotas and in such other designated depositories as the Fund may select. Initially, at least one-half of the holdings of the Fund shall be held in the depository designated by the member in whose territories the Fund has its principal office and at least forty percent shall be held in the depositories designated by the remaining four members referred to above. However, all transfers of gold by the Fund shall be made with due regard to the costs of transport and anticipated requirements of the Fund. In an emergency the Executive Directors may transfer all or any part of the Fund's gold holdings to any place where they can be adequately protected.

#### Section 3. Guarantee of the Fund's assets

Each member guarantees all assets of the Fund against loss resulting from failure or default on the part of the depository designated by it.

## ARTICLE XIV

### TRANSITIONAL PERIOD

#### Section 1. Introduction

The Fund is not intended to provide facilities for relief or reconstruction or to deal with international indebtedness arising out of the war.

## Section 2. *Exchange restrictions*

In the post-war transitional period members may, notwithstanding the provisions of any other articles of this Agreement, maintain and adapt to changing circumstances (and, in the case of members whose territories have been occupied by the enemy, introduce where necessary) restrictions on payments and transfers for current international transactions. Members shall, however, have continuous regard in their foreign exchange policies to the purposes of the Fund; and, as soon as conditions permit, they shall take all possible measures to develop such commercial and financial arrangements with other members as will facilitate international payments and the maintenance of exchange stability. In particular, members shall withdraw restrictions maintained or imposed under this Section as soon as they are satisfied that they will be able, in the absence of such restrictions, to settle their balance of payments in a manner which will not unduly encumber their access to the resources of the Fund.

## Section 3. *Notification to the Fund*

Each member shall notify the Fund before it becomes eligible under Article XX, Section 4 (c) or (d), to buy currency from the Fund, whether it intends to avail itself of the transitional arrangements in Section 2 of this Article, or whether it is prepared to accept the obligations of Article VIII, Sections 2, 3, and 4. A member availing itself of the transitional arrangements shall notify the Fund as soon thereafter as it is prepared to accept the above-mentioned obligations.

## Section 4. *Action of the Fund relating to restrictions*

Not later than three years after the date on which the Fund begins operations and in each year thereafter, the Fund shall report on the restrictions still in force under Section 2 of this Article. Five years after the date on which the Fund begins operations, and in each year thereafter, any member still retaining any restrictions inconsistent with Article VIII, Sections 2, 3, or 4, shall consult the Fund as to their further retention. The Fund may, if it deems such action necessary in exceptional circumstances, make representations to any member that conditions are favorable for the withdrawal of any particular restriction, or for the general abandonment of restrictions, inconsistent with the provisions of any other articles of this Agreement. The member shall be given a suitable time to reply to such representations. If the Fund finds that the member persists in maintaining restrictions which are inconsistent with the purposes of the Fund, the member shall be subject to Article XV, Section 2 (a).

## Section 5. *Nature of transitional period*

In its relations with members, the Fund shall recognize that the post-war transitional period will be one of change and adjustment and in making decisions on requests occasioned thereby which are presented by any member it shall give the member the benefit of any reasonable doubt.

## ARTICLE XV

### WITHDRAWAL FROM MEMBERSHIP

#### Section 1. *Right of members to withdraw*

Any member may withdraw from the Fund at any time by transmitting a notice in writing to the Fund at its principal office. Withdrawal shall become effective on the date such notice is received.

#### Section 2. *Compulsory withdrawal*

(a) If a member fails to fulfill any of its obligations under this Agreement, the Fund may declare the member ineligible to use the resources of the Fund. Nothing in this Section shall be deemed to limit the provisions of Article IV, Section 6, Article V, Section 5, or Article VI, Section 1.

(b) If, after the expiration of a reasonable period the member persists in its failure to fulfill any of its obligations under this Agreement, or a difference between a member and the Fund under Article IV, Section 6, continues, that member may be required to withdraw from membership in the Fund by a decision of the Board of Governors carried by a majority of the governors representing a majority of the total voting power.

(c) Regulations shall be adopted to ensure that before action is taken against any member under (a) or (b) above, the member shall be informed in reasonable time of the complaint against it and given an adequate opportunity for stating its case, both orally and in writing.

#### Section 3. *Settlement of accounts with members withdrawing*

When a member withdraws from the Fund, normal transactions of the Fund in its currency shall cease and settlement of all accounts between it and the Fund shall be made with reasonable despatch by agreement between it and the Fund. If agreement is not reached promptly, the provisions of Schedule D shall apply to the settlement of accounts.

## ARTICLE XVI

### EMERGENCY PROVISIONS

#### Section 1. *Temporary suspension*

(a) In the event of an emergency or the development of unforeseen circumstances threatening the operations of the Fund, the Executive Directors by unanimous vote may suspend for a period of not more than one hundred twenty days the operation of any of the following provisions:

- (i) Article IV, Sections 3 and 4 (b)
- (ii) Article V, Sections 2, 3, 7, 8 (a) and (f)
- (iii) Article VI, Section 2
- (iv) Article XI, Section 1

(b) Simultaneously with any decision to suspend the operation of any of the foregoing provisions, the Executive Directors shall call a meeting of the Board of Governors for the earliest practicable date.

(c) The Executive Directors may not extend any suspension beyond one hundred twenty days. Such suspension may be extended, however, for an additional period of not more than two hundred forty days, if the Board of Governors by a four-fifths majority of the total voting power so decides, but it may not be further extended except by amendment of this Agreement pursuant to Article XVII.

(d) The Executive Directors may, by a majority of the total voting power, terminate such suspension at any time.

#### Section 2. *Liquidation of the Fund*

(a) The Fund may not be liquidated except by decision of the Board of Governors. In an emergency, if the Executive Directors decide that liquidation of the Fund may be necessary, they may temporarily suspend

all transactions, pending decision by the Board.

(b) If the Board of Governors decides to liquidate the Fund, the Fund shall forthwith cease to engage in any activities except those incidental to the orderly collection and liquidation of its assets and the settlement of its liabilities, and all obligations of members under this Agreement shall cease except those set out in this Article, in Article XVIII, paragraph (c), in Schedule D, paragraph 7, and in Schedule E.

(c) Liquidation shall be administered in accordance with the provisions of Schedule E.

## ARTICLE XVII

### AMENDMENTS

(a) Any proposal to introduce modifications in this Agreement, whether emanating from a member, a governor or the Executive Directors, shall be communicated to the chairman of the Board of Governors who shall bring the proposal before the Board. If the proposed amendment is approved by the Board the Fund shall, by circular letter or telegram, ask all members whether they accept the proposed amendment. When three-fifths of the members, having four-fifths of the total voting power, have accepted the proposed amendment, the Fund shall certify the fact by a formal communication addressed to all members.

(b) Notwithstanding (a) above, acceptance by all members is required in the case of any amendment modifying

- (i) the right to withdraw from the Fund (Article XV, Section 1);
- (ii) the provision that no change in a member's quota shall be made without its consent (Article III, Section 2);
- (iii) the provision that no change may be made in the par value of a member's currency except on the proposal of that member (Article IV, Section 5 (b)).

(c) Amendments shall enter into force for all members three months after the date of the formal communication unless a shorter period is specified in the circular letter or telegram.

## ARTICLE XVIII

### INTERPRETATION

(a) Any question of interpretation of the provisions of this Agreement arising between any member and the Fund or between any members of the Fund shall be submitted to the Executive Directors for their decision. If the question particularly affects any member not entitled to appoint an executive director it shall be entitled to representation in accordance with Article XII, Section 3 (j).

(b) In any case where the Executive Directors have given a decision under (a) above, any member may require that the question be referred to the Board of Governors, whose decision shall be final. Pending the result of the reference to the Board the Fund may, so far as it deems necessary, act on the basis of the decision of the Executive Directors.

(c) Whenever a disagreement arises between the Fund and a member which has withdrawn, or between the Fund and any member during liquidation of the Fund, such disagreement shall be submitted to arbitration by a tribunal of three arbitrators, one appointed by the Fund, another by the member or withdrawing member and an umpire who, unless the parties otherwise agree, shall be appointed by the President of the Permanent Court of International Justice or such other authority as may have been prescribed by regulation adopted by the Fund. The umpire shall have full power to settle all questions of procedure in any case where the parties are in disagreement with respect thereto.

## ARTICLE XIX

### EXPLANATION OF TERMS

In interpreting the provisions of this Agreement the Fund and its members shall be guided by the following:

(a) A member's monetary reserves means its net official holdings of gold, of convertible currencies of other members, and of the currencies of such non-members as the Fund may specify.

(b) The official holdings of a member means central holdings (that is, the holdings of its Treasury, central bank, stabilization fund, or similar fiscal agency).

(c) The holdings of other official institutions or other banks within its territories may, in any particular case, be deemed by the Fund, after consultation with the member, to be official holdings to the extent that they are substantially in excess of working balances; provided that for the purpose of determining whether, in a particular case, holdings are in excess of working balances, there shall be deducted from such holdings amounts of currency due to official institutions and banks in the territories of members or non-members specified under (d) below.

(d) A member's holdings of convertible currencies means its holdings of the currencies of other members which are not availing themselves of the transitional arrangements under Article XIV, Section 2, together with its holdings of the currencies of such non-members as the Fund may from time to time specify. The term currency for this purpose includes without limitation coins, paper money, bank balances, bank acceptances, and government obligations issued with a maturity not exceeding twelve months.

(e) A member's monetary reserves shall be calculated by deducting from its central holdings the currency liabilities to the Treasuries, central banks, stabilization funds, or similar fiscal agencies of other members or non-members specified under (d) above, together with similar liabilities to other official institutions and other banks in the territories of members, or non-members specified under (d) above. To these net holdings shall be added the sums deemed to be official holdings of other official institutions and other banks under (c) above.

(f) The Fund's holdings of the currency of a member shall include any securities accepted by the Fund under Article III, Section 5.

(g) The Fund, after consultation with a member which is availing itself of the transitional arrangements under Article XIV, Section 2, may deem holdings of the currency of that member which carry specified rights of conversion into another currency or into gold to be holdings of convertible currency for the purpose of the calculation of monetary reserves.

(h) For the purpose of calculating gold subscriptions under Article III, Section 3, a member's net official holdings of gold and United States

dollars shall consist of its official holdings of gold and United States currency after deducting central holdings of its currency by other countries and holdings of its currency by other official institutions and other banks if these holdings carry specified rights of conversion into gold or United States currency.

(i) Payments for current transactions means payments which are not for the purpose of transferring capital, and includes, without limitation:

- (1) All payments due in connection with foreign trade, other current business, including services, and normal short-term banking and credit facilities;
- (2) Payments due as interest on loans and as net income from other investments;
- (3) Payments of moderate amount for amortization of loans or for depreciation of direct investments;
- (4) Moderate remittances for family living expenses.

The Fund may, after consultation with the members concerned, determine whether certain specific transactions are to be considered current transactions or capital transactions.

#### ARTICLE XX

#### FINAL PROVISIONS

##### Section 1. Entry into force

This Agreement shall enter into force when it has been signed on behalf of governments having sixty-five percent of the total of the quotas set forth in Schedule A and when the instruments referred to in Section 2 (a) of this Article have been deposited on their behalf, but in no event shall this Agreement enter into force before May 1, 1945.

##### Section 2. Signature

(a) Each government on whose behalf this Agreement is signed shall deposit with the Government of the United States of America an instrument setting forth that it has accepted this Agreement in accordance with its law and has taken all steps necessary to enable it to carry out all of its obligations under this Agreement.

(b) Each government shall become a member of the Fund as from the date of the deposit on its behalf of the instrument referred to in (a) above, except that no government shall become a member before this Agreement enters into force under Section 1 of this Article.

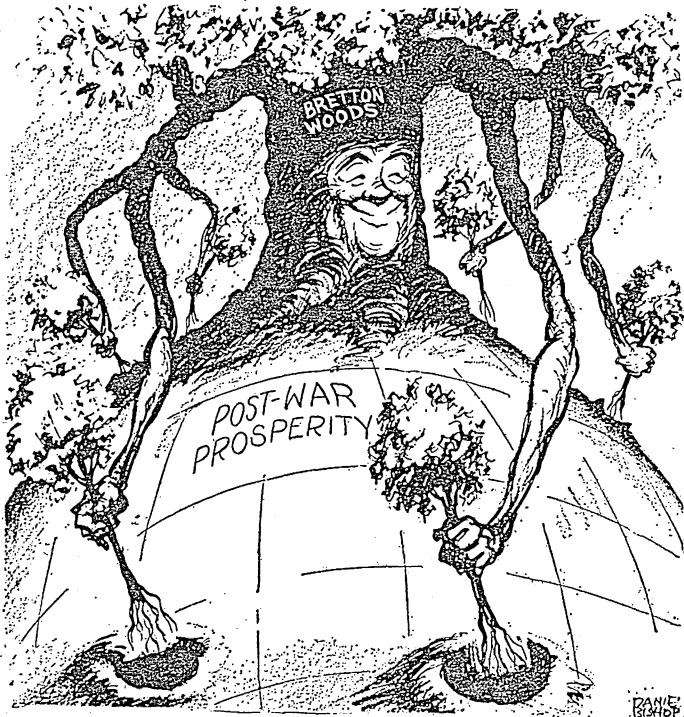
(c) The Government of the United States of America shall inform the governments of all countries whose names are set forth in Schedule A, and all governments whose membership is approved in accordance with Article II, Section 2, of all signatures of this Agreement and of the deposit of all instruments referred to in (a) above.

(d) At the time this Agreement is signed on its behalf, each government shall transmit to the Government of the United States of America one one-hundredth of one percent of its total subscription in gold or United States dollars for the purpose of meeting administrative expenses of the Fund. The Government of the United States of America shall hold such funds in a special deposit account and shall transmit them to the Board of Governors of the Fund when the initial meeting has been called under Section 3 of this Article. If this Agreement has not come into force by December 31, 1945, the Government of the United States of America shall return such funds to the governments that transmitted them.

(e) This Agreement shall remain open for signature at Washington on behalf of the governments of the countries whose names are set forth in Schedule A until December 31, 1945.

(f) After December 31, 1945, this Agreement shall be open for signature on behalf of the government of any country whose membership has been approved in accordance with Article II, Section 2.

"REPLANTING WORLD TRADE." Bishop in the *St. Louis Star Times* comments on the merits of the Bretton Woods arrangements, which congress accepted in a bill approved on July 20, 1945



(g) By their signature of this Agreement, all governments accept it both on their own behalf and in respect of all their colonies, overseas territories, all territories under their protection, suzerainty, or authority and all territories in respect of which they exercise a mandate.

(h) In the case of governments whose metropolitan territories have been under enemy occupation, the deposit of the instrument referred to in (a) above may be delayed until one hundred eighty days after the date on which these territories have been liberated. If, however, it is not deposited by any such government before the expiration of this period the signature affixed on behalf of that government shall become void and the portion of its subscription paid under (d) above shall be returned to it.

(i) Paragraphs (d) and (h) shall come into force with regard to each signatory government as from the date of its signature.

##### Section 3. Inauguration of the Fund

(a) As soon as this Agreement enters into force under Section 1 of this Article, each member shall appoint a governor and the member having the largest quota shall call the first meeting of the Board of Governors.

(b) At the first meeting of the Board of Governors, arrangements shall be made for the selection of provisional executive directors. The governments of the five countries for which the largest quotas are set forth in Schedule A shall appoint provisional executive directors. If one or more of such governments have not become members, the executive directorships they would be entitled to fill shall remain vacant until they become members, or until January 1, 1946, whichever is the earlier. Seven provisional executive directors shall be elected in accordance with the provisions of Schedule C and shall remain in office until the date of the first regular election of executive directors which shall be held as soon as practicable after January 1, 1946.

(c) The Board of Governors may delegate to the provisional executive directors any powers except those which may not be delegated to the Executive Directors.

##### Section 4. Initial determination of par values

(a) When the Fund is of the opinion that it will shortly be in a position to begin exchange transactions, it shall so notify the members and shall request each member to communicate within thirty days the par value of its currency based on the rates of exchange prevailing on the sixtieth day before the entry into force of this Agreement. No member whose metropolitan territory has been occupied by the enemy shall be required to make such a communication while that territory is a theater of major hostilities or for such period thereafter as the Fund may determine. When such a member communicates the par value of its currency the provisions of (d) below shall apply.

(b) The par value communicated by a member whose metropolitan territory has not been occupied by the enemy shall be the par value of that member's currency for the purposes of this Agreement unless, within ninety days after the request referred to in (a) above has been received, (i) the member notifies the Fund that it regards the par value as unsatisfactory, or (ii) the Fund notifies the member that in its opinion the par value cannot be maintained without causing recourse to the Fund on the part of that member or others on a scale prejudicial to the Fund and to members. When notification is given under (i) or (ii) above, the Fund and the member shall, within a period determined by the Fund in the light of all relevant circumstances, agree upon a suitable par value for that currency. If the Fund and the member do not agree within the period so determined, the member shall be deemed to have withdrawn from the Fund on the date when the period expires.

(c) When the par value of a member's currency has been established under (b) above, either by the expiration of ninety days without notification, or by agreement after notification, the member shall be eligible to buy from the Fund the currencies of other members to the full extent permitted in this Agreement, provided that the Fund has begun exchange transactions.

(d) In the case of a member whose metropolitan territory has been occupied by the enemy, the provisions of (b) above shall apply, subject to the following modifications:

(i) The period of ninety days shall be extended so as to end on a date to be fixed by agreement between the Fund and the member.

(ii) Within the extended period the member may, if the Fund has begun exchange transactions, buy from the Fund with its currency the currencies of other members, but only under such conditions and in such amounts as may be prescribed by the Fund.

(iii) At any time before the date fixed under (i) above, changes may be made by agreement with the Fund in the par value communicated under (a) above.

(e) If a member whose metropolitan territory has been occupied by the enemy adopts a new monetary unit before the date to be fixed under (d) (i) above, the par value fixed by that member for the new unit shall be communicated to the Fund and the provisions of (d) above shall apply.

(f) Changes in par values agreed with the Fund under this Section shall not be taken into account in determining whether a proposed change falls within (i), (ii), or (iii) of Article IV, Section 5 (c).

(g) A member communicating to the Fund a par value for the currency of its metropolitan territory shall simultaneously communicate a value, in terms of that currency, for each separate currency, where such exists, in the territories in respect of which it has accepted this Agreement under Section 2 (g) of this Article, but no member shall be required to make a communication for the separate currency of a territory which has been occupied by the enemy while that territory is a theater of major hostilities or for such period thereafter as the Fund may determine. On the basis of the par value so communicated, the Fund shall compute the par value of each separate currency. A communication or notification to the Fund under (a), (b) or (d) above regarding the par value of a currency, shall also be deemed, unless the contrary is stated, to be a communication or notification regarding the par value of all the separate currencies referred to above. Any member may, however, make a communication or notification relating to the metropolitan or any of the separate currencies alone. If the member does so, the provisions of the preceding paragraphs (including (d) above, if a territory where a sepa-



rate currency exists has been occupied by the enemy) shall apply to each of these currencies separately.

(h) The Fund shall begin exchange transactions at such date as it may determine after members having sixty-five percent of the total of the quotas set forth in Schedule A have become eligible, in accordance with the preceding paragraphs of this Section, to purchase the currencies of other members, but in no event until after major hostilities in Europe have ceased.

(i) The Fund may postpone exchange transactions with any member if its circumstances are such that, in the opinion of the Fund, they would lead to use of the resources of the Fund in a manner contrary to the purposes of this Agreement or prejudicial to the Fund or the members.

(j) The par values of the currencies of governments which indicate their desire to become members after December 31, 1945, shall be determined in accordance with the provisions of Article II, Section 2.

DONE at Washington, in a single copy which shall remain deposited in the archives of the Government of the United States of America, which shall transmit certified copies to all governments whose names are set forth in Schedule A and to all governments whose membership is approved in accordance with Article II, Section 2.

## SCHEDULE A

### QUOTAS

(In millions of United States dollars)		(In millions of United States dollars)	
Australia	200	Iran	25
Belgium	225	Iraq	8
Bolivia	10	Liberia	.5
Brazil	150	Luxembourg	10
Canada	300	Mexico	90
Chile	50	Netherlands	275
China	550	New Zealand	50
Colombia	50	Nicaragua	2
Costa Rica	5	Norway	50
Cuba	50	Panama	.5
Czechoslovakia	125	Paraguay	2
Denmark*	*	Peru	25
Dominican Republic	5	Philippine Commonwealth	15
Ecuador	5	Poland	125
Egypt	45	Union of South Africa	100
El Salvador	2.5	Union of Soviet Socialist Republics	1200
Ethiopia	6	United Kingdom	1300
France	450	United States	2750
Greece	40	Uruguay	15
Guatemala	5	Venezuela	15
Haiti	5	Yugoslavia	60
Honduras	2.5		
Iceland	1		
India	400		

\*The quota of Denmark shall be determined by the Fund after the Danish Government has declared its readiness to sign this Agreement but before signature takes place.

## SCHEDULE B

### PROVISIONS WITH RESPECT TO REPURCHASE BY A MEMBER OF ITS CURRENCY HELD BY THE FUND

1. In determining the extent to which repurchase of a member's currency from the Fund under Article V, Section 7 (b) shall be made with each type of monetary reserve, that is, with gold and with each convertible currency, the following rule, subject to 2 below, shall apply:

- If the member's monetary reserves have not increased during the year, the amount payable to the Fund shall be distributed among all types of reserves in proportion to the member's holdings thereof at the end of the year.
- If the member's monetary reserves have increased during the year, a part of the amount payable to the Fund equal to one-half of the increase shall be distributed among those types of reserves which have increased in proportion to the amount by which each of them has increased. The remainder of the sum payable to the Fund shall be distributed among all types of reserves in proportion to the member's remaining holdings thereof.
- If after all the repurchases required under Article V, Section 7 (b), had been made, the result would exceed any of the limits specified in Article V, Section 7 (c), the Fund shall require such repurchases to be made by the members proportionately in such manner that the limits will not be exceeded.

2. The Fund shall not acquire the currency of any non-member under Article V, Section 7 (b) and (c).

3. In calculating monetary reserves and the increase in monetary reserves during any year for the purpose of Article V, Section 7 (b) and (c), no account shall be taken, unless deductions have otherwise been made by the member for such holdings, of any increase in those monetary reserves which is due to currency previously inconvertible having become convertible during the year; or to holdings which are the proceeds of a long-term or medium-term loan contracted during the year; or to holdings which have been transferred or set aside for repayment of a loan during the subsequent year.

4. In the case of members whose metropolitan territories have been occupied by the enemy, gold newly produced during the five years after the entry into force of this Agreement from mines located within their metropolitan territories shall not be included in computations of their monetary reserves or of increases in their monetary reserves.

## SCHEDULE C

### ELECTION OF EXECUTIVE DIRECTORS

1. The election of the elective executive directors shall be by ballot of the governors eligible to vote under Article XII, Section 3 (b) (iii) and (iv).

2. In balloting for the five directors to be elected under Article XII, Section 3 (b) (iii), each of the governors eligible to vote shall cast for one person all of the votes to which he is entitled under Article XII, Section 5 (a). The five persons receiving the greatest number of votes shall be directors, provided that no person who received less than nineteen percent of the total number of votes that can be cast (eligible votes) shall be considered elected.

3. When five persons are not elected in the first ballot, a second ballot shall be held in which the person who received the lowest number of votes shall be ineligible for election and in which there shall vote only (a) those governors who voted in the first ballot for a person not elected, and (b) those governors whose votes for a person elected are deemed under 4 below to have raised the votes cast for that person above twenty percent of the eligible votes.

4. In determining whether the votes cast by a governor are to be deemed to have raised the total of any person above twenty percent of the eligible votes the twenty percent shall be deemed to include, first, the votes of the governor casting the largest number of votes for such person, then the votes of the governor casting the next largest number, and so on until twenty percent is reached.

5. Any governor part of whose votes must be counted in order to raise the total of any person above nineteen percent shall be considered as casting all of his votes for such person even if the total votes for such person thereby exceed twenty percent.

6. If, after the second ballot, five persons have not been elected, further ballots shall be held on the same principles until five persons have been elected, provided that after four persons are elected, the fifth may be elected by a simple majority of the remaining votes and shall be deemed to have been elected by all such votes.

7. The directors to be elected by the American Republics under Article XII, Section 3 (b) (iv) shall be elected as follows:

- Each of the directors shall be elected separately.
- In the election of the first director, each governor representing an American Republic eligible to participate in the election shall cast for one person all the votes to which he is entitled. The person receiving the largest number of votes shall be elected provided that he has received not less than forty-five percent of the total votes.
- If no person is elected on the first ballot, further ballots shall be held, in each of which the person receiving the lowest number of votes shall be eliminated, until one person receives a number of votes sufficient for election under (b) above.
- Governors whose votes contributed to the election of the first director shall take no part in the election of the second director.
- Persons who did not succeed in the first election shall not be ineligible for election as the second director.
- A majority of the votes which can be cast shall be required for election of the second director. If at the first ballot no person receives a majority, further ballots shall be held in each of which the person receiving the lowest number of votes shall be eliminated, until some person obtains a majority.
- The second director shall be deemed to have been elected by all the votes which could have been cast in the ballot securing his election.

## SCHEDULE D

### SETTLEMENT OF ACCOUNTS WITH MEMBERS WITHDRAWING

1. The Fund shall be obligated to pay to a member withdrawing an amount equal to its quota, plus any other amounts due to it from the Fund, less any amounts due to the Fund, including charges accruing after the date of its withdrawal; but no payment shall be made until six months after the date of withdrawal. Payments shall be made in the currency of the withdrawing member.

2. If the Fund's holdings of the currency of the withdrawing member are not sufficient to pay the net amount due from the Fund, the balance shall be paid in gold, or in such other manner as may be agreed. If the Fund and the withdrawing member do not reach agreement within six months of the date of withdrawal, the currency in question held by the Fund shall be paid forthwith to the withdrawing member. Any balance due shall be paid in ten half-yearly installments during the ensuing five years. Each such installment shall be paid, at the option of the Fund, either in the currency of the withdrawing member acquired after its withdrawal or by the delivery of gold.

3. If the Fund fails to meet any installment which is due in accordance with the preceding paragraphs, the withdrawing member shall be entitled to require the Fund to pay the installment in any currency held by the Fund with the exception of any currency which has been declared scarce under Article VII, Section 3.

4. If the Fund's holdings of the currency of a withdrawing member exceed the amount due to it, and if agreement on the method of settling accounts is not reached within six months of the date of withdrawal, the former member shall be obligated to redeem such excess currency in gold or, at its option, in the currencies of members which at the time of redemption are convertible. Redemption shall be made at the parity existing at the time of withdrawal from the Fund. The withdrawing member shall complete redemption within five years of the date of withdrawal, or within such longer period as may be fixed by the Fund, but shall not be required to redeem in any half-yearly period more than one-tenth of the Fund's excess holdings of its currency at the date of withdrawal plus further

acquisitions of the currency during such half-yearly period. If the withdrawing member does not fulfill this obligation, the Fund may in an orderly manner liquidate in any market the amount of currency which should have been redeemed.

5. Any member desiring to obtain the currency of a member which has withdrawn shall acquire it by purchase from the Fund, to the extent that such member has access to the resources of the Fund and that such currency is available under 4 above.

6. The withdrawing member guarantees the unrestricted use at all times of the currency disposed of under 4 and 5 above for the purchase of goods or for payment of sums due to it or to persons within its territories. It shall compensate the Fund for any loss resulting from the difference between the par value of its currency on the date of withdrawal and the value realized by the Fund on disposal under 4 and 5 above.

7. In the event of the Fund going into liquidation under Article XVI, Section 2, within six months of the date on which the member withdraws, the account between the Fund and that government shall be settled in accordance with Article XVI, Section 2, and Schedule E.

#### SCHEDULE E

##### ADMINISTRATION OF LIQUIDATION

1. In the event of liquidation the liabilities of the Fund other than the repayment of subscriptions shall have priority in the distribution of the assets of the Fund. In meeting each such liability the Fund shall use its assets in the following order:

- (a) the currency in which the liability is payable;
- (b) gold;
- (c) all other currencies in proportion, so far as may be practicable, to the quotas of the members.

2. After the discharge of the Fund's liabilities in accordance with 1 above, the balance of the Fund's assets shall be distributed and apportioned as follows:

- (a) The Fund shall distribute its holdings of gold among the members whose currencies are held by the Fund in amounts less than their quotas. These members shall share the gold so distributed in the proportions of the amounts by which their quotas exceed the Fund's holdings of their currencies.
- (b) The Fund shall distribute to each member one-half the Fund's holdings of its currency but such distribution shall not exceed fifty percent of its quota.
- (c) The Fund shall apportion the remainder of its holdings of each currency among all the members in proportion to the amounts due to each member after the distributions under (a) and (b) above.

3. Each member shall redeem the holdings of its currency apportioned to other members under 2 (c) above, and shall agree with the Fund within three months after a decision to liquidate upon an orderly procedure for such redemption.

4. If a member has not reached agreement with the Fund within the three-month period referred to in 3 above, the Fund shall use the currencies of other members apportioned to that member under 2 (c) above to redeem the currency of that member apportioned to other members. Each currency apportioned to a member which has not reached agreement shall be used, so far as possible, to redeem its currency apportioned to the members which have made agreements with the Fund under 3 above.

5. If a member has reached agreement with the Fund in accordance with 3 above, the Fund shall use the currencies of other members apportioned to that member under 2 (c) above to redeem the currency of that member apportioned to other members which have made agreements with the Fund under 3 above. Each amount so redeemed shall be redeemed in the currency of the member to which it was apportioned.

6. After carrying out the preceding paragraphs, the Fund shall pay to each member the remaining currencies held for its account.

7. Each member whose currency has been distributed to other members under 6 above shall redeem such currency in gold or, at its option, in the currency of the member requesting redemption, or in such other manner as may be agreed between them. If the members involved do not otherwise agree, the member obligated to redeem shall complete redemption within five years of the date of distribution, but shall not be required to redeem in any half-yearly period more than one-tenth of the amount distributed to each other member. If the member does not fulfill this obligation, the amount of currency which should have been redeemed may be liquidated in an orderly manner in any market.

8. Each member whose currency has been distributed to other members under 6 above guarantees the unrestricted use of such currency at all times for the purchase of goods or for payment of sums due to it or to persons in its territories. Each member so obligated agrees to compensate other members for any loss resulting from the difference between the par value of its currency on the date of the decision to liquidate the Fund and the value realized by such members on disposal of its currency.

#### Articles of Agreement of the International Bank for Reconstruction and Development

The Governments on whose behalf the present Agreement is signed agree as follows:

##### INTRODUCTORY ARTICLE

The International Bank for Reconstruction and Development is established and shall operate in accordance with the following provisions:

#### ARTICLE I

##### PURPOSES

The purposes of the Bank are:

- (i) To assist in the reconstruction and development of territories of members by facilitating the investment of capital for productive purposes, including the restoration of economies destroyed or disrupted by war, the reconversion of productive facilities to peacetime needs and the encouragement of the development of productive facilities and resources in less developed countries.
- (ii) To promote private foreign investment by means of guarantees or participations in loans and other investments made by private investors; and when private capital is not available on reasonable terms, to supplement private investment by providing, on suitable conditions, finance for productive purposes out of its own capital, funds raised by it and its other resources.
- (iii) To promote the long-range balanced growth of international trade and the maintenance of equilibrium in balances of payments by encouraging international investment for the development of the productive resources of members, thereby assisting in raising productivity, the standard of living and conditions of labor in their territories.
- (iv) To arrange the loans made or guaranteed by it in relation to international loans through other channels so that the more useful and urgent projects, large and small alike, will be dealt with first.
- (v) To conduct its operations with due regard to the effect of international investment on business conditions in the territories of members and, in the immediate post-war years, to assist in bringing about a smooth transition from a wartime to a peacetime economy.

The Bank shall be guided in all its decisions by the purposes set forth above.

#### ARTICLE II

##### MEMBERSHIP IN AND CAPITAL OF THE BANK

###### Section 1. Membership

(a) The original members of the Bank shall be those members of the International Monetary Fund which accept membership in the Bank before the date specified in Article XI, Section 2 (c).

(b) Membership shall be open to other members of the Fund, at such times and in accordance with such terms as may be prescribed by the Bank.

###### Section 2. Authorized capital

(a) The authorized capital stock of the Bank shall be \$10,000,000,000, in terms of United States dollars of the weight and fineness in effect on July 1, 1944. The capital stock shall be divided into 100,000 shares having a par value of \$100,000 each, which shall be available for subscription only by members.

(b) The capital stock may be increased when the Bank deems it advisable by a three-fourths majority of the total voting power.

###### Section 3. Subscription of shares

(a) Each member shall subscribe shares of the capital stock of the Bank. The minimum number of shares to be subscribed by the original members shall be those set forth in Schedule A. The minimum number of shares to be subscribed by other members shall be determined by the Bank, which shall reserve a sufficient portion of its capital stock for subscription by such members.

(b) The Bank shall prescribe rules laying down the conditions under which members may subscribe shares of the authorized capital stock of the Bank in addition to their minimum subscriptions.

(c) If the authorized capital stock of the Bank is increased, each member shall have a reasonable opportunity to subscribe, under such conditions as the Bank shall decide, a proportion of the increase of stock equivalent to the proportion which its stock theretofore subscribed bears to the total capital stock of the Bank, but no member shall be obligated to subscribe any part of the increased capital.

###### Section 4. Issue price of shares

Shares included in the minimum subscriptions of original members shall be issued at par. Other shares shall be issued at par unless the Bank by a majority of the total voting power decides in special circumstances to issue them on other terms.

###### Section 5. Division and calls of subscribed capital

The subscription of each member shall be divided into two parts as follows:

- (i) twenty percent shall be paid or subject to call under Section 7 (i) of this Article as needed by the Bank for its operations;
- (ii) the remaining eighty percent shall be subject to call by the Bank only when required to meet obligations of the Bank created under Article IV, Sections 1 (a) (ii) and (iii).

Calls on unpaid subscriptions shall be uniform on all shares.

###### Section 6. Limitation on liability

Liability on shares shall be limited to the unpaid portion of the issue price of the shares.

###### Section 7. Method of payment of subscriptions for shares

Payment of subscriptions for shares shall be made in gold or United States dollars and in the currencies of the members as follows:

- (i) under Section 5 (i) of this Article, two percent of the price of each share shall be payable in gold or United States dollars, and, when calls are made, the remaining eighteen percent shall be paid in the currency of the member;
- (ii) when a call is made under Section 5 (ii) of this Article, payment may be made at the option of the member either in gold, in United States dollars or in the currency required to discharge the obligations of the Bank for the purpose for which the call is made;

- (iii) when a member makes payments in any currency under (i) and (ii) above, such payments shall be made in amounts equal in value to the member's liability under the call. This liability shall be a proportionate part of the subscribed capital stock of the Bank as authorized and defined in Section 2 of this Article.

## Section 8. *Time of payment of subscriptions*

- (a) The two percent payable on each share in gold or United States dollars under Section 7 (i) of this Article, shall be paid within sixty days of the date on which the Bank begins operations, provided that
  - (i) any original member of the Bank whose metropolitan territory has suffered from enemy occupation or hostilities during the present war shall be granted the right to postpone payment of one-half percent until five years after that date;
  - (ii) an original member who cannot make such a payment because it has not recovered possession of its gold reserves which are still seized or immobilized as a result of the war may postpone all payment until such date as the Bank shall decide.
- (b) The remainder of the price of each share payable under Section 7 (i) of this Article shall be paid as and when called by the Bank, provided that
  - (i) the Bank shall, within one year of its beginning operations, call not less than eight percent of the price of the share in addition to the payment of two percent referred to in (a) above;
  - (ii) not more than five percent of the price of the share shall be called in any period of three months.

## Section 9. *Maintenance of value of certain currency holdings of the Bank*

- (a) Whenever (i) the par value of a member's currency is reduced, or (ii) the foreign exchange value of a member's currency has, in the opinion of the Bank, depreciated to a significant extent within that member's territories, the member shall pay to the Bank within a reasonable time an additional amount of its own currency sufficient to maintain the value, as of the time of initial subscription, of the amount of the currency of such member which is held by the Bank and derived from currency originally paid in to the Bank by the member under Article II, Section 7 (i), from currency referred to in Article IV, Section 2 (b), or from any additional currency furnished under the provisions of the present paragraph, and which has not been repurchased by the member for gold or for the currency of any member which is acceptable to the Bank.
- (b) Whenever the par value of a member's currency is increased, the Bank shall return to such member within a reasonable time an amount of that member's currency equal to the increase in the value of the amount of such currency described in (a) above.
- (c) The provisions of the preceding paragraphs may be waived by the Bank when a uniform proportionate change in the par values of the currencies of all its members is made by the International Monetary Fund.

## Section 10. *Restriction on disposal of shares*

Shares shall not be pledged or encumbered in any manner whatever and they shall be transferable only to the Bank.

## ARTICLE III

### GENERAL PROVISIONS RELATING TO LOANS AND GUARANTEES

#### Section 1. *Use of resources*

- (a) The resources and the facilities of the Bank shall be used exclusively for the benefit of members with equitable consideration to projects for development and projects for reconstruction alike.
- (b) For the purpose of facilitating the restoration and reconstruction of the economy of members whose metropolitan territories have suffered great devastation from enemy occupation or hostilities, the Bank, in determining the conditions and terms of loans made to such members, shall pay special regard to lightening the financial burden and expediting the completion of such restoration and reconstruction.

#### Section 2. *Dealings between members and the Bank*

Each member shall deal with the Bank only through its Treasury, central bank, stabilization fund or other similar fiscal agency, and the Bank shall deal with members only by or through the same agencies.

#### Section 3. *Limitations on guarantees and borrowings of the Bank*

The total amount outstanding of guarantees, participations in loans and direct loans made by the Bank shall not be increased at any time, if by such increase the total would exceed one hundred percent of the unimpaired subscribed capital, reserves and surplus of the Bank.

#### Section 4. *Conditions on which the Bank may guarantee or make loans*

The Bank may guarantee, participate in, or make loans to any member or any political sub-division thereof and any business, industrial, and agricultural enterprise in the territories of a member, subject to the following conditions:

- (i) When the member in whose territories the project is located is not itself the borrower, the member or the central bank or some comparable agency of the member which is acceptable to the Bank, fully guarantees the repayment of the principal and the payment of interest and other charges on the loan.
- (ii) The Bank is satisfied that in the prevailing market conditions the borrower would be unable otherwise to obtain the loan under conditions which in the opinion of the Bank are reasonable for the borrower.
- (iii) A competent committee, as provided for in Article V, Section 7, has submitted a written report recommending the project after a careful study of the merits of the proposal.
- (iv) In the opinion of the Bank the rate of interest and other charges are reasonable and such rate, charges and the schedule for repayment of principal are appropriate to the project.
- (v) In making or guaranteeing a loan, the Bank shall pay due regard to the prospects that the borrower, and, if the borrower is not a member, that the guarantor, will be in position to meet its obligations under the loan; and the Bank shall act prudently in the interests both of the particular member in whose territories the project is located and of the members as a whole.

- (vi) In guaranteeing a loan made by other investors, the Bank receives suitable compensation for its risk.
- (vii) Loans made or guaranteed by the Bank shall, except in special circumstances, be for the purpose of specific projects of reconstruction or development.

## Section 5. *Use of loans guaranteed, participated in or made by the Bank*

- (a) The Bank shall impose no conditions that the proceeds of a loan shall be spent in the territories of any particular member or members.
- (b) The Bank shall make arrangements to ensure that the proceeds of any loan are used only for the purposes for which the loan was granted, with due attention to considerations of economy and efficiency and without regard to political or other non-economic influences or considerations.
- (c) In the case of loans made by the Bank, it shall open an account in the name of the borrower and the amount of the loan shall be credited to this account in the currency or currencies in which the loan is made. The borrower shall be permitted by the Bank to draw on this account only to meet expenses in connection with the project as they are actually incurred.

## ARTICLE IV

### OPERATIONS

#### Section 1. *Methods of making or facilitating loans*

- (a) The Bank may make or facilitate loans which satisfy the general conditions of Article III in any of the following ways:
  - (i) By making or participating in direct loans out of its own funds corresponding to its unimpaired paid-up capital and surplus and, subject to Section 6 of this Article, to its reserves.
  - (ii) By making or participating in direct loans out of funds raised in the market of a member, or otherwise borrowed by the Bank.
  - (iii) By guaranteeing in whole or in part loans made by private investors through the usual investment channels.
- (b) The Bank may borrow funds under (a) (ii) above or guarantee loans under (a) (iii) above only with the approval of the member in whose markets the funds are raised and the member in whose currency the loan is denominated, and only if those members agree that the proceeds may be exchanged for the currency of any other member without restriction.

#### Section 2. *Availability and transferability of currencies*

- (a) Currencies paid into the Bank under Article II, Section 7 (i), shall be loaned only with the approval in each case of the member whose currency is involved; provided, however, that if necessary, after the Bank's subscribed capital has been entirely called, such currencies shall, without restriction by the members whose currencies are offered, be used or exchanged for the currencies required to meet contractual payments of interest, other charges or amortization on the Bank's own borrowings, or to meet the Bank's liabilities with respect to such contractual payments on loans guaranteed by the Bank.
- (b) Currencies received by the Bank from borrowers or guarantors in payment on account of principal of direct loans made with currencies referred to in (a) above shall be exchanged for the currencies of other members or reloaned only with the approval in each case of the members whose currencies are involved; provided, however, that if necessary, after the Bank's subscribed capital has been entirely called, such currencies shall, without restriction by the members whose currencies are offered, be used or exchanged for the currencies required to meet contractual payments of interest, other charges or amortization on the Bank's own borrowings, or to meet the Bank's liabilities with respect to such contractual payments on loans guaranteed by the Bank.
- (c) Currencies received by the Bank from borrowers or guarantors in payment on account of principal of direct loans made by the Bank under Section 1 (a) (ii) of this Article, shall be held and used, without restriction by the members, to make amortization payments, or to anticipate payment of or repurchase part or all of the Bank's own obligations.
- (d) All other currencies available to the Bank, including those raised in the market or otherwise borrowed under Section 1 (a) (ii) of this Article, those obtained by the sale of gold, those received as payments of interest and other charges for direct loans made under Sections 1 (a) (i) and (ii), and those received as payments of commissions and other charges under Section 1 (a) (iii), shall be used or exchanged for other currencies or gold required in the operations of the Bank without restriction by the members whose currencies are offered.
- (e) Currencies raised in the markets of members by borrowers on loans guaranteed by the Bank under Section 1 (a) (iii) of this Article, shall also be used or exchanged for other currencies without restriction by such members.

#### Section 3. *Provision of currencies for direct loans*

- The following provisions shall apply to direct loans under Sections 1 (a) (i) and (ii) of this Article:
  - (a) The Bank shall furnish the borrower with such currencies of members, other than the member in whose territories the project is located, as are needed by the borrower for expenditures to be made in the territories of such other members to carry out the purposes of the loan.
  - (b) The Bank may, in exceptional circumstances when local currency required for the purposes of the loan cannot be raised by the borrower on reasonable terms, provide the borrower as part of the loan with an appropriate amount of that currency.
  - (c) The Bank, if the project gives rise indirectly to an increased need for foreign exchange by the member in whose territories the project is located, may in exceptional circumstances provide the borrower as part of the loan with an appropriate amount of gold or foreign exchange not in excess of the borrower's local expenditure in connection with the purposes of the loan.
  - (d) The Bank may, in exceptional circumstances, at the request of a member in whose territories a portion of the loan is spent, repurchase with gold or foreign exchange a part of that member's currency thus spent but in no case shall the part so repurchased exceed the amount by which the expenditure of the loan in those territories gives rise to an increased need for foreign exchange.



Section 4. *Payment provisions for direct loans*

Loan contracts under Section 1 (a) (i) or (ii) of this Article shall be made in accordance with the following payment provisions:

(a) The terms and conditions of interest and amortization payments, maturity and dates of payment of each loan shall be determined by the Bank. The Bank shall also determine the rate and any other terms and conditions of commission to be charged in connection with such loan.

In the case of loans made under Section 1 (a) (ii) of this Article during the first ten years of the Bank's operations, this rate of commission shall be not less than one percent per annum and not greater than one and one-half percent per annum, and shall be charged on the outstanding portion of any such loan. At the end of this period of ten years, the rate of commission may be reduced by the Bank with respect both to the outstanding portions of loans already made and to future loans, if the reserves accumulated by the Bank under Section 6 of this Article and out of other earnings are considered by it sufficient to justify a reduction. In the case of future loans the Bank shall also have discretion to increase the rate of commission beyond the above limit, if experience indicates that an increase is advisable.

(b) All loan contracts shall stipulate the currency or currencies in which payments under the contract shall be made to the Bank. At the option of the borrower, however, such payments may be made in gold, or subject to the agreement of the Bank, in the currency of a member other than that prescribed in the contract.

(i) In the case of loans made under Section 1 (a) (i) of this Article, the loan contracts shall provide that payments to the Bank of interest, other charges and amortization shall be made in the currency loaned, unless the member whose currency is loaned agrees that such payments shall be made in some other specified currency or currencies. These payments, subject to the provisions of Article II, Section 9 (c), shall be equivalent to the value of such contractual payments at the time the loans were made, in terms of a currency specified for the purpose by the Bank by a three-fourths majority of the total voting power.

(ii) In the case of loans made under Section 1 (a) (ii) of this Article, the total amount outstanding and payable to the Bank in any one currency shall at no time exceed the total amount of the outstanding borrowings made by the Bank under Section 1 (a) (ii) and payable in the same currency.

(c) If a member suffers from an acute exchange stringency, so that the service of any loan contracted by that member or guaranteed by it or by one of its agencies cannot be provided in the stipulated manner, the member concerned may apply to the Bank for a relaxation of the conditions of payment. If the Bank is satisfied that some relaxation is in the interests of the particular member and of the operations of the Bank and of its members as a whole, it may take action under either, or both, of the following paragraphs with respect to the whole, or part, of the annual service:

- (i) The Bank may, in its discretion, make arrangements with the member concerned to accept service payments on the loan in the member's currency for periods not to exceed three years upon appropriate terms regarding the use of such currency and the maintenance of its foreign exchange value; and for the repurchase of such currency on appropriate terms.
- (ii) The Bank may modify the terms of amortization or extend the life of the loan, or both.

Section 5. *Guarantees*

(a) In guaranteeing a loan placed through the usual investment channels, the Bank shall charge a guarantee commission payable periodically on the amount of the loan outstanding at a rate determined by the Bank. During the first ten years of the Bank's operations, this rate shall be not less than one percent per annum and not greater than one and one-half percent per annum. At the end of this period of ten years, the rate of commission may be reduced by the Bank with respect both to the outstanding portions of loans already guaranteed and to future loans if the reserves accumulated by the Bank under Section 6 of this Article and out of other earnings are considered by it sufficient to justify a reduction. In the case of future loans the Bank shall also have discretion to increase the rate of commission beyond the above limit, if experience indicates that an increase is advisable.

(b) Guarantee commissions shall be paid directly to the Bank by the borrower.

(c) Guarantees by the Bank shall provide that the Bank may terminate its liability with respect to interest if, upon default by the borrower and by the guarantor, if any, the Bank offers to purchase, at par and interest accrued to a date designated in the offer, the bonds or other obligations guaranteed.

(d) The Bank shall have power to determine any other terms and conditions of the guarantee.

Section 6. *Special reserve*

The amount of commissions received by the Bank under Sections 4 and 5 of this Article shall be set aside as a special reserve, which shall be kept available for meeting liabilities of the Bank in accordance with Section 7 of this Article. The special reserve shall be held in such liquid form, permitted under this Agreement, as the Executive Directors may decide.

Section 7. *Methods of meeting liabilities of the Bank in case of defaults*

In cases of default on loans made, participated in, or guaranteed by the Bank:

(a) The Bank shall make such arrangements as may be feasible to adjust the obligations under the loans, including arrangements under or analogous to those provided in Section 4 (c) of this Article.

(b) The payments in discharge of the Bank's liabilities on borrowings or guarantees under Sections 1 (a) (ii) and (iii) of this Article shall be charged:

- (i) first, against the special reserve provided in Section 6 of this Article.
- (ii) then, to the extent necessary and at the discretion of the Bank,

against the other reserves, surplus and capital available to the Bank.

(c) Whenever necessary to meet contractual payments of interest, other charges or amortization on the Bank's own borrowings, or to meet the Bank's liabilities with respect to similar payments on loans guaranteed by it, the Bank may call an appropriate amount of the unpaid subscriptions of members in accordance with Article II, Sections 5 and 7. Moreover, if it believes that a default may be of long duration, the Bank may call an additional amount of such unpaid subscriptions not to exceed in any one year one percent of the total subscriptions of the members for the following purposes:

- (i) To redeem prior to maturity, or otherwise discharge its liability on, all or part of the outstanding principal of any loan guaranteed by it in respect of which the debtor is in default.
- (ii) To repurchase, or otherwise discharge its liability on, all or part of its own outstanding borrowings.

Section 8. *Miscellaneous operations*

In addition to the operations specified elsewhere in this Agreement, the Bank shall have the power:

- (i) To buy and sell securities it has issued and to buy and sell securities which it has guaranteed or in which it has invested, provided that the Bank shall obtain the approval of the member in whose territories the securities are to be bought or sold.
- (ii) To guarantee securities in which it has invested for the purpose of facilitating their sale.
- (iii) To borrow the currency of any member with the approval of that member.
- (iv) To buy and sell such other securities as the Directors by a three-fourths majority of the total voting power may deem proper for the investment of all or part of the special reserve under Section 6 of this Article.

In exercising the powers conferred by this Section, the Bank may deal with any person, partnership, association, corporation or other legal entity in the territories of any member.

Section 9. *Warning to be placed on securities*

Every security guaranteed or issued by the Bank shall bear on its face a conspicuous statement to the effect that it is not an obligation of any government unless expressly stated on the security.

Section 10. *Political activity prohibited*

The Bank and its officers shall not interfere in the political affairs of any member; nor shall they be influenced in their decisions by the political character of the member or members concerned. Only economic considerations shall be relevant to their decisions, and these considerations shall be weighed impartially in order to achieve the purposes stated in Article I.

## ARTICLE V

## ORGANIZATION AND MANAGEMENT

Section 1. *Structure of the Bank*

The Bank shall have a Board of Governors, Executive Directors, a President and such other officers and staff to perform such duties as the Bank may determine.

Section 2. *Board of Governors*

(a) All the powers of the Bank shall be vested in the Board of Governors consisting of one governor and one alternate appointed by each member in such manner as it may determine. Each governor and each alternate shall serve for five years, subject to the pleasure of the member appointing him, and may be reappointed. No alternate may vote except in the absence of his principal. The Board shall select one of the governors as Chairman.

(b) The Board of Governors may delegate to the Executive Directors authority to exercise any powers of the Board, except the power to:

- (i) Admit new members and determine the conditions of their admission;
- (ii) Increase or decrease the capital stock;
- (iii) Suspend a member;
- (iv) Decide appeals from interpretations of this Agreement given by the Executive Directors;
- (v) Make arrangements to cooperate with other international organizations (other than informal arrangements of a temporary and administrative character);
- (vi) Decide to suspend permanently the operations of the Bank and to distribute its assets;
- (vii) Determine the distribution of the net income of the Bank.

(c) The Board of Governors shall hold an annual meeting and such other meetings as may be provided for by the Board or called by the Executive Directors. Meetings of the Board shall be called by the Directors whenever requested by five members or by members having one-quarter of the total voting power.

(d) A quorum for any meeting of the Board of Governors shall be a majority of the Governors, exercising not less than two-thirds of the total voting power.

(e) The Board of Governors may by regulation establish a procedure whereby the Executive Directors, when they deem such action to be in the best interests of the Bank, may obtain a vote of the Governors on a specific question without calling a meeting of the Board.

(f) The Board of Governors, and the Executive Directors to the extent authorized, may adopt such rules and regulations as may be necessary or appropriate to conduct the business of the Bank.

(g) Governors and alternates shall serve as such without compensation from the Bank, but the Bank shall pay them reasonable expenses incurred in attending meetings.

(h) The Board of Governors shall determine the remuneration to be paid to the Executive Directors and the salary and terms of the contract of service of the President.

Section 3. *Voting*

(a) Each member shall have two hundred fifty votes plus one addi-

tional vote for each share of stock held.

(b) Except as otherwise specifically provided, all matters before the Bank shall be decided by a majority of the votes cast.

#### Section 4. *Executive Directors*

(a) The Executive Directors shall be responsible for the conduct of the general operations of the Bank, and for this purpose, shall exercise all the powers delegated to them by the Board of Governors.

(b) There shall be twelve Executive Directors, who need not be governors, and of whom:

- (i) five shall be appointed, one by each of the five members having the largest number of shares;
- (ii) seven shall be elected according to Schedule B by all the Governors other than those appointed by the five members referred to in (i) above.

For the purpose of this paragraph, "members" means governments of countries whose names are set forth in Schedule A, whether they are original members or become members in accordance with Article II, Section 1 (b). When governments of other countries become members, the Board of Governors may, by a four-fifths majority of the total voting power, increase the total number of directors by increasing the number of directors to be elected.

Executive directors shall be appointed or elected every two years.

(c) Each executive director shall appoint an alternate with full power to act for him when he is not present. When the executive directors appointing them are present, alternates may participate in meetings but shall not vote.

(d) Directors shall continue in office until their successors are appointed or elected. If the office of an elected director becomes vacant more than ninety days before the end of his term, another director shall be elected for the remainder of the term by the governors who elected the former director. A majority of the votes cast shall be required for election. While the office remains vacant, the alternate of the former director shall exercise his powers, except that of appointing an alternate.

(e) The Executive Directors shall function in continuous session at the principal office of the Bank and shall meet as often as the business of the Bank may require.

(f) A quorum for any meeting of the Executive Directors shall be a majority of the Directors, exercising not less than one-half of the total voting power.

(g) Each appointed director shall be entitled to cast the number of votes allotted under Section 3 of this Article to the member appointing him. Each elected director shall be entitled to cast the number of votes which counted toward his election. All the votes which a director is entitled to cast shall be cast as a unit.

(h) The Board of Governors shall adopt regulations under which a member not entitled to appoint a director under (b) above may send a representative to attend any meeting of the Executive Directors when a request made by, or a matter particularly affecting, that member is under consideration.

(i) The Executive Directors may appoint such committees as they deem advisable. Membership of such committees need not be limited to governors or directors or their alternates.

#### Section 5. *President and staff*

(a) The Executive Directors shall select a President who shall not be a governor or an executive director or an alternate for either. The President shall be Chairman of the Executive Directors, but shall have no vote except a deciding vote in case of an equal division. He may participate in meetings of the Board of Governors, but shall not vote at such meetings. The President shall cease to hold office when the Executive Directors so decide.

(b) The President shall be chief of the operating staff of the Bank and shall conduct, under the direction of the Executive Directors, the ordinary business of the Bank. Subject to the general control of the Executive Directors, he shall be responsible for the organization, appointment and dismissal of the officers and staff.

(c) The President, officers and staff of the Bank, in the discharge of their offices, owe their duty entirely to the Bank and to no other authority. Each member of the Bank shall respect the international character of this duty and shall refrain from all attempts to influence any of them in the discharge of their duties.

(d) In appointing the officers and staff the President shall, subject to the paramount importance of securing the highest standards of efficiency and of technical competence, pay due regard to the importance of recruiting personnel on as wide a geographical basis as possible.

#### Section 6. *Advisory Council*

(a) There shall be an Advisory Council of not less than seven persons selected by the Board of Governors including representatives of banking, commercial, industrial, labor, and agricultural interests, and with as wide a national representation as possible. In those fields where specialized international organizations exist, the members of the Council representative of those fields shall be selected in agreement with such organizations. The Council shall advise the Bank on matters of general policy. The Council shall meet annually and on such other occasions as the Bank may request.

(b) Councillors shall serve for two years and may be reappointed. They shall be paid their reasonable expenses incurred on behalf of the Bank.

#### Section 7. *Loan committees*

The committees required to report on loans under Article III, Section 4, shall be appointed by the Bank. Each such committee shall include an expert selected by the governor representing the member in whose territories the project is located and one or more members of the technical staff of the Bank.

#### Section 8. *Relationship to other international organizations*

(a) The Bank, within the terms of this Agreement, shall cooperate with any general international organization and with public international organizations having specialized responsibilities in related fields. Any

arrangements for such cooperation which would involve a modification of any provision of this Agreement may be effected only after amendment to this Agreement under Article VIII.

(b) In making decisions on applications for loans or guarantees relating to matters directly within the competence of any international organization of the types specified in the preceding paragraph and participated in primarily by members of the Bank, the Bank shall give consideration to the views and recommendations of such organization.

#### Section 9. *Location of offices*

(a) The principal office of the Bank shall be located in the territory of the member holding the greatest number of shares.

(b) The Bank may establish agencies or branch offices in the territories of any member of the Bank.

#### Section 10. *Regional offices and councils*

(a) The Bank may establish regional offices and determine the location of, and the areas to be covered by, each regional office.

(b) Each regional office shall be advised by a regional council representative of the entire area and selected in such manner as the Bank may decide.

#### Section 11. *Depositories*

(a) Each member shall designate its central bank as a depository for all the Bank's holdings of its currency or, if it has no central bank, it shall designate such other institution as may be acceptable to the Bank.

(b) The Bank may hold other assets, including gold, in depositories designated by the five members having the largest number of shares and in such other designated depositories as the Bank may select. Initially, at least one-half of the gold holdings of the Bank shall be held in the depository designated by the member in whose territory the Bank has its principal office, and at least forty percent shall be held in the depositories designated by the remaining four members referred to above, each of such depositories to hold, initially, not less than the amount of gold paid on the shares of the member designating it. However, all transfers of gold by the Bank shall be made with due regard to the costs of transport and anticipated requirements of the Bank. In an emergency the Executive Directors may transfer all or any part of the Bank's gold holdings to any place where they can be adequately protected.

#### Section 12. *Form of holdings of currency*

The Bank shall accept from any member, in place of any part of the member's currency, paid in to the Bank under Article II, Section 7 (i), or to meet amortization payments on loans made with such currency, and not needed by the Bank in its operations, notes or similar obligations issued by the Government of the member or the depository designated by such member, which shall be non-negotiable, non-interest-bearing and payable at their par value on demand by credit to the account of the Bank in the designated depository.

#### Section 13. *Publication of reports and provision of information*

(a) The Bank shall publish an annual report containing an audited statement of its accounts and shall circulate to members at intervals of three months or less a summary statement of its financial position and a profit and loss statement showing the results of its operations.

(b) The Bank may publish such other reports as it deems desirable to carry out its purposes.

(c) Copies of all reports, statements and publications made under this section shall be distributed to members.

#### Section 14. *Allocation of net income*

(a) The Board of Governors shall determine annually what part of the Bank's net income, after making provision for reserves, shall be allocated to surplus and what part, if any, shall be distributed.

(b) If any part is distributed, up to two percent non-cumulative shall be paid, as a first charge against the distribution for any year, to each member on the basis of the average amount of the loans outstanding during the year made under Article IV, Section 1 (a) (i), out of currency corresponding to its subscription. If two percent is paid as a first charge, any balance remaining to be distributed shall be paid to all members in proportion to their shares. Payments to each member shall be made in its own currency, or if that currency is not available in other currency acceptable to the member. If such payments are made in currencies other than the member's own currency, the transfer of the currency and its use by the receiving member after payment shall be without restriction by the members.

### ARTICLE VI

#### WITHDRAWAL AND SUSPENSION OF MEMBERSHIP: SUSPENSION OF OPERATIONS

##### Section 1. *Right of members to withdraw*

Any member may withdraw from the Bank at any time by transmitting a notice in writing to the Bank at its principal office. Withdrawal shall become effective on the date such notice is received.

##### Section 2. *Suspension of membership*

If a member fails to fulfill any of its obligations to the Bank, the Bank may suspend its membership by decision of a majority of the Governors, exercising a majority of the total voting power. The member so suspended shall automatically cease to be a member one year from the date of its suspension unless a decision is taken by the same majority to restore the member to good standing.

While under suspension, a member shall not be entitled to exercise any rights under this Agreement, except the right of withdrawal, but shall remain subject to all obligations.

##### Section 3. *Cessation of membership in International Monetary Fund*

Any member which ceases to be a member of the International Monetary Fund shall automatically cease after three months to be a member of the Bank unless the Bank by three-fourths of the total voting power has agreed to allow it to remain a member.

Section 4. *Settlement of accounts with governments ceasing to be members*

(a) When a government ceases to be a member, it shall remain liable for its direct obligations to the Bank and for its contingent liabilities to the Bank so long as any part of the loans or guarantees contracted before it ceased to be a member are outstanding; but it shall cease to incur liabilities with respect to loans and guarantees entered into thereafter by the Bank and to share either in the income or the expenses of the Bank.

(b) At the time a government ceases to be a member, the Bank shall arrange for the repurchase of its shares as a part of the settlement of accounts with such government in accordance with the provisions of (c) and (d) below. For this purpose the repurchase price of the shares shall be the value shown by the books of the Bank on the day the government ceases to be a member.

(c) The payment for shares repurchased by the Bank under this section shall be governed by the following conditions:

(i) Any amount due to the government for its shares shall be withheld so long as the government, its central bank or any of its agencies remains liable, as borrower or guarantor, to the Bank and such amount may, at the option of the Bank, be applied on any such liability as it matures. No amount shall be withheld on account of the liability of the government resulting from its subscription for shares under Article II, Section 5 (ii). In any event, no amount due to a member for its shares shall be paid until six months after the date upon which the government ceases to be a member.

(ii) Payments for shares may be made from time to time, upon their surrender by the government, to the extent by which the amount due as the repurchase price in (b) above exceeds the aggregate of liabilities on loans and guarantees in (c) (i) above until the former member has received the full repurchase price.

(iii) Payments shall be made in the currency of the country receiving payment or at the option of the Bank in gold.

(iv) If losses are sustained by the Bank on any guarantees, participations in loans, or loans which were outstanding on the date when the government ceased to be a member, and the amount of such losses exceeds the amount of the reserve provided against losses on the date when the government ceased to be a member, such government shall be obligated to repay upon demand the amount by which the repurchase price of its shares would have been reduced, if the losses had been taken into account when the repurchase price was determined. In addition, the former member government shall remain liable on any call for unpaid subscriptions under Article II, Section 5 (ii), to the extent that it would have been required to respond if the impairment of capital had occurred and the call had been made at the time the repurchase price of its shares was determined.

(d) If the Bank suspends permanently its operations under Section 5 (b) of this Article, within six months of the date upon which any government ceases to be a member, all rights of such government shall be determined by the provisions of Section 5 of this Article.

Section 5. *Suspension of operations and settlement of obligations*

(a) In an emergency the Executive Directors may suspend temporarily operations in respect of new loans and guarantees pending an opportunity for further consideration and action by the Board of Governors.

(b) The Bank may suspend permanently its operations in respect of new loans and guarantees by vote of a majority of the Governors, exercising a majority of the total voting power. After such suspension of operations the Bank shall forthwith cease all activities, except those incident to the orderly realization, conservation, and preservation of its assets and settlement of its obligations.

(c) The liability of all members for uncalled subscriptions to the capital stock of the Bank and in respect of the depreciation of their own currencies shall continue until all claims of creditors, including all contingent claims, shall have been discharged.

(d) All creditors holding direct claims shall be paid out of the assets of the Bank, and then out of payments to the Bank on calls on unpaid subscriptions. Before making any payments to creditors holding direct claims, the Executive Directors shall make such arrangements as are necessary, in their judgment, to insure a distribution to holders of contingent claims ratably with creditors holding direct claims.

(e) No distribution shall be made to members on account of their subscriptions to the capital stock of the Bank until

(i) all liabilities to creditors have been discharged or provided for, and

(ii) a majority of the Governors, exercising a majority of the total voting power, have decided to make a distribution.

(f) After a decision to make a distribution has been taken under (e) above, the Executive Directors may by a two-thirds majority vote make successive distributions of the assets of the Bank to members until all of the assets have been distributed. This distribution shall be subject to the prior settlement of all outstanding claims of the Bank against each member.

(g) Before any distribution of assets is made, the Executive Directors shall fix the proportionate share of each member according to the ratio of its shareholding to the total outstanding shares of the Bank.

(h) The Executive Directors shall value the assets to be distributed as at the date of distribution and then proceed to distribute in the following manner:

(i) There shall be paid to each member in its own obligations or those of its official agencies or legal entities within its territories, insofar as they are available for distribution, an amount equivalent in value to its proportionate share of the total amount to be distributed.

(ii) Any balance due to a member after payment has been made under (i) above shall be paid, in its own currency, insofar as it is held by the Bank, up to an amount equivalent in value to such balance.

(iii) Any balance due to a member after payment has been made under (i) and (ii) above shall be paid in gold or currency acceptable to the member, insofar as they are held by the Bank, up to an amount equivalent in value to such balance.

(iv) Any remaining assets held by the Bank after payments have been made to members under (i), (ii), and (iii) above shall be distributed *pro rata* among the members.

(i) Any member receiving assets distributed by the Bank in accordance with (h) above, shall enjoy the same rights with respect to such assets as the Bank enjoyed prior to their distribution.

## ARTICLE VII

## STATUS, IMMUNITIES AND PRIVILEGES

Section 1. *Purposes of Article*

To enable the Bank to fulfill the functions with which it is entrusted, the status, immunities and privileges set forth in this Article shall be accorded to the Bank in the territories of each member.

Section 2. *Status of the Bank*

The Bank shall possess full juridical personality, and, in particular, the capacity:

- (i) to contract;
- (ii) to acquire and dispose of immovable and movable property;
- (iii) to institute legal proceedings.

Section 3. *Position of the Bank with regard to judicial process*

Actions may be brought against the Bank only in a court of competent jurisdiction in the territories of a member in which the Bank has an office, has appointed an agent for the purpose of accepting service or notice of process, or has issued or guaranteed securities. No actions shall, however, be brought by members or persons acting for or deriving claims from members. The property and assets of the Bank shall, wheresoever located and by whomsoever held, be immune from all forms of seizure, attachment or execution before the delivery of final judgment against the Bank.

Section 4. *Immunity of assets from seizure*

Property and assets of the Bank, wherever located and by whomsoever held, shall be immune from search, requisition, confiscation, expropriation or any other form of seizure by executive or legislative action.

Section 5. *Immunity of archives*

The archives of the Bank shall be inviolable.

Section 6. *Freedom of assets from restrictions*

To the extent necessary to carry out the operations provided for in this Agreement and subject to the provisions of this Agreement, all property and assets of the Bank shall be free from restrictions, regulations, controls and moratoria of any nature.

Section 7. *Privilege for communications*

The official communications of the Bank shall be accorded by each member the same treatment that it accords to the official communications of other members.

Section 8. *Immunities and privileges of officers and employees*

All governors, executive directors, alternates, officers and employees of the Bank

(i) shall be immune from legal process with respect to acts performed by them in their official capacity except when the Bank waives this immunity;

(ii) not being local nationals, shall be accorded the same immunities from immigration restrictions, alien registration requirements and national service obligations and the same facilities as regards exchange restrictions as are accorded by members to the representatives, officials, and employees of comparable rank of other members;

(iii) shall be granted the same treatment in respect of travelling facilities as is accorded by members to representatives, officials and employees of comparable rank of other members.

Section 9. *Immunities from taxation*

(a) The Bank, its assets, property, income and its operations and transactions authorized by this Agreement, shall be immune from all taxation and from all customs duties. The Bank shall also be immune from liability for the collection or payment of any tax or duty.

(b) No tax shall be levied on or in respect of salaries and emoluments paid by the Bank to executive directors, alternates, officials or employees of the Bank who are not local citizens, local subjects, or other local nationals.

(c) No taxation of any kind shall be levied on any obligation or security issued by the Bank (including any dividend or interest thereon) by whomsoever held—

(i) which discriminates against such obligation or security solely because it is issued by the Bank; or

(ii) if the sole jurisdictional basis for such taxation is the place or currency in which it is issued, made payable or paid, or the location of any office or place of business maintained by the Bank

(d) No taxation of any kind shall be levied on any obligation or security guaranteed by the Bank (including any dividend or interest thereon) by whomsoever held—

(i) which discriminates against such obligation or security solely because it is guaranteed by the Bank; or

(ii) if the sole jurisdictional basis for such taxation is the location of any office or place of business maintained by the Bank.

Section 10. *Application of Article*

Each member shall take such action as is necessary in its own territories for the purpose of making effective in terms of its own law the principles set forth in this Article and shall inform the Bank of the detailed action which it has taken.



# ARTICLE VIII AMENDMENTS

(a) Any proposal to introduce modifications in this Agreement, whether emanating from a member, a governor or the Executive Directors, shall be communicated to the Chairman of the Board of Governors who shall bring the proposal before the Board. If the proposed amendment is approved by the Board the Bank shall, by circular letter or telegram, ask all members whether they accept the proposed amendment. When three-fifths of the members, having four-fifths of the total voting power, have accepted the proposed amendment, the Bank shall certify the fact by a formal communication addressed to all members.

(b) Notwithstanding (a) above, acceptance by all members is required in the case of any amendment modifying

- (i) the right to withdraw from the Bank provided in Article VI, Section 1;
  - (ii) the right secured by Article II, Section 3 (c);
  - (iii) the limitation on liability provided in Article II, Section 6.
- (c) Amendments shall enter into force for all members three months after the date of the formal communication unless a shorter period is specified in the circular letter or telegram.

# ARTICLE IX INTERPRETATION

(a) Any question of interpretation of the provisions of this Agreement arising between any member and the Bank or between any members of the Bank shall be submitted to the Executive Directors for their decision. If the question particularly affects any member not entitled to appoint an executive director, it shall be entitled to representation in accordance with Article V, Section 4 (h).

(b) In any case where the Executive Directors have given a decision under (a) above, any member may require that the question be referred to the Board of Governors, whose decision shall be final. Pending the result of the reference to the Board, the Bank may, so far as it deems necessary act on the basis of the decision of the Executive Directors.

(c) Whenever a disagreement arises between the Bank and a country which has ceased to be a member, or between the Bank and any member during the permanent suspension of the Bank, such disagreement shall be submitted to arbitration by a tribunal of three arbitrators, one appointed by the Bank, another by the country involved and an umpire who, unless the parties otherwise agree, shall be appointed by the President of the Permanent Court of International Justice or such other authority as may have been prescribed by regulation adopted by the Bank. The umpire shall have full power to settle all questions of procedure in any case where the parties are in disagreement with respect thereto.

# ARTICLE X APPROVAL DEEMED GIVEN

Whenever the approval of any member is required before any act may be done by the Bank, except in Article VIII, approval shall be deemed to have been given unless the member presents an objection within such reasonable period as the Bank may fix in notifying the member of the proposed act.

# ARTICLE XI FINAL PROVISIONS

## Section 1. Entry into force

This Agreement shall enter into force when it has been signed on behalf of governments whose minimum subscriptions comprise not less than sixty-five percent of the total subscriptions set forth in Schedule A and when the instruments referred to in Section 2 (a) of this Article have been deposited on their behalf, but in no event shall this Agreement enter into force before May 1, 1945.

## Section 2. Signature

(a) Each government on whose behalf this Agreement is signed shall deposit with the Government of the United States of America an instrument setting forth that it has accepted this Agreement in accordance with its law and has taken all steps necessary to enable it to carry out all of its obligations under this Agreement.

(b) Each government shall become a member of the Bank as from the date of the deposit on its behalf of the instrument referred to in (a) above, except that no government shall become a member before this Agreement enters into force under Section 1 of this Article.

(c) The Government of the United States of America shall inform the governments of all countries whose names are set forth in Schedule A, and all governments whose membership is approved in accordance with Article II, Section 1 (b), of all signatures of this Agreement and of the deposit of all instruments referred to in (a) above.

(d) At the time this Agreement is signed on its behalf, each government shall transmit to the Government of the United States of America one one-hundredth of one percent of the price of each share in gold or United States dollars for the purpose of meeting administrative expenses of the Bank. This payment shall be credited on account of the payment to be made in accordance with Article II, Section 8 (a). The Government of the United States of America shall hold such funds in a special deposit account and shall transmit them to the Board of Governors of the Bank when the initial meeting has been called under Section 3 of this Article. If this Agreement has not come into force by December 31, 1945, the Government of the United States of America shall return such funds to the governments that transmitted them.

(e) This Agreement shall remain open for signature at Washington on behalf of the governments of the countries whose names are set forth in Schedule A until December 31, 1945.

(f) After December 31, 1945, this Agreement shall be open for signature on behalf of the government of any country whose membership has been approved in accordance with Article II, Section 1 (b).

(g) By their signature of this Agreement, all governments accept it both on their own behalf and in respect of all their colonies, overseas

territories, all territories under their protection, suzerainty, or authority and all territories in respect of which they exercise a mandate.

(h) In the case of governments whose metropolitan territories have been under enemy occupation, the deposit of the instrument referred to in (a) above may be delayed until one hundred and eighty days after the date on which these territories have been liberated. If, however, it is not deposited by any such government before the expiration of this period, the signature affixed on behalf of that government shall become void and the portion of its subscription paid under (d) above shall be returned to it.

(i) Paragraphs (d) and (h) shall come into force with regard to each signatory government as from the date of its signature.

## Section 3. Inauguration of the Bank

(a) As soon as this Agreement enters into force under Section 1 of this Article, each member shall appoint a governor and the member to whom the largest number of shares is allocated in Schedule A shall call the first meeting of the Board of Governors.

(b) At the first meeting of the Board of Governors, arrangements shall be made for the selection of provisional executive directors. The governments of the five countries, to which the largest number of shares are allocated in Schedule A, shall appoint provisional executive directors. If one or more of such governments have not become members, the executive directorships which they would be entitled to fill shall remain vacant until they become members, or until January 1, 1946, whichever is the earlier. Seven provisional executive directors shall be elected in accordance with the provisions of Schedule B and shall remain in office until the date of the first regular election of executive directors which shall be held as soon as practicable after January 1, 1946.

(c) The Board of Governors may delegate to the provisional executive directors any powers except those which may not be delegated to the Executive Directors.

(d) The Bank shall notify members when it is ready to commence operations.

DONE at Washington, in a single copy which shall remain deposited in the archives of the Government of the United States of America, which shall transmit certified copies to all governments whose names are set forth in Schedule A and to all governments whose membership is approved in accordance with Article II, Section 1 (b).

## SCHEDULE A SUBSCRIPTIONS

	(millions of dollars)		(millions of dollars)
Australia	200	Iraq	6
Belgium	225	Liberia	.5
Bolivia	7	Luxembourg	10
Brazil	105	Mexico	65
Canada	325	Netherlands	275
Chile	35	New Zealand	50
China	600	Nicaragua	.8
Colombia	35	Norway	50
Costa Rica	2	Panama	.2
Cuba	35	Paraguay	.8
Czechoslovakia	125	Peru	17.5
*Denmark		Philippine Common- wealth	15
Dominican Republic	2	Poland	125
Ecuador	3.2	Union of South Africa	100
Egypt	40	Union of Soviet Socialist Republics	1,200
El Salvador	1	United Kingdom	1,300
Ethiopia	3	United States	3,175
France	450	Uruguay	10.5
Greece	25	Venezuela	10.5
Guatemala	2	Yugoslavia	40
Haiti	2		
Honduras	1		
Ireland	1		
India	400	Total	9,100
Iran	24		

\* The quota of Denmark shall be determined by the Bank after Denmark accepts membership in accordance with these Articles of Agreement.

## SCHEDULE B ELECTION OF EXECUTIVE DIRECTORS

1. The election of the elective executive directors shall be by ballot of the Governors eligible to vote under Article V, Section 4 (b).

2. In balloting for the elective executive directors, each governor eligible to vote shall cast for one person all of the votes to which the member appointing him is entitled under Section 3 of Article V. The seven persons receiving the greatest number of votes shall be executive directors, except that no person who receives less than fourteen percent of the total of the votes which can be cast (eligible votes) shall be considered elected.

3. When seven persons are not elected on the first ballot, a second ballot shall be held in which the person who received the lowest number of votes shall be ineligible for election and in which there shall vote only (a) those governors who voted in the first ballot for a person not elected and (b) those governors whose votes for a person elected are deemed under 4 below to have raised the votes cast for that person above fifteen percent of the eligible votes.

4. In determining whether the votes cast by a governor are to be deemed to have raised the total of any person above fifteen percent of the eligible votes, the fifteen percent shall be deemed to include, first, the votes of the governor casting the largest number of votes for such person, then the votes of the governor casting the next largest number, and so on until fifteen percent is reached.

5. Any governor, part of whose votes must be counted in order to raise the total of any person above fourteen percent, shall be considered as casting all of his votes for such person even if the total votes for such

person thereby exceed fifteen percent.

6. If, after the second ballot, seven persons have not been elected, further ballots shall be held on the same principles until seven persons have been elected, provided that after six persons are elected, the seventh may be elected by a simple majority of the remaining votes and shall be deemed to have been elected by all such votes.

**United Nations Organization:** see UNITED NATIONS CONFERENCE ON INTERNATIONAL ORGANIZATION.

## United Nations Relief and Rehabilitation

**Administration.** The United Nations Relief and Rehabilitation Administration was established on Nov. 9, 1943, as the first service agency of the United Nations. By the end of 1945 it was composed of 51 member governments, each of which participated in U.N.R.R.A.'s policy-making council, while six governments—the United States, the United Kingdom, the Soviet Union, China, France and Canada—were represented on its central committee, which makes emergency policy decisions between sessions of the council. Herbert H. Lehman continued as director general in 1945.

U.N.R.R.A.'s basic shift of emphasis in 1945 was from planning to operations. Prior to undertaking field activities, it had analyzed relief requirements, recruited and trained an international staff, arranged for the procurement of supplies from contributing countries, concluded agreements for assisting the military and the governments of receiving countries, and accepted administrative contributions for which all member governments are obligated and operating contributions from those nations which had not been invaded by the enemy.

During the first quarter of 1945, U.N.R.R.A. assisted the military in carrying out relief operations in Greece and Yugoslavia, then took over responsibility in the former country on April 1, and in the latter on April 15. V-E day paved the way for increasing supplies and shipping to help meet the needs of those liberated countries in Europe which did not possess foreign exchange resources, and were therefore dependent upon U.N.R.R.A. assistance. V-J day made relief and rehabilitation operations possible on a global basis. By the end of 1945 U.N.R.R.A. was providing full-scale assistance to Greece, Albania, Yugoslavia, Poland and Czechoslovakia, while its operations were accelerating in newly-liberated China. A limited program of aid was

being provided to Italy, chiefly in the form of supplemental food for children and nursing and expectant mothers. More than 4,000 trained personnel were assisting the military in Germany and Austria in the assembling and care of millions of displaced persons. The acceleration of U.N.R.R.A.'s operations was seen in the cumulative statistics of supplies shipped overseas:

1. End of first quarter, 1945: 37,000 long tons.
2. End of second quarter, 1945: 1,304,000 long tons.
3. End of third quarter, 1945: 2,126,000 long tons.
4. End of fourth quarter, 1945: 4,071,000 long tons (approximate).

At the end of 1945, U.N.R.R.A. had delivered approximately the following amounts of supplies (in long tons): to Greece 1,747,000; Yugoslavia 980,000; Czechoslovakia 432,000; Poland 369,000; Albania 67,000; Italy 133,000; China 261,000; Byelorussia 23,000; Ukraine 43,000; other operations 16,000.

The U.N.R.R.A. council in its third session, held in London in August, determined that Austria, Korea and Formosa were countries qualified to receive relief aid; admitted Denmark and the Ukrainian and Byelorussian Soviet Socialist Republics to membership on the council; and recommended a second contribution of 1% of the national income of each of the uninvaded nations, to raise about \$1,800,000,000 in additional funds in order to finance U.N.R.R.A.'s operations in Europe until the end of 1946, and in the far east until the first quarter of 1947. Further funds were urgently required in view of the fact that by the late fall U.N.R.R.A. had committed all available resources.

In Dec. 1945, the U.S. congress appropriated \$550,000,000, completing its first contribution of \$1,350,000,000, and enacted legislation authorizing a second contribution of equal amount. Before congress recessed at the end of the year, it had appropriated \$750,000,000 against its second contribution. Meanwhile the British parliament had also approved its second contribution and Canada had inaugurated similar legislation.

U.N.R.R.A. concentrated upon relief supplies to assist liberated peoples to survive the critical winter of 1945-46. During 1946, increasing emphasis was to be placed upon agricultural and industrial rehabilitation supplies and services, in order to help restore war-shattered economies to a self-sustaining basis. (See also RECONSTRUCTION PLANNING; REFUGEES.)

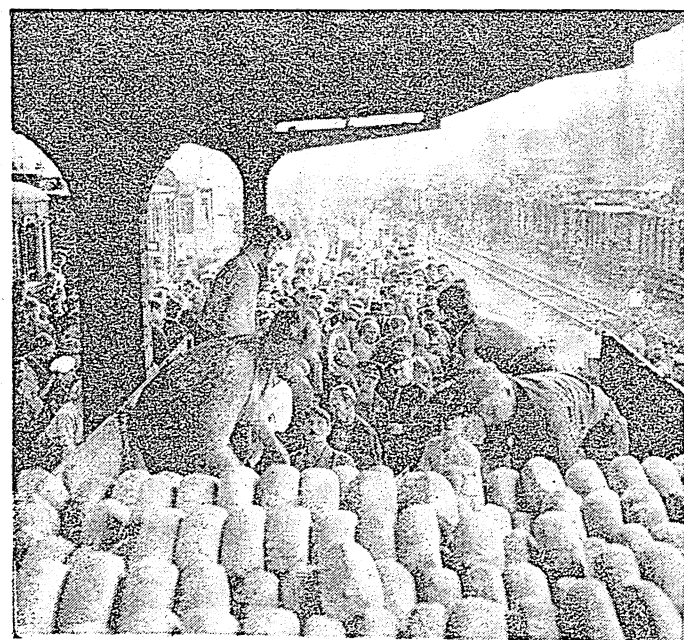
(H. H. L.)

## United Nations War Crimes Commission.

The war crimes procedure of the United Nations, confined mainly during 1944 to the investigation and collection of evidence by the United Nations War Crimes commission in London, entered a new stage in 1945. Major developments included an announcement by the commission on April 1 that a first list of German war criminals had been drawn up in Dec. 1944 containing the names of such obvious criminals as Adolf Hitler, and that four other lists had later been drawn up: a second list of German war criminals; a list of Italians; a list of Japanese; and a list of Albanian, Bulgarian, Hungarian and Rumanian criminals. Further lists were stated to be in preparation. Up to Oct. 25, 15 such lists were compiled, the last containing 465 Bulgarian and Italian names. The commission also announced in April that after May 1944 a subcommission was at work in Chungking, under the chairmanship of Dr. Wang Ching-hui to investigate war crimes committed in the far east and the Pacific area, and had held four meetings between Nov. 1944 and April 1945 with representatives of Australia, Belgium, China, Czechoslovakia, France, India, Luxembourg, the Netherlands, Poland, the United Kingdom and the United States.

Early in its work, the commission had assumed that no immunity attached to heads of states and it had decided that the plea of superior orders did not of itself constitute justification of a war crime. It promised to publish the lists it had drawn up when the problems of apprehension and reprisals by the

BREAD SUPPLIED by the U.N.R.R.A. being distributed to a hungry but orderly crowd of displaced persons at Weimar station in Germany during July 1945



enemy were less acute.

Each of the 16 nations then represented on the commission had its own war crimes office which detected, investigated and recorded evidence. When these national offices felt there was adequate evidence for declaring a person a war criminal, the names were forwarded to the War Crimes commission as a whole which, if agreeing that sufficient evidence existed, placed those names on its list.

While Allied territories were still occupied by the enemy, only a limited amount of information was made available to the commission, but as these countries were liberated the number of cases transmitted by the national war crimes offices steadily increased.

After the surrender of Germany the United Nations War Crimes commission collaborated actively with military authorities to secure the apprehension and arrest of war criminals. Thus, at Gen. Dwight D. Eisenhower's invitation, members of the commission visited the Buchenwald concentration camp and, at the invitation of Allied military authorities in Germany, the commission arranged for certain European governments to send war crimes investigation officers to Germany to assist military authorities in collecting evidence of war crimes in concentration camps and elsewhere.

From May 31 to June 4 a conference of representatives of the national war crimes offices of 16 member governments of the War Crimes commission was held in London under the chairmanship of Lord Wright, Australian representative on the commission, who on Jan. 31 had succeeded Sir Cecil Hurst as chairman. The soviet union was not represented because it was not a member of the commission but had its own extraordinary state war crimes commission.

Denmark subsequently joined the commission thus bringing the number of governments represented to 17.

The first U.S. representative on the commission, Herbert C. Pell, who had resigned in Jan. 1945, was succeeded by Lieut. Col. Joseph V. Hodgson. At the direction of Henry L. Stimson, secretary of war, a war crimes section had been set up in the war department headed by Brig. Gen. John M. Weir, to compile dossiers on crimes committed against U.S. troops and U.S. and Filipino nationals.

Early in May 1945 the U.S. suggested to the United Kingdom, the soviet union and France that the four powers should join in a protocol establishing an international military tribunal, defining its jurisdiction and powers, naming the categories of acts declared to be crimes and describing those individuals and organizations to be placed on trial.

At the same time the appointment by Pres. Harry S. Truman of Justice Robert H. Jackson of the supreme court as chief U.S. counsel in preparing charges against major axis war criminals under the terms of the Moscow declaration of Nov. 1, 1943, was announced. Four weeks later, after conferring in Europe with Gen. Eisenhower and other high-ranking officers and officials of the U.S. zone in Germany, Lord Wright, chairman of the United Nations War Crimes commission, and Sir David Maxwell Fyfe, who had been named on May 29 as chief British counsel in preparing the case against major axis criminals, in London, Justice Jackson submitted an important statement in the form of a letter to Pres. Truman. The proposals contained in it constituted a blueprint for the trial of war criminals. It was recommended that at the same time German leaders from army and state, industry and finance be put in the dock to be tried for conspiring to subjugate mankind by waging an aggressive war. Once the major offenders had been dealt with, the trial of the lesser criminals was to be handled on a local basis and in the countries directly concerned in each case.

A meeting in London, beginning June 26, of legal experts of

the United States, the United Kingdom, the soviet union and France to determine the organization and methods of procedure for the trial of major war criminals led to the Four-Power agreement of Aug. 8 setting up an international military tribunal for the trial of war criminals whose offenses had no precise geographical location. The agreement was signed by Sir William A. Jowitt, the lord chancellor, for the United Kingdom, Justice Jackson for the U.S., Robert Falco, counsellor of the *Cour de Cassation*, for France, I. T. Nikitchenko, vice-president of the soviet supreme court and A. Trainin, international law expert, for the soviet union. It was supplemented by a charter comprising 30 articles setting forth the constitution of the tribunal and the principles governing its operation.

Three categories of offenses were stated to be within the jurisdiction of the tribunal: 1. crimes against peace; 2. war crimes; 3. crimes against humanity. Each of the four powers is represented on the tribunal by a judge and a chief prosecutor. A committee of the latter, appointed for the investigation and prosecution of major war crimes, issued in London on Aug. 29 a first list of criminals to be tried before the tribunal.

The indictment of 24 major war criminals, naming Hermann Wilhelm Goering, Rudolf Hess, Joachim von Ribbentrop, Robert Ley, Wilhelm Keitel, Ernst Kaltenbrunner, Alfred Rosenberg, Hans Frank, Wilhelm Frick, Julius Streicher, Walter Funk, Hjalmar Schacht, Gustav Krupp von Bohlen und Halbach, Karl Doenitz, Erich Raeder, Baldur von Schirach, Fritz Sauckel, Alfred Jodl, Martin Bormann, Franz von Papen, Arthur Seyss-Inquart, Albert Speer, Constantin von Neurath and Hans Fritzsche, individually and as members of any of the following groups: the reich cabinet, the leadership corps of the nazi party, the "SS," the "SD," the "gestapo," the "SA" and the general staff and high command of the German armed forces, was handed up to the tribunal on Oct. 18. The trial of the leading nazi war criminals with Lord Justice Sir Geoffrey Lawrence of the United Kingdom presiding, began on Nov. 20 in the Nuernberg court house.

In the meantime, special military tribunals of various Allied powers had been dealing with war criminals in countries where the crimes were committed. Such was the trial of Japanese Gen. Yamashita by a U.S. military court at Manila. At Hamburg, a British tribunal convicted members of a German submarine crew who murdered survivors from the torpedoed Greek merchant vessel "Peleus." Another British tribunal at Lueneburg sentenced those responsible for the atrocities at the Belsen concentration camp. In Rome, a U.S. military tribunal convicted the German Gen. Anton Dostler for having ordered the execution of 15 U.S. soldiers without a trial. Soviet tribunals in Poland and Czechoslovakia convicted and sentenced to death several hundred Germans responsible for prison camp atrocities or the murder of civilians in occupied territory. (W. B. M.)

**United Service Organizations.** The United Service Organizations, Inc., (U.S.O.) was formed Feb. 4, 1941, by the following member agencies: Young Men's Christian association, National Catholic Community service, the Salvation Army, Young Womens Christian association, National Jewish Welfare board and National Travelers Aid association. Its purpose was to provide off-duty recreational, spiritual and welfare services to the armed forces of World War II, and to workers in overburdened war production centres, as requested by the government. From its inception, more than 1,000,000,000 persons had been served by U.S.O. in some manner. This figure includes attendance at U.S.O.-Camp Shows, clubs, troops-in-transit services and mobile and manoeuvres services.

On Sept. 1, 1945, there were 2,461 U.S.O. clubs and other



services, of which 1,308 were operated by the U.S.O. member agencies and 997 by local communities in affiliation with U.S.O. These services fell into the following principal classifications:

Clubs in continental United States including those conducted by member agencies and local communities in affiliation with U.S.O. Clubs both in the U.S. and abroad totalled 1,645 on Sept. 1, 1945, and were located in 48 states and 16 overseas areas. Standard equipment included lounges, writing rooms, showers, snack bars, game rooms, libraries, musical instruments and auditoriums.

Troops-in-transit service operated 148 lounges in rail and bus terminals, supplemented by 126 U.S.O.-Travelers Aid services.

Mobile service units numbered 105. They served men on outpost duty along Atlantic and Pacific coasts, as well as troops on manoeuvres.

The overseas division maintained 156 clubs, smaller centres and mobile units in western hemisphere bases from Alaska and Newfoundland to Brazil, and overseas in Hawaii and the Philippines.

U.S.O.-Camp Shows, Inc., an affiliate, sent out a total of 4,276 entertainers in 677 units after its inception in Nov., 1941. Camp Shows units toured army camps, navy posts and service hospitals in continental United States, western hemisphere bases and zones of military occupation throughout the world.

Attendance at U.S.O. facilities averaged 26,000,000 a month. U.S.O.-Camp Shows performed before an average monthly audience of 2,000,000.

Service to returning veterans and to men in military general hospitals was an important part of U.S.O. work in 1945. At home, U.S.O. workers were helping discharged servicemen adjust to civilian life. Overseas, U.S.O. continued to serve troops waiting to go home or changing from combat to occupation status. Everywhere the redeployment and reassignment of troops emphasized the need for troops-in-transit lounges and other Travelers Aid services. Special programs were continued in U.S.O. clubs for the benefit of wives and families of servicemen.

The work of 800,000 volunteers in 1945 was indispensable at clubs and lounges, not only in assisting professional staffs but also in providing companionship at programs and social events to men and women in service.

A vital part of U.S.O. work was service to war workers and their families in certain overcrowded war production centres. Programs were patterned after those for the armed forces, with emphasis on classes for women similar to those for wives of servicemen.

U.S.O. officers in 1945 were: Dr. Lindsley F. Kimball, president; C. Frank Kramer, Jr., secretary. National headquarters were in the Empire State building, 350 Fifth Ave., New York 1, N.Y.

(C. I. B.)

## United States.

According to an interim census report of Nov. 20, 1945, the continental population of the United States had passed the 140,000,000 mark. This represented a gain of some 8,330,000 or 6.1% over the figure of 131,669,275 in the census of 1940, but a slight decline from the gain in the decade 1930-40. Including outlying territories and possessions the population exceeded 152,000,000. Since the area of the United States is 3,022,387 sq.mi., the population of 140,000,000 means a density of 46.3 inhabitants per square mile. For the population of the states *see* articles on the separate states.

*See also* BIRTH STATISTICS; CENSUS DATA, 1945; CHURCH MEMBERSHIP; DEATH STATISTICS; INDIANS, AMERICAN; NEGROES (AMERICAN).

**History.**—The year 1945 was fraught with events of tremendous import for the United States and for the world at large. It would probably go down in history as one of those periods which mark the end of an era and present momentous problems of readjustment to the demands of a new age. The fateful year saw the almost simultaneous collapse of the two great military despotisms which had threatened the total subjugation of the continents and oceans of the eastern hemisphere. It witnessed the meeting at San Francisco of the delegates of 50 countries, representing three quarters of the world's population, to frame a United Nations charter for the future peace and security of mankind. It produced the most miraculous and portentous discovery of all time in the release of nuclear energy from the fissure of the atom of uranium, a discovery rich with the possibilities of the total destruction or the infinite enhancement of civilization, according to whether the folly of mankind should employ it for war or the wisdom of man for peace. The year also saw the sudden death of President Roosevelt, less than three months after his inauguration for a fourth term, and the consequent reorganization under President Truman of the executive branch of the government, leaving Secretary Ickes of the interior as the sole surviving member of the original Roosevelt cabinet. And finally the year was filled with bitter strife between management and labour, growing more intense as the months passed and resulting, in spite of repeated efforts for compromise, in an epidemic of strikes which threatened to wreck the indispensable program for the reconversion of U.S. industries from a wartime to a peacetime operation.

**Congress.**—The first session of the 79th congress met on Jan. 4 with 243 Democrats (a gain of 28 in the autumn elections of 1944) to 190 Republicans in the house, while the Democratic majority in the senate (57 to 38) remained virtually unchanged. Except for a brief recess from the end of July to Sept. 6, congress remained in session until Dec. 21. President Roosevelt's message sent in on Jan. 6 declared that ultimate victory over the axis powers was in sight, but urged all-out effort, since the most critical phase of the war had been reached. He advocated legislation to use the services of the 4,000,000 men classified as IV-F, the induction of nurses into the armed forces, and universal military training. He exhorted Americans to stay on their war jobs, and discussed various problems of the war and of the postwar era which confronted congress: lend-lease, the reciprocal trade pacts, price control, social security, farm subsidies, housing, education, medical care, unemployment benefits and fair economic practices. Congress had made but little progress in this program by midsummer, when events of great importance (the Potsdam conference, the dropping of the atomic bomb on Hiroshima, the Russian declaration of war on Japan, and the surrender of the last of the axis powers) led President Truman to call the legislators back to Washington a month before the end of their intended recess. He met them with a 16,000-word message containing a 21-point program for the reconversion of U.S. industries, the insurance of full employment, the reorganization of the government agencies, the redeployment of manpower, care for the returning soldiers and sailors, housing, health, price control, co-operation between management and labour, and a number of other matters.

The achievements of the more than 11 months' session of congress were disappointing, though some prominent members expressed themselves as "fairly well pleased with the record." Of the 640 public and private laws passed the most important were the ratification of the San Francisco charter and approval of the delegates to the United Nations organization; adherence to the Bretton Woods monetary agreement; the authorization of a second \$1,350,000,000 contribution to the U.N.R.R.A.; the extension of the reciprocal trade agreements; reduction of corpora-

tion and individual taxes; the extension of the draft law to May 15 and of price control to June 30, 1946. However, the measures which congress failed to enact, in spite of repeated messages from President Truman, presented a formidable list. Among them were the enlargement of the social security program, full employment legislation, the merger of the armed services, universal military training, the solution of labour-management disputes by a fact-finding board, establishment of a fair economic practices commission, increased unemployment compensation, the setting up of domestic control over atomic energy, and action on the \$4,400,000,000 loan to Great Britain.

One of the reasons for the dilatoriness of congress was a stiffening opposition to the president, in anticipation of Republican gains in the mid-term elections of 1946. Another cause was the unprecedented number of hearings and investigations which absorbed the attention of committees and subcommittees, to the detriment of the devotion of many of the leading members of both houses to their legislative duties. Already by May more than 25 hearings had produced more than 16,000,000 words of testimony, enough to fill 30 volumes the size of *Gone With the Wind*. By the time congress finally adjourned, six weeks of testimony by more than 60 witnesses on the responsibility for the catastrophe at Pearl Harbor had produced a mass of material equal to the *Congressional Record*, and the end was not yet in sight. Many days there was no quorum on the floor, and there were only 15 members of the house present when the adjournment came. Immediately after the adjournment President Truman announced that he would address the nation on the record of the session, which he did in a half-hour talk from the White House on Jan. 3, 1946, appealing to the people of the country to bring pressure to bear on their representatives in congress to speed legislation on the important domestic measures which he had recommended in his September message. (See also ELECTIONS; LAW.)

**The Budget and Finance.**—President Roosevelt's fourth war-time budget was submitted to congress on Jan. 6, 1945. It called for an appropriation of \$83,000,000,000 for the fiscal year 1945-46, as contrasted with \$99,800,000,000 for the preceding year, the first decrease after 1938. A tentative figure of \$70,000,000,000 was allocated for military expenses, though in view of the uncertainty of the duration of the war this figure might be raised to \$80,000,000,000 or reduced to \$60,000,000,000. And of the remaining \$13,000,000,000 by far the largest part was to go for expenses due to war, such as pensions, benefits and interest on the public debt. After 1941 the debt had multiplied six-fold, reaching a per capita figure of \$2,116 (as against \$242 in World War I), and entailing an annual interest charge of \$4,500,000,000, or more than the total cost of the government in 1932. Government receipts for the fiscal year were estimated at \$41,000,000,000, and the deficit at approximately the same figure. Between 1942 and 1945 the treasury had raised \$135,000,000,000 in six war bond issues. The Seventh War Loan (May-June 1945) called for \$14,000,000,000 and was oversubscribed by 75%; the eighth, or Victory Loan (Nov.-Dec. 1945), asked for \$11,000,000,000, and on the fourth anniversary of Pearl Harbor it passed the goal with subscriptions of \$12,470,000,000. When the final figures were in at the close of the year it was found that the Victory Loan had yielded \$21,144,000,000, or 192% of the quota; while sales to individuals, which had lagged in the earlier part of the drive, eventually reached \$6,776,000,000, or 169% of the quota.

President Roosevelt had recommended that no change be made in the tax structure; but when the end of hostilities came in August there was a public demand for the lightening of the tax burden, especially on people in the lower brackets. Accordingly, the house sent to the senate early in October a bill calling for



SALUTE to the victorious armed forces of the United States portrayed in "H.R.H." by Jerry Costello of the *Knickerbocker News* (Albany, N.Y.) in 1945

a tax cut of \$5,350,000,000, thereby eliminating from the rolls about 12,000,000 tax payers. Surtaxes were lowered 4%, corporation and excess profits taxes were reduced from 85.5% to 60%, and an over-all cut of 10% was allowed on all incomes. The bill as finally passed carried a reduction of some \$5,930,000,000, abolishing the excess profits tax. Many believed that it was unwise, in view of the enormous debt, to reduce taxes at this time, especially since they were a check on inflation by drawing off some of the swollen savings of people of the U.S., estimated at more than \$125,000,000,000.

A novel suggestion was made by Senator James E. Murray of Montana to the effect that a supplementary budget be prepared to relieve unemployment. When from a nation-wide report on the conditions of labour it should appear that the jobs available were inadequate to furnish a satisfactory standard of living, the federal government should supply the deficiency by the creation of public works programs. Altogether the 13 Roosevelt budgets had totalled \$461,000,000,000, a sum almost four times as large as the combined budgets of all his 30 predecessors in office. (See also BANKING; BUDGET, NATIONAL; BUSINESS REVIEW; DEBT, NATIONAL; INCOME AND PRODUCT, U.S.; PRICES; STOCKS AND BONDS; TAXATION; WEALTH AND INCOME, U.S. DISTRIBUTION OF.)

**The Presidential Succession.**—On the afternoon of April 12 President Roosevelt died suddenly of a cerebral haemorrhage while on a brief vacation at Warm Springs, Ga. He was the seventh president to die in office, all of them except Taylor and Harding in the first few months of the term for which they had been elected. Vice-President Harry S. Truman was presiding over a session of the senate when the news of the president's death reached Washington, and early the same evening he was sworn into office by Chief Justice Stone. An act of congress in 1792 had prescribed that in case of the vacancy of the offices of

both president and vice-president through death, resignation or inability to perform their duties the presidency should devolve first upon the president pro tem of the senate and then upon the speaker of the house. But since either or both of these officials might be of the antiadministration party or faction (as was the case when President Johnson was impeached in 1868), a new act of 1886 fixed the succession in the members of the cabinet in the order of the creation of their departments by congress. But again, since the president appoints the members of his cabinet, the act of 1886 obviously gives him the power to name his own successor when there is no vice-president (as was the case in 1945).

Fortunately, there had been no occasion in U.S. history to invoke either the act of 1792 or that of 1886; but the greater risk taken by the presidents in later days in long journeys across the continent or overseas revived the question of the presidential succession.

Various schemes were proposed, such as the reconvening of the electoral colleges to choose a new vice-president whenever that office becomes vacant, or the election of a vice-president by the senate (*see* Const. Amendment XII) or by a joint ballot of the two houses of congress.

**Industry.**—Three major problems faced U.S. industry in the year 1945: namely, the relation of business to the government, to the community and to labour. These three were not separate problems, but rather diverse aspects of the same problem of the conversion of the war industry to civilian production. The relation of business to labour shall be treated in the next section. Here note is taken of its relation to the government and to the consumer. The government was the greatest business corporation in the country. It owned 20% of the industrial plants, representing an investment of more than \$15,000,000,000 and producing war material to the amount of \$50,000,000,000 a year. And its control over the operation and production of private plants through the government agencies of the Office of War Mobilization and Reconversion, the War Labor board and the War Manpower commission was extensive. Accepting such control as an emergency war policy, industry became impatient when V-E day and V-J day arrived to resume its normal amount of freedom from government "interference" or "dictation," and to step up civilian production.

With cutbacks of billions of dollars in war contracts the way seemed open to industry to reconvert its plants for peacetime operation without government control of manpower, materials or products.

The consuming public too was eager for the lifting of restrictions on the production of civilian goods. With a vast accumulation of savings due to high wages, it was ready to spend lavishly for automobiles, radios, refrigerators, ranges, vacuum cleaners and scores of other luxuries and conveniences of which it had been deprived for many months. Despite sabotage by black markets, the Office of Price Administration had done a job in keeping prices to a rise of a little more than 30% after the beginning of the war, as against a rise of 107% in the period immediately following World War I. Only four months after V-J day the reconversion of industry had proceeded at a rapid rate, and the figures of unemployment were far below the pessimistic anticipations of the government forecasts. One by one commodities were removed from the rationed lists until by the end of the year sugar alone remained rationed, though the public was warned that shortages in many other lines would require continued moderation in buying.

**Labour.**—The greatest hindrance to the progress of industrial reconversion came from the persistent strife between management and labour, waged chiefly over the demands of labour for higher wages. When the war was over labour felt itself relieved

from the no-strike pledge given immediately after Pearl Harbor, but even then occasionally violated. Profiting by the favourable legislation of the New Deal, the two great labour organizations, the American Federation of Labor and the Congress of Industrial Organizations, had attained a membership close to 14,000,000 and, well supplied with funds, were prepared to fight for the retention of the high wages which they had enjoyed during the war. They saw the possibility of an inflated labour market in the new millions of job seekers who would be released by the demobilization of the armed forces and the discharge of many government agencies. They saw in the curtailment of working hours and the consequent stoppage of overtime pay a threat to the "take-home" wages they had been receiving, and at the same time they maintained that the cost of living had risen some 20% higher than the government statistics showed.

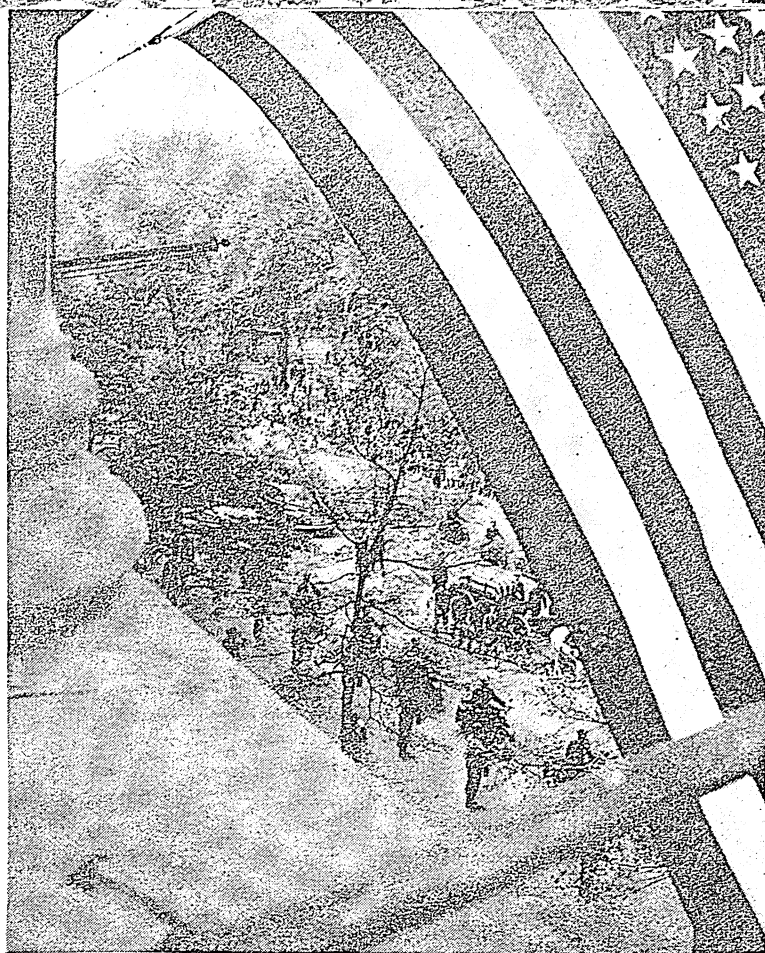
During the entire year there were strikes and threats of strikes in one industry after another, accompanied by futile attempts at settlement either by conferences between management and labour or by coercive measures on the part of the government. When John L. Lewis, head of the United Mine Workers, presented 21 demands (including a royalty of 10 cents a ton on all soft coal mined) and the miners supported him by an eight to one vote to strike unless a satisfactory contract were signed to replace the one which was to expire on March 31, and 72,000 hard coal miners quit work in April, causing a loss of 1,000,000 tons of coal a week, the situation was so serious that Secretary Ickes advocated government operation of the mines. On March 28 Eric Johnston, president of the American Chamber of Commerce, joined with William Green of the A.F. of L. and Philip Murray of the C.I.O. in publishing a proposed labour-management code, which was hailed as an expression of good will, but failed to be implemented by conciliatory measures. A bill of May 27, sponsored by senators Joseph H. Ball, Harold H. Burton, Carl A. Hatch, and Lister Hill (the B<sub>2</sub>H<sub>2</sub> bill), proposed a drastic revision of the Wagner act of 1935, called the Magna Carta of labour. The B<sub>2</sub>H<sub>2</sub> bill would bar strikes and make arbitration compulsory in all public utilities and services, such as coal, oil, electricity; it would apply the sanctions of the Wagner act to unions as well as to management; and would allow the closed shop only if 60% of a 75% union membership in the plant asked for it. Both the great labour organizations quite naturally opposed this Federal Industrial Relations bill, especially the provision for compulsory arbitration which they declared robbed them of their only effective weapon, the right to strike which was guaranteed to them in the Smith-Connally act which empowered the National Labor Relations board to conduct strike votes. Little had been done to carry out the recommendation of President Roosevelt in his budget message at the beginning of the year to make U.S. administrative machinery adequate for the adjustment of labour disputes which were bound to come in the reconversion period. Jurisdictional conflicts were not confined to the unions, but characterized the overlapping agencies of the government (the NLRB, the WMC, the United States Employment service, the WLB, the Conciliation service) as well. The new secretary of labour, Lewis B. Schwellenbach of Washington, was eager to merge a number of agencies concerned with labour (the WPB, the USES, the WMC) into his department.

Hardly a day passed in the autumn of 1945 without the notice in the press of new demands of labour for increased wages and new rejections of the same by the big industries. One after another, like a house of falling cards, came news of strikes or warnings of strikes in the auto industry, steel, oil, coal, lumber, traction, radio, telephone, telegraph, packing houses, building trades, electrical service, and so on. In the three months from October through December the NLRB conducted as many strike



votes under the Wagner act as it had done in the first two years of the law. President Truman called a labour-management conference at Washington on Nov. 5, but it failed to bring the disputants any nearer together. In December he appointed a fact-finding commission of three men to investigate the claims of labour and the ability of industry to meet such claims; but since congress failed to give the commission power of subpoena, neither labour nor management was legally bound to furnish the commission with the "facts" which it sought. The most dramatic of the labour-management contests was that between the General Motors corporation and the United Automobile Workers (the largest union of the C.I.O.), which began on Nov. 21 with the walkout of 180,000 G.M. workers on the refusal of the company to grant a 30% raise in wages. In the closing weeks of the year the dispute developed far beyond the question of reaching a compromise on the percentage of wage increase into a bitter controversy over the "freedom" of industry. Repeated conferences between the union officials and the G.M. representatives served only to strengthen each side in its determination to win. Walter Reuther of the U.A.W. insisted that the company could afford to pay the 30% increase (it had offered 10%) without raising the price of its products. He accused it of being under the control of economic reactionaries in Wall street and charged it with a plot to "smash the unions." The company, on the other hand, denied the union (and the government too) the competence to decide on its capacity to pay or the right to infringe on the management's responsibility for the determination of costs, prices, wages, profits and investments. It would tolerate no "fishing" expedition into its accounts. In a large type half-page advertisement published on Dec. 31 by President C. E. Wilson and Chairman A. P. Sloan, and entitled "Here is the Issue," G.M. declared that if business were to surrender responsibility for its management to any government agency or labour union it would mean "the death of the American system of competitive enterprise." General Motors, they said, would not assume the role of initiating such a policy. When the year 1946 came in the prospects for industrial peace were dim indeed. Nearly 400,000 workers were already on strike, and strike votes had been held or were ordered which would add more than 2,000,000 to the number of idle workers in the first month of the new year. With the most elaborate machinery in U.S. history for the settlement of labour disputes the government and the people seemed powerless to achieve industrial peace. (See also AMERICAN FEDERATION OF LABOR; CONGRESS OF INDUSTRIAL ORGANIZATIONS; EMPLOYMENT; LABOUR UNIONS; RELIEF; SOCIAL SECURITY; STRIKES AND LOCK-OUTS; WAGES AND HOURS.)

**Transportation.**—With an ever increasing load of business put upon them in the year 1945 the railroads maintained their reputation for efficient operation which they had earned throughout the war. Fortunately, they were spared the labour conflicts which hampered so many industries, but they were embarrassed by the inadequacy of materials allotted to them by the WPB for the construction of new rolling stock, and by the transfer of about 300,000 of their 1,600,000 workers to the armed forces. All through the year the strain on the roads was heavy, with the need to transport great numbers of soldiers and sailors to and from camps and embarkation ports and to carry millions of tons of supplies to be shipped abroad. But it was after V-E day and V-J day that the severest test came, when each month brought increasing numbers of men back from the battle areas, either to be mustered out of service or to be redeployed. For example, it was planned after V-E day to bring 3,110,000 men from the continent of Europe to be sent across the U.S. for embarkation for the Pacific area. And after V-J day the ports on the western coast began to be crowded with service men



FUNERAL CORTEGE accompanying the body of President Franklin Delano Roosevelt to the White House for services on April 14, 1945

seeking transportation eastward. Yet the seven transcontinental lines available had long stretches of single track which had to serve for two-way freight and passenger traffic. Office of Defense Transportation chief, J. Monroe Johnson, asked the public to refrain from unnecessary travel by rail, and when the jam was at its worst accommodations on sleeping cars were denied for trips under 450 mi. Toward the close of the year the railroads purchased the Pullman cars, which had always been owned by the company and rented to the roads.

The end of the year found the United States in possession of by far the largest merchant fleet in the world. After Jan. 1942 the merchant marine had increased 400%, from 6,800,000 to 27,000,000 tons, at an expense of \$18,000,000,000. More than 60% of the Allied tonnage was represented by U.S. ships in 1945, as against 17% in the decade 1930-40. For the United States to use its supremacy in merchant ships in an attempt to monopolize world trade would be to repudiate the United States repeated endorsement of the right of all nations to access to the world's markets and sources of raw materials. At the close of World War I millions of dollars worth of merchant ships were sold for a song or tied up to rust and rot in river basins. Some way had to be found to avert another such sacrifice.

Though the needs of the army and navy came first in the construction of planes so long as the termination of the war was uncertain, civil aviation made important gains in 1945. Travel by air, as well as by rail and ship, was limited by strict priorities; but with the coming of peace and the reconversion of the aeroplane factories plans were made for a great expansion of civilian aviation. Whereas in 1940 the average speed of the civilian plane had been 140 mi. an hour and the carrying capacity 20 passengers, planes were designed to carry from 60 to 100 passengers at the rate of more than 300 mi. an hour, and the flight time from New York to London was cut from 23 to 11½ hours, to Rome from 30 to 14½ hours and to Bombay

from 58 to 30 hours. Work was begun on the Idlewild airport on Jamaica bay, L.I., which was expected to make it the "air hub of the world" with arrivals and departures of more than 1,100 a day by the year 1950. Two remarkable feats of the year were the nonstop flight of the B-29 Superfortress "Dreamboat" on Nov. 21 from Guam to Washington, 8,193 mi. in 35 hours and 5 minutes, and the cross-country flight of the same plane on Dec. 12 from Burbank, Calif., to Floyd Bennett field in 5 hours and 28 minutes. There was some uneasiness among foreign nations, especially Great Britain, lest the United States gain a monopoly of the air routes of the world, and negotiations were entered upon between Washington and London for the "rationing" of air traffic. (See also AVIATION, CIVIL; RAILROADS.)

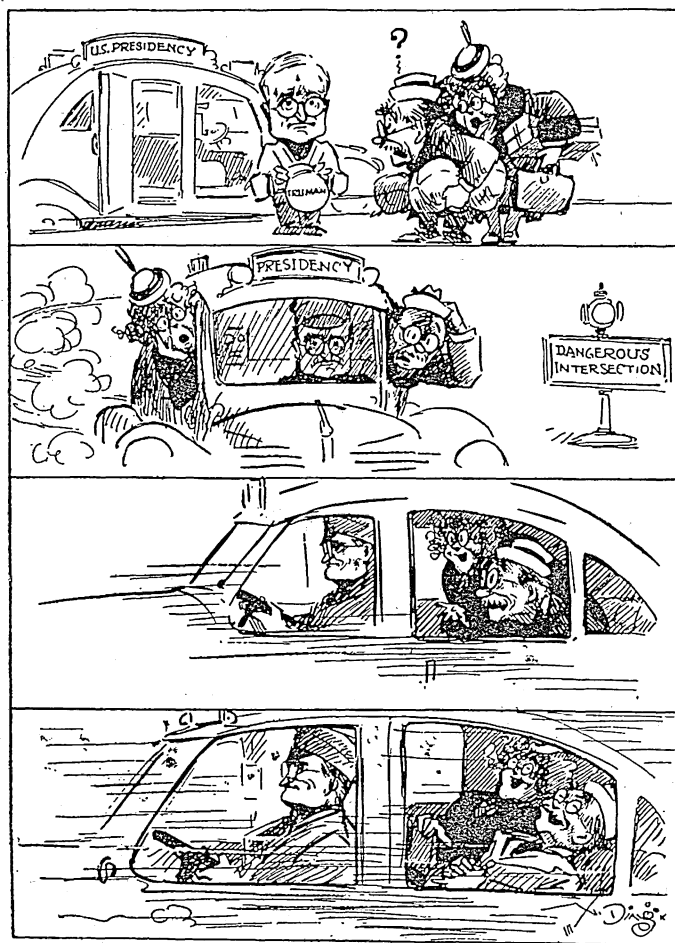
**Agriculture.**—In 1945 the United States had 6,100,000 farms, 4,300,000 of them between 50 and 175 ac. President Roosevelt's budget message of Jan. 9 allotted \$512,000,000 for the agricultural agencies and the government was pledged to support farm prices for two years following the war. Though handicapped by shortages in harvest labourers, mechanical equipment, storage space and transportation facilities, the farms, ranges, orchards and dairies not only produced immense quantities of food for shipment abroad, but provided the people at home with a standard of living unequalled in any other country of the world. The farm income reached the highest figure in more than a score of years, nearly five times the meagre \$4,000,000,000 of 1932. The department of agriculture's estimate of 1,085,000,000 bu. of wheat and 3,250,000,000 bu. of corn was surpassed, and the yield of vegetables and fruits was far above the 1934-44 averages. The new secretary of agriculture Clinton P. Anderson of New Mexico, gave a roseate picture of the food

situation for 1946 in an address in New York on Dec. 6. He predicted that the meat supply, for example, would exceed 6,000,000,000 lb. in the first quarter of 1946, and that, after satisfying the demands of U.S. foreign commitments, such as feeding U.S. occupation troops abroad and U.N.R.R.A. relief, there would be left a per capita balance of 150 lb. To be sure, there were shortages in one commodity or another throughout the year, leading to black market operations and frequent complaint against the OPA for maintaining ceiling prices; but the hardships imposed on the U.S. people were as dust in the balance compared with the acute suffering among other peoples of the world.

**Housing.**—Next to food the most indispensable need of a people is shelter. From the beginning to the end of the year 1945 the problem of adequate housing appeared as a "must" item in the presidential messages to congress. The high cost of labour and materials had virtually put a stop to the building of homes within the purchasing power of the great majority of U.S. citizens. Hundreds of thousands of families were being added to the population yearly, and more than 1,000,000 people were living in "doubled up" quarters. Hotels were crowded to the roof and apartments were sought for in vain. President Truman in his address of Jan. 3, 1946, to the nation declared that no less than 5,000,000 new homes were necessary to provide adequate housing for the people. The situation was aggravated by the return to civil life of the servicemen from overseas and the discharge of hundreds of thousands of workers from the liquidated government agencies. The impatience of the soldiers to get home after the fighting was over in Europe and the Pacific was encouraged by pressure put by their families on the government for reduction of the points necessary for mustering out. By the end of the year U.S. troops of occupation in Germany, the Philippines and other lands were staging hostile demonstrations against the war department for keeping them in the service while the jobs which they wanted at home would be snapped up before they had a chance to compete, and every month that passed seemed to reduce their prospects of finding a living place. The government meanwhile was making an effort to accommodate the ever increasing number of returning servicemen by converting barracks and camps into temporary living quarters and plans were being made for the construction of low-cost homes to relieve the housing congestion. Much remained to be done in clearing the slums of the cities and improving living conditions in the rural areas, where 4,700,000 of the houses still had no electric light and 5,500,000 no running water.

**Social Security.**—The Wagner-Murray-Dingell bill proposed early in 1945, and pending during the year, contained drastic amendments to the Social Security act of 1934, which President Roosevelt had called the most important legislation of the New Deal. It advocated a ten-year program of federal grants and loans to hospitals, sanitariums and health centres, with the government paying up to 50% of the costs according to the ability of the states; the extension of security benefits to 15,000,000 agricultural labourers, domestic servants, seamen and employees of nonprofitmaking institutions; increased aid to the blind, the aged and dependent mothers and children; credit for military service on insurance coverage; and an increase of contribution to 4% from employer and employee. In a message to congress on July 5, President Truman urged the increase of benefit payments to a uniform upper limit of \$25 a week and the extension of payments to 26 weeks in any one year. He also advocated the coverage of 3,000,000 federal employees. Organized labour was heartily in favour of the enlarged social security program, estimating that with 2,000,000 men demobilized and 4,500,000 losing jobs in war plants, the unemployed would

"THE PASSENGERS ARE BEGINNING TO SIT BACK AND RELAX." Darling of the *New York Herald Tribune* recorded some early changes in public sentiment following Truman's accession to the presidency in April 1945

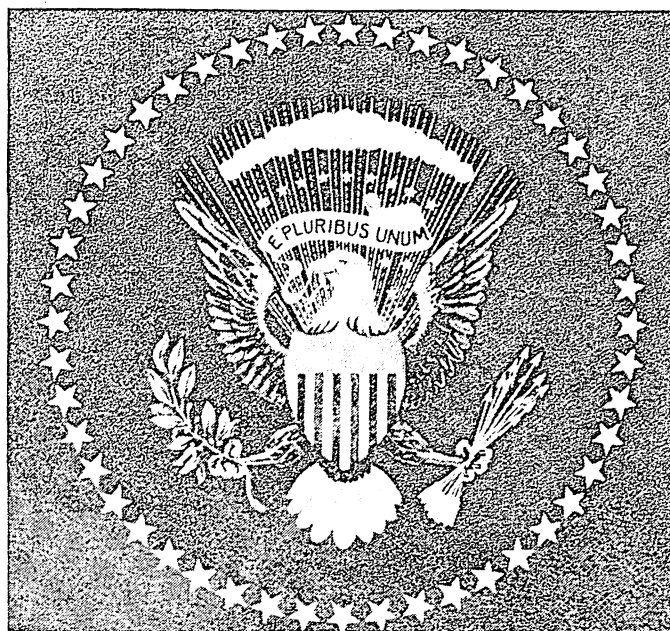




reach the number of 6,000,000 in 1946. The government's estimate of 2,500,000 unemployed seemed to be better justified by the beginning of 1946.

**Latin America.**—Important events of the year 1945 contributed to the solidarity of the American republics. A meeting of the foreign ministers at Mexico City in March resulted in the Act of Chapultepec, which guaranteed the political independence and territorial inviolability of the American states, barred war criminals and axis influence, and established procedure by which hostile acts or threats might be met with force. In December plans were announced for a special conference of all the American republics at Rio de Janeiro in March 1946, to incorporate the proposals of Chapultepec in a treaty. A second event was a proposal by Uruguay on Nov. 28 that collective action be taken against any nation in the western hemisphere that denied to its citizens essential rights or defaulted on its international obligations—a proposal aimed obviously at Argentina and approved both by Secretary of State Byrnes and U.S. ambassador to Argentina, Spruille Braden. Argentina continued to be the obstructionist to the harmony of the American republics. Ever since the coup d'état of Gen. Edelmiro Farrell and Juan Perón had established the government of the "colonels" at Buenos Aires in the summer of 1943, and secured control of the army, the police and the influential press, the country had been virtually a satellite of the axis. It was but a third the size of Brazil (which had wholeheartedly supported the Allies) and contained but a tenth of the population of South America; but, with one-half the railroad mileage and one-half the trade of the continent, and with a larger proportion of white inhabitants than even the United States had, it was the most influential of the Latin American countries. Ambassador Braden was convinced that a majority of the population of Argentina was in favour of republican government and a good understanding with the democracies; but they were repressed by the gestapo methods of the colonels. However, at the eleventh hour Argentina declared war on the nazis on March 27, 1945, in order to gain a seat at the San Francisco conference, and a coalition party was expected to contest the election of Perón to the presidency in the poll scheduled for Feb. 24, 1946.

**International Affairs.**—During the year 1945 several important international conferences were held, some between the chiefs of state and some between the foreign ministers. In all of them the United States was represented. At a meeting between Roosevelt, Churchill and Stalin at Yalta on the Black sea in February plans were discussed for the most effective co-operation of the Allies in bringing about the unconditional surrender of Germany and the treatment of that country in respect to occupation and reparations when the victory should be won. On his return from Yalta President Roosevelt addressed the nation (March 1), reporting the close accord of the Allies and declaring, "this time we are not making the mistake of waiting until the end of the war to set up the machinery of peace." Four days later the governments of the United States, Great Britain and Russia, with the concurrence of China, issued invitations to 39 nations (later increased to 51) to attend a United Nations conference at San Francisco to draft a Security charter on the basis of the Dumbarton Oaks proposals of Oct. 1944. The president died (April 12) two weeks before the opening of the San Francisco conference; and before the conference had finished its work Germany surrendered (May 8). On July 28 the senate ratified the Security charter by a vote of 89 to 2, and on Oct. 24 Secretary Byrnes announced that the soviet union had deposited the last of the 29 ratifications necessary to give the charter the force of law—"a memorable day," the secretary said, "for the peace-loving peoples of all nations." Meeting at Potsdam (Berlin) in July, President Truman, Prime



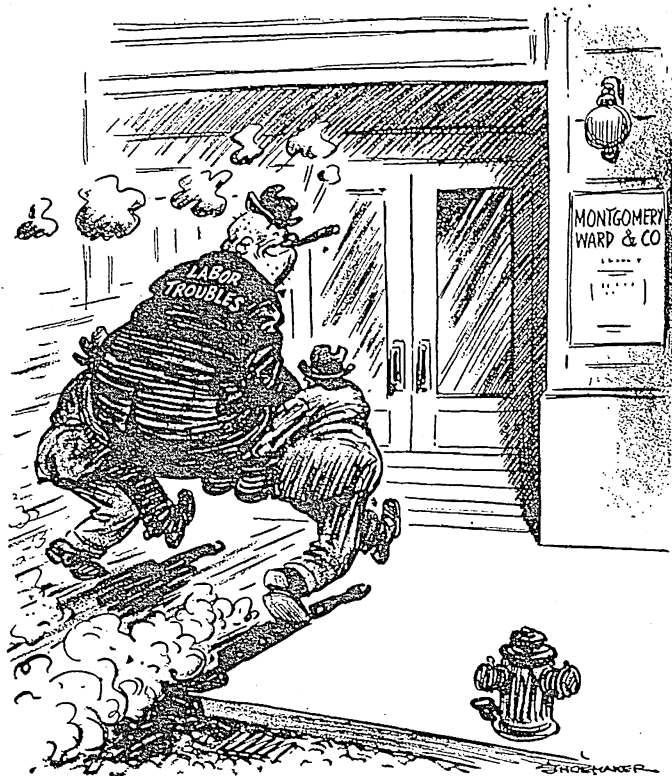
THE NEW FLAG for the president of the United States which was first shown in Oct. 1945. It differs from the previous presidential flag in that the white star in each corner has been eliminated, and the eagle faces right, toward the olive branch of peace, held in the right talon

Minister Attlee and Stalin agreed to the division of Germany into four zones of occupation by the United States, Great Britain, Russia and France, and provided for periodical conferences of the foreign ministers of those powers and China. The first of such meetings at London in September ended in a deadlock between Russia and the western powers, but a second meeting at Moscow late in December resulted in encouraging agreements on all points discussed, including the European treaties, the far east, and the reference of the control of atomic energy to a proper commission of the United Nations. On Dec. 5 the U.S. senate passed the United Nations Participation act by a vote of 65 to 7, after defeating amendments to prevent the Security council from pledging U.S. military aid against an aggressor without the senate's authorization in the form of a treaty. With the United States a full participant in the Security council, the assembly, the Economic council and the International Court of the United Nations, a relapse into the isolationism of the 1920s seemed well nigh impossible. President Truman appointed Secretary Byrnes, Edward R. Stettinius, Senators Tom Connally and Arthur H. Vandenberg, and Mrs. Franklin Roosevelt as the U.S. delegates to the U.N.O., whose opening in London was scheduled for Jan. 10, 1946. The prophetic words of Theodore Roosevelt 40 years previously were now fulfilled: "The question is no longer whether the United States shall play a great part in world affairs, but whether it shall play that part well or ill." (See also BERLIN CONFERENCE; INTER-AMERICAN CONFERENCE ON PROBLEMS OF WAR AND PEACE; MOSCOW CONFERENCE OF FOREIGN MINISTERS; RECONSTRUCTION PLANNING; UNITED NATIONS CONFERENCE ON INTERNATIONAL ORGANIZATION; UNITED NATIONS MONETARY AND FINANCIAL PROGRAM; YALTA CONFERENCE.)

**BIBLIOGRAPHY.**—Books published in 1945 of significance in United States history:

**History.**—T. A. Bailey, *Woodrow Wilson and the Great Betrayal*; R. B. Perry, *One World in the Making*; A. M. Schlesinger, *The Age of Jackson*; Paul Hughes, *Challenge at Changsha*; J. T. Adams and others (ed.), *Album of American History*, vol. ii; G. H. Soule, *America's Stake in Britain's Future*; T. A. Bisson, *America's Far Eastern Policy*; Henry Christman, *Tin Horns and Calico*; M. S. Burt, *Philadelphia, Holy Experiment*; Julia Altrocchi, *The Old California Trail*; Gertrude Atherton, *Golden Gate Country*; M. James, *Cherokee Strip*; G. F. Willison, *Saints and Strangers*; O. P. White, *Texas, an Informal Biography*; N. Peffer, *America's Place in the World*; D. F. Fleming, *The United States and the World Court*; G. R. Stewart, *Names on the Land*; Owen Lattimore, *Solution in Asia*; D. Bryn-Jones, *Toward a Democratic New Order*; Henry Morgenthau, *Germany is Our Problem*; Louis Adamic, *A Nation of*





"BACK TO NORMAL." Shoemaker of the *Chicago Daily News* paints with dry humour the continuation into 1945 of difficulties between labour and management at Montgomery Ward & Co.

*Nations*; Jerome Frank, *Fate and Freedom*; Scott Nearing, *Democracy is not Enough*; Louis Marlio, *Can Democracy Recover?*; H. Wish, *Contemporary America*.

*Biography*.—K. S. Davis, *Soldier of Democracy* (Gen. Dwight Eisenhower); J. G. Randall, *Lincoln, the President*; David Hinshaw, *A Man From Kansas* (W. A. White); S. H. Adams, *Alexander Woolcott, His Life and His World*; Carl Van Doren (ed.), *Benjamin Franklin's Autobiographical Writings*; Frank Graham, *Al Smith, American*; R. S. Baker, *American Chronicle*; C. G. Bowers, *Young Jefferson*; M. T. Bingham, *Ancestors' Brocades*; D. and J. Goebel, *Generals in the White House*; M. L. Ernst, *The Best is Yet*; Jay Monaghan, *Diplomat in Carpet Slippers* (Abraham Lincoln); G. W. Norris, *Fighting Liberal*; J. M. Mecklin, *My Quest for Freedom*; W. E. Woodward, *Tom Paine: America's Godfather, 1737-1809*; Frank McNaughton and Walter Hehmeyer, *This Man Truman*; P. S. Mowrer, *House of Europe*; E. C. Chapman, *My Wayward Parent* (Irving Cobb); M. Miller, *Joe Louis, American*; Gertrude Lawrence, *A Star Danced*; F. G. Lieb, *Connie Mack, Grand Old Man of Baseball*; Richard Wright, *Black Boy*.

*Economics and Social Science*.—G. S. Counts, *Education and the Promise of America*; J. T. Adams, *Big Business in a Democracy*; St. Clair Drake and H. R. Clayton, *Black Metropolis*; H. Finer, *Road to Reaction*; H. T. Kane, *Plantation Parade*; Rachel DuBois, *Build Together Americans*; W. E. B. DuBois, *Color and Democracy: Colonies and Peace*; M. Field, *Freedom is More Than a Word*; T. W. Schultz, *Food for the World*; H. M. Cavins, *National Health Agencies*; B. F. A. Wootton, *Freedom Under Planning*; H. I. Kupper, *Back to Life*; Henry Wallace, *Sixty Million Jobs*; Emery Reves, *Anatomy of Peace*; H. F. Infield, *Cooperative Communities at Work*; Eleanor Buckles, *Valley of Power*.

*The War*.—G. C. Marshall, *Report to the Secretary of War* (July 1943-June 1945); C. Morris and H. B. Henderson, *World War II in Pictures*; F. T. Miller, *History of World War II*; Bill Mauldin, *Up Front*; Nevil Shute, *Most Secret*; Alice R. Hager, *Wings for the Dragon*; R. J. Casey, *Battle Below and This is Where I Came In*; F. J. Spellman, *No Greater Love*; T. Ingham, *Rendezvous by Submarine*; H. C. Hoover and H. Gibson, *The Basis of Lasting Peace*; Carlton Hayes, *War-time Mission in Spain, 1942-1945*; Quentin Reynolds, *Officially Dead*; Elinor Chamberlain, *Appointment in Manila*; J. F. St. John, *Leyte Calling*; David Breger, *G.I. Joe*; T. H. Chamberlain, *The Generals and the Admirals*; Ira Wolfert, *American Guerrilla in the Pacific*; R. Henri, *United States Marines on Iwo Jima*; Com. Arch A. Mercey and Lee Grove (ed.), *Sea, Surf and Hell*; G. Cant, *The Great Pacific Victory*; M. Markey, *Well Done!*

*Latin America*.—R. S. Cotterill, *A Short History of the Americas*; Rose Brown, *American Emperor: Dom Pedro II of Brazil*; K. B. Shippen, *New Found World*; W. C. Barclay, *Greater Good Neighbor Policy*; H. E. Davis, *Makers of Democracy in Latin America*; Francis Violich, *Cities of Latin America*; Carleton Beals et al, *What South Americans*

Table II.—Total U.S. Imports and Exports of Merchandise, 1932-42

Year	Export total	% Increase	Import total	% Increase
1932	\$1,611,016	...	\$1,322,774	...
1933	1,674,994	3.9	1,449,559	9.6
1934	2,132,800	26.5	1,655,055	14.2
1935	2,282,874	7.0	2,047,485	23.8
1936	2,455,978	7.6	2,422,592	18.3
1937	3,349,167	36.4	3,083,668	27.2
1938	3,094,440	-7.6	1,960,428	-36.4
1939	3,177,176	2.7	2,318,081	18.2
1940	4,021,146	26.6	2,625,379	13.3
1941	5,147,154	27.1	3,345,005	27.4
1942	8,079,517	56.9	2,744,862	-17.9

*Think of Us*; Mrs. Ysabel Rennie, *The Argentine Republic*; A. P. Whitaker, *Inter-American Affairs, 1944*; the American Council on Public Affairs, *Our American Neighbors*; S. E. Harris, *Economic Problems of Latin America*; Alice T. Hobart, *The Peacock Sheds His Tail*; the *South American Handbook*, 22nd annual edition; *The Pan-American Year Book*, 1945. (D. S. Mu.)

*Education*.—See the articles EDUCATION; UNIVERSITIES AND COLLEGES. *Defense*.—For information about the armed forces of the United States in 1945, see AVIATION, MILITARY; COAST GUARD, U.S.; MARINE CORPS; NATIONAL GUARD; NAVIES OF THE WORLD; SUBMARINE WARFARE; WORLD WAR II. See also CIVILIAN DEFENSE.

*Foreign Trade*.—In September the U.S. department of commerce resumed publication of its monthly summary of U.S. foreign commerce, which had been interrupted on Oct. 31, 1941, by World War II. Table I shows U.S. foreign trade in merchandise by continents (1941-42) and Table II shows U.S. imports and exports of merchandise (1932-42).

For such information as was available in 1945, see BUSINESS REVIEW; EXPORT-IMPORT BANK OF WASHINGTON; FOREIGN ECONOMIC ADMINISTRATION; INTERNATIONAL TRADE.

*Communication*.—For statistics, see the articles AIR TRANSPORT COMMAND; AVIATION, CIVIL; CANALS AND INLAND WATERWAYS; ELECTRIC TRANSPORTATION; MOTOR TRANSPORTATION; POST OFFICE; RADIO; RAILROADS; ROADS AND HIGHWAYS; SHIPBUILDING; SHIPPING, MERCHANT MARINE; TELEGRAPHY; TELEPHONE; TELEVISION.

*Agriculture*.—Statistical material pertaining to this subject may be found under AGRICULTURE; also in the articles on separate crops and agricultural products.

*Mineral Production*.—Preliminary estimates prepared by the U.S. bureau of mines valued the 1945 mineral production in the U.S. and Alaska at \$8,067,000,000. This represented a decrease of 4.6% from the 1944 all-time high of \$8,452,000,000, resulting largely from a 19% decline in the output of metals, which was due to lessened military demands. The other two major classes of mineral products, mineral fuels and nonmetallic minerals, both showed an increase in production in 1945. Studies by mining engineers and geologists of the department of the interior revealed the advanced stage of depletion of many of the important mineral reserves of the U.S.

Table III.—Leading Mineral Products of the U.S., 1944 and 1943

Mineral	Value, 1944	Value, 1943
Petroleum	\$2,030,500,000	\$1,812,560,000
Bituminous coal	1,819,753,000	1,568,597,000
Pig iron	1,278,981,313	1,273,634,210
Natural gas	824,542,000	753,810,000
Coke	527,921,506	476,117,472
Pennsylvania anthracite	354,582,884	306,816,018
Copper (domestic ores only)	236,797,000	257,934,000
Cement	151,996,646	202,460,328
Stone	175,642,157	184,320,034

See the articles on individual minerals; also MINERAL AND METAL PRODUCTION AND PRICES; STRATEGIC MINERAL SUPPLIES.

**United States-British War Boards:** see BRITISH-U.S. WAR BOARDS.

**United States-Canadian War Committees:** see CANADIAN-U.S. WAR COMMITTEES.

**United States Government Departments and Bureaus:** see GOVERNMENT DEPARTMENTS AND BUREAUS. Also see under specific name, i.e., COAST GUARD, U.S., etc.

**United States Housing Authority (USHA):** see HOUSING.

**U.S. Investments Abroad.** The role of the government in the export of U.S. capital to foreign countries, already enhanced by World War II developments, became even more prominent in 1945. With the complete termination of lend-lease after V-J day, the government began extending large credits to foreign countries to finance the import of essential materials from the United States, and the groundwork was completed for a continued outflow of official capital in the postwar period.

Among events of importance the first in order of time was

Table I.—U.S. Foreign Trade in Merchandise, by Continents, 1941 and 1942

U.S.A.	Europe	N. America	Asia	S. America	Africa	Oceania
1941 exports	\$1,840,052,019	\$1,526,887,280	\$ 625,198,237	\$527,375,289	\$504,265,537	\$123,375,937
imports	276,975,173	986,043,945	1,087,844,195	674,286,113	160,899,161	158,956,899
1942 exports	3,997,077,149	1,841,804,799	687,540,843	375,835,622	815,804,089	361,454,210
imports	217,647,032	1,116,331,376	337,542,405	638,941,492	203,564,528	230,834,690

the signing of agreements with certain lend-lease countries early in the year providing for a continued flow of lend-lease goods on a credit basis, in the event of the termination of the war. In the principal case, France, the terms were to be 20% cash, the balance payable over a 30-year period with interest at 2.375%. These agreements covered only goods in the "pipelines" on V-J day; goods requisitioned under lend-lease but not contracted for on V-J day were, in some instances, being financed with Export-Import bank loans on the same terms.

On July 31, 1945, President Truman signed a bill expanding the lending power of the Export-Import bank to \$3,500,000,000, thus putting the bank in a position to make large loans to meet the needs of the transition period, particularly until the International Bank for Reconstruction and Development began to function. At the end of 1945, the bank had outstanding loans or guarantees of \$252,000,000; an additional amount of \$1,308,000,000 had been committed but not yet disbursed. New loans announced in the last half of the year included \$20,000,000 to Denmark, \$50,000,000 to Norway, \$50,000,000 to the Netherlands, \$100,000,000 to Belgium and \$550,000,000 to France.

Agreements with Great Britain announced Dec. 6 provided for extensions of credit totalling \$4,400,000,000, repayable over a 50-year period beginning in 1951, with interest at 2% beginning in that year. Of the total, \$650,000,000 covered lend-lease and surplus property settlement. This credit was within the power of the administration to grant and did not require congressional ratification. The agreement for a new credit of \$3,750,000,000 awaited congressional action at the year's end with strongly divided opinion on the subject in evidence.

The United States ratified the Bretton Woods agreements during 1945 and by the end of the year a sufficient number of countries, including France and Great Britain but excluding Russia, had ratified to ensure the inauguration of the International Bank for Reconstruction and Development and the International Monetary fund in 1946. The existence of these institutions, especially the bank, encouraged and facilitated the investment of private U.S. capital abroad, a development in line with the official policy of the United States administration in this field.

There were no significant changes in private U.S. investments abroad during 1945 except, of course, the restoration to their owners of a large amount of property in formerly enemy-occupied areas. The only new adjustment plan for defaulted bonds offered was that of the province of Alberta, Canada, which paid up its defaulted maturities and issued new bonds at lower interest rates in exchange for unmatured securities. After 1936 the province had been in default on principal payments and had been paying only 50% of the interest due on most of its outstanding bonds.

About \$95,000,000 of new Canadian issues were floated in the United States market in 1945, almost entirely in connection with refunding operations. On the other hand, the dominion government called for redemption prior to maturity, bonds having a par value of \$155,000,000 at premiums of 3% and 4%, evidence of the favourable fiscal position of the Canadian government and of a favourable exchange situation. The latter arose partly out of continued purchases of Canadian outstanding securities by U.S. investors in the open market. According to official Canadian statistics, such purchases amounted to \$134,000,000 (Canadian dollars) net during the first nine months of 1945, as compared with \$90,000,000 (Canadian) during the entire year of 1944.

The kingdom of the Netherlands was the only other country to raise a large amount of capital from private United States sources during 1945. In February it was announced that a line of credit of \$100,000,000 had been secured from a group of

## United States Investments Abroad, December 31, 1940

Area	(In millions of dollars)					Short Term Invest- ments
	Long-term Investments			Total Long- Term		
	Portfolio Investments		Total			
	Direct Invest- ments	Foreign Dollar Bonds				
Canada and Newfoundland	2,103	1,390	285	1,675	3,778	46
West Indies . . . . .	674	74	5	79	753	
Central America and Mexico	546	26	—	26	572	129
South America . . . . .	1,551	893	5	898	2,449	
Europe . . . . .	1,420	506	130	636	2,056	109
Asia . . . . .	422	155	5	160	582	120
Oceania . . . . .	120	95	3	98	218	
Africa . . . . .	131	2	17	19	150	6
International* . . . . .	33	—	—	—	33	
Total . . . . .	7,000	3,141	450	3,591	10,591	410

\*Investments not geographically allocable.

Sources: American Direct Investments in Foreign Countries, U.S. Department of Commerce, 1942; The Balance of International Payments of the United States in 1940, U.S. Department of Commerce, 1941; "Status of United States Investments in Foreign Dollar Bonds, End of 1940," in *Foreign Commerce Weekly*, July 19, 1941, p. 3; "U.S. Investments in Foreign Dollar Bonds," in *Foreign Commerce Weekly*, Sept. 26, 1942, p. 8; *Bulletin of the Treasury Department*, March 1941.

New York banks, running for three years with interest at 1.5%. The unwillingness of the private capital market to engage in large-scale credit operations with foreign countries other than Canada was evidenced by the fact that the Dutch had to pledge gold to the full amount of the credit obtained.

The repatriation by the Spanish government of the telephone system of that country formerly owned by the International Telephone and Telegraph corporation was the largest single direct-investment transaction of the year. In part payment for these properties the company accepted \$50,000,000 in 4% bonds which were to be amortized over a period of 16 years.

According to a release of the department of commerce during the year United States investments abroad were valued at \$11,100,000,000 in Sept. 1944. This total was not significantly different from that at the end of 1940, as shown in detail in the accompanying table. No more recent statistics on a detailed basis had been published up to the end of 1945.

Total income from U.S. investments abroad was estimated by the department of commerce at \$516,000,000 in 1945, only about 15% below the prewar (1940) figure. Wartime prosperity brought increased earnings to U.S.-controlled companies in the western hemisphere, thus serving to maintain income receipts on a high level despite enemy control of many countries where large U.S. investments existed.

Two reciprocal tax conventions were concluded during the year. One with Great Britain was submitted to the senate but not ratified; the other with the Union of South Africa was not submitted for ratification (Jan. 1, 1946). The British treaty was most important, involving as it did the two principal capital-investing nations of the world. It was to have the effect of eliminating the existing high burden of double taxation on income received from one of the two countries by a resident of the other. Moreover, it was open to adherence by all parts of the British empire except the self-governing dominions. The treaty, if ratified, was to be an effective step in encouraging the investment of additional private U.S. capital abroad. (See also UNITED NATIONS MONETARY AND FINANCIAL PROGRAM.)

(R. L. Ss.)

**United States Mint:** see COINAGE.

**United States Office of Education:** see EDUCATION; FEDERAL SECURITY AGENCY.

**Universities and Colleges.** The following eight pages carry a selected list of universities, colleges and junior colleges in the U.S. and Canada, with location, year founded, chief executive, enrolment, size of faculty, endowment and number of library volumes, for the academic year 1945-46. An asterisk denotes 1944-45 data; two asterisks denote data previous to 1944-45. (See also EDUCATION.)

Institution and Location	Year Founded	Chief Executive	Students	Students-un-der Program	Faculty	Endow-ment	Library Volumes	Institution and Location	Year Founded	Chief Executive	Students	Students-un-der Program	Faculty	Endow-ment	Library Volumes
<b>A</b>															
Acadia University, Wolfville, Nova Scotia, Canada	1838	Frederic W. Patterson	730	—	54	\$ 1,059,377	87,500	Benedict College, Columbia, S.C.	1870	J. A. Bacotts	472	8	22	\$ 335,019	16,577
Adams St. Sch. Col., Alamosa, Colo.	1921	Ira Richardson	295	—	23	—	21,485	Bennett College, Greensboro, N.C.	1873	David D. Jones	412	—	36	882,000	20,000
Adelphi College, Garden City, Long Island, N.Y.	1896	Paul Dawson Eddy	1,106	—	74	42,671	38,662	Bennington College, Bennington, Vt.	1893	Courtney Carroll	185	—	30	—	10,000
Agnes Scott College, Decatur, Ga.	1889	James R. McCain	541	—	68	2,450,000	44,500	Berea College, Berea, Ky.	1855	Jones	308	—	43	100,093	27,000
Akron, University of, Akron, Ohio	1870	H. E. Simmons	1,183	223	101	134,654	65,582	Belhany College, Belhany, W. Va.	1885	Francis S. Hutchins	667	18	70	11,123,640	100,000
Alabama State College, University, Ala.	1831	Raymond R. Pety	3,178	438	300	5,950,000	300,000	Belhany College, Lindsborg, Kan.	1881	Emory Lindquist	177	6	35	2,948,899	40,000
Alabama Polytechnic Inst., Auburn, Ala.	1872	Luther N. Duncan	3,615	1,623	230	—	106,000	Bethel College, North Newton, Kan.	1887	Edmund G. Kaufman	162	1	29	434,472	23,391
Alabama State College for Women, Montevideo, Ala.	1896	A. F. Harman	641	—	68	591,123	49,500	Bethune-Cookman College (Jr.), Daytona Beach, Fla.	1904	James A. Colton	268	38	23	571,372	23,500
Ala. State Teachers College, Florence, Ala.	1872	J. A. Keller	846	50	40	—	50,000	Birmingham-South. Col., Birmingham, Ala.	1908	Ernest T. Eaton	256	—	30	136,211	13,595
Ala. State Teachers Col., Jacksonville, Ala.	1893	Horatio Cole	401	15	25	—	30,000	Bishop College, Marshall, Texas	1880	Joseph J. Rhoads	491	60	38	578,828	50,000
Ala. State Teachers Col., Livingston, Ala.	1883	W. W. Hill	92	4	23	—	23,776	Bishop's College, University of, Lennoxville, Que., Can.	1843	A. H. McGreer	175	—	16	1,000,000	20,000
*Ala. State Teachers College, Troy, Ala.	1887	C. B. Smith	135	—	23	—	30,000	Blackburn College (Jr.), Carlinville, Ill.	1883	Robert W. McEwen	193	—	15	1,942,088	15,000
Alaska, University of, College, Alaska	1906	Charles E. Bunnell	82	—	260	500,000	80,900	Black Hills Teachers College, Spearfish, S.D.	1887	Russell E. Jones	100	10	25	20,425	20,425
Albertus Magnus Col., New Haven, Conn.	1835	Robert Newton	2,620	—	38	5,841	20,000	Blue Mountain Col., Blue Mountain, Miss.	1873	Lawrence T. Lowrey	318	—	28	501,000	18,620
Albion College, Albion, Mich.	1835	Sister M. Samuel	200	—	35	—	25,000	Boise Jr. Col., Boise, Idaho	1932	Eugene B. Chaffee	376	170	24	—	10,000
Albright College, Reading, Pa.	1856	Whitehouse	597	35	46	2,524,714	64,383	Boston, Teachers College of the City of, Boston, Mass.	1852	William H. J. Kennedy	260	—	31	—	26,495
Alcorn Agri. & Mech. Col., Alcorn, Miss.	1871	Harry V. Masters	299	29	30	962,496	25,000	Boston College, Chestnut Hill, Mass.	1863	Wm. L. Kelshor	976	187	111	835,000	198,422
Alfred University, Alfred, N.Y.	1836	W. H. Pipes	468	36	42	1,047,422	65,050	Boston University, Boston, Mass.	1863	Daniel L. Marsh	3,804	792	610	5,480,303	240,000
Alliaghney College, Meadville, Pa.	1815	J. E. Walters	404	40	70	1,726,959	158,988	Bowdoin College, Brunswick, Me.	1794	K. C. M. Pitt	323	73	45	8,844,996	203,258
Alliance Col. (Jr.), Cambridge Springs, Pa.	1912	J. R. Schultz	604	29	50	2,500,000	10,000	Bowling Green St. Univ., Bowling Green, O.	1910	Frank J. Sloat	1,651	142	95	—	16,500
Alma College, Alma, Mich.	1886	Rey W. Hamilton	58	13	8	650,000	51,000	Bradford Junior College, Bradford, Mass.	1897	Dr. J. M. Bell	1,336	346	27	116,000	65,000
Alverno Teachers College, Milwaukee, Wis.	1936	Mother M. Corana	91	24	18	—	10,900	Bradley Polytechnic Inst., Peoria, Ill.	1887	Fredrick R. Hamilton	410	—	39	2,409,968	24,300
Amarillo College (Jr.), Amarillo, Tex.	1929	Ernest C. Shearer	225	48	42	917,654	111,286	Brenau College, Greenville, Ga.	1904	Joshua Cradup	187	—	10	29,000	4,000
American Inter. Col., Springfield, Mass.	1885	Chester S. McGown	479	48	55	12,427,103	240,000	Brewster Parker Jr. Col., Mt. Vernon, Ga.	1904	R. L. Robinson	187	—	32	514,853	15,000
American University, Washington, D.C.	1821	Paul F. Douglass	427	157	13	150,000	5,000	Brigam Young University, Provo, Utah	1880	Paul H. Bowman	226	5	24	—	15,000
Amherst College, Amherst, Mass.	1821	Stanley King	250	47	37	2,000,000	37,000	British Columbia Univ. of Vancouver, B.C., Can.	1915	N. A. MacKenzie	1,725	125	140	250,000	140,000
Andrew College, York, Ga.	1854	S. C. Clift	118	—	43	—	70,000	Brooklyn College of the City of New York, Brooklyn, N.Y.	1930	Harry D. Gideonse	6,084	251	419	—	155,211
Antioch College, Yellow Springs, Ohio	1853	A. D. Henderson	672	37	40	—	7,000	*Brooklyn Polytechnic Inst., Brooklyn, N.Y.	1854	Harry S. Rogers	1,119	367	160	1,513,481	40,000
Appalachian St. Teachers Col., Boone, N.C.	1903	B. B. Dougherty	375	50	43	71,192	170,800	Brownville Jr. Col., Brownsville, Texas	1926	Ben L. Britte	100	—	8	—	1,167
Arizona State Teachers College, Flagstaff, Arizona	1885	Alfred Atkinson	2,114	363	163	—	28,000	Bryn Mawr College, Bryn Mawr, Pa.	1764	Henry M. Wriston	1,947	261	270	11,675,340	723,888
Arizona State Teachers College, Tempe, Arizona	1899	Tom O. Bellwood	146	26	33	—	28,000	Bryn Mawr College, Bryn Mawr, Pa.	1885	Katharine E. McBride	602	3	94	7,391,483	193,079
Arkansas, University of, Fayetteville, Ark.	1871	Grady Gammage	933	100	65	132,666	227,383	Bucknell Univ. Jr. Col., Lewisburg, Pa.	1846	Herbert L. Spencer	1,432	50	96	1,300,000	100,000
Arkansas A. & M. College, Monticello, Ark.	1909	Arthur M. Harding	1,869	400	163	—	15,000	Buffalo, University of, Buffalo, N.Y.	1933	Eugene S. Farley	232	20	20	300,000	8,339
Arkansas Polytechnic Col. (Jr.), Russellville, Ark.	1909	J. W. Hull	350	105	30	—	27,711	Butler University, Indianapolis, Ind.	1855	Samuel P. Capen	1,801	600	340	700,000	206,124
*Arkansas State College, Jonesboro, Ark.	1910	H. E. Thompson	487	40	48	27,500	7,000	California, University of, Berkeley, Los Angeles, Hamilton, La Jolla and Riverside	1868	Robert G. Sproul	39,357	1,359	4,864	35,054,000	3,964,316
Arkansas State Teachers College, Conway, Ark.	1907	Nolen M. Irby	487	40	48	27,500	7,000	Calvin College, Grand Rapids, Mich.	1876	James R. Page	755	125	160	13,500,000	150,000
Armstrong Junior College, Savannah, Ga.	1935	Foreman M. Hawes	167	21	12	720,000	29,000	Campbell College (Jr.), Buies Creek, N.C.	1926	Henry Schultz and Samuel Volbeda	460	—	36	280,000	35,000
Asbury College, Wilmore, Ky.	1890	Z. T. Johnson	630	60	21	402,704	21,000	Canal Zone Jr. Col., Balboa Heights, C.Z.	1933	L. H. Campbell	555	85	32	150,000	8,000
Ashland College, Ashland, Ohio	1878	R. W. Bixler	189	19	28	—	16,000	Canisius College, Buffalo, N.Y.	1891	Timothy J. Coughlin	95	—	23	—	8,000
Atlanta Center—Univ. System of Georgia (Jr.), Atlanta, Ga.	1934	George M. Sparks	2,700	204	65	—	16,000	Capital University, Columbus, Ohio	1850	Otto Mees	603	22	79	634,415	42,500
Atlanta University, Atlanta, Ga.	1865	Rufus E. Clement	67	3	42	4,036,968	76,971	Carleton College, Northfield, Minn.	1866	Laurence M. Gould	742	22	67	3,575,416	140,043
Augusta, Junior College of, Augusta, Ga.	1925	Eric W. Hardy	185	8	27	—	11,000	Carnegie Inst. of Tech., Pittsburgh, Pa.	1900	Robert E. Donnelly	1,445	346	189	18,084,029	45,500
Augustana College, Sioux Falls, South Dakota	1860	Lawrence M. Slaving	332	23	30	449,918	19,466	Carroll College, Helena, Mont.	1910	E. J. Riley	189	—	18	300,000	16,000
Augustana College & Theological Seminary, Rock Island, Ill.	1860	Conrad Bergendoff	597	46	54	1,500,000	90,000	Carroll College, Waukegan, Wis.	1846	G. T. Vander Lugt	335	33	32	984,384	25,000
Aurora College, Aurora, Ill.	1893	Theodore P. Stephens	123	8	25	75,073	30,000	Carson-Newman Col., Jefferson City, Tenn.	1851	James T. Warren	315	10	23	725,000	30,000
Averett College (Jr.), Danville, Va.	1859	Curtis V. Bishop	253	—	26	75,000	8,230	Case School of Apd. Sc., Cleveland, Ohio	1870	Erland Nelson	210	10	24	820,000	32,000
Baker University, Baldwin City, Kan.	1858	Nelson P. Horn	275	10	30	2,000,000	68,000	Catholic Univ. of La., Shreveport, La.	1887	Alvin Robert Keppel	376	28	27	5,575,350	35,000
Baldwin-Wallace College, Berea, Ohio	1845	Louis C. Wright	852	94	62	1,920,000	43,910	Centenary College of La., Shreveport, La.	1825	Patrick J. McCormick	1,654	89	218	388,200	21,570
Ball State Teachers College, Muncie, Ind.	1918	John R. Emms	933	48	99	—	98,332	Centenary College of N.J., Hackettstown, N.J.	1892	Joe J. Mickle	651	50	46	467,649	27,097
Barat College of the Sacred Heart, Lake Forest, Illinois	1904	Regan	203	—	24	—	20,000	Central College (Jr.), Conway, Ark.	1892	Hurst R. Anderson	254	—	21	27,380	8,888
Barber-Scott College (Jr.), Concord, N.C.	1867	L. S. Cozart	150	—	17	700,000	9,000	Central College, Fayette, Mo.	1855	Edwin S. Preston	85	—	18	—	6,000
Bard College-Amandante-on-Hudson, New York	1860	Charles Harold	169	8	33	276,759	60,000	Central College, Pella, Iowa	1853	Henry W. Pietsenpol	332	14	33	1,107,763	50,000
*Barnard College, New York, New York	1889	Nicholas Murray Butler	1,173	72	44	4,920,000	80,000	Central Mich. Col. of Ed., Mt. Pleasant, Mich.	1892	C. L. Anspach	238	60	28	379,000	20,000
Bates College, Lewiston, Me.	1864	Charles F. Phillips	575	—	19	2,930,325	12,000	Central Mich. Col. of Ed., Mt. Pleasant, Mich.	1892	George W. Diemer	458	8	60	—	69,783
Bay City Junior College, Bay City, Michigan	1922	George E. Butterfield	1,756	78	77	—	107,000	Central Mo. St. Tch. Col., Warrensburg, Mo.	1871	—	—	—	—	—	—
Baylor University, Waco, Dallas, Tex.	1845	Pat M. Neff	1,552	16	18	2,400,000	133,000								
Belmont Abbey Col. (Jr.), Belmont, N.C.	1878	Vincent G. Taylor	152	16	46	—	133,000								
Beloit College, Beloit, Wis.	1846	Carey Cronels	456	31	46	—	133,000								



Institution and Location	Year Founded	Chief Executive	Students	Students un-der Program	Faculty	Endow-ment	Library Volumes	Institution and Location	Year Founded	Chief Executive	Students	Students un-der Program	Faculty	Endow-ment	Library Volumes
Central State College, Edmond, Okla.	1891	R. R. Robinson	386	16	44	—	32,179	Drake University, Des Moines, Iowa	1881	Henry Gadd	1,119	234	80	\$1,440,479	111,511
Cent. Wash. Col. of Edu., Ellensburg, Wash.	1891	Robert E. McConnell	366	14	56	—	50,000	Drew University, Madison, N.J.	1867	Arlo Ayres Brown	475	55	44	—	194,000
Centre College of Kentucky, Danville, Ky.	1819	Robert J. McMullen	176	12	23	—	39,100	Drexel Inst. of Tech., Philadelphia, Pa.	1867	James Creese	1,043	312	209	2,953,218	85,529
Chaffey Col. (Jr.), Ontario, Calif.	1916	Gardner W. Spring	347	30	38	—	36,000	Drury College, Springfield, Mo.	1873	J. F. Findlay	416	24	34	998,105	62,685
Chapman College, Whitier, Calif.	1860	George N. Reeves	115	9	23	—	16,000	Dubuque University of Dubuque, Iowa	1852	Dale D. Welch	300	13	40	730,534	27,588
*Charleston College of Charleston, S.C.	1770	George D. Grice	208	68	16	—	522,000	Duquesne College, Omaha, Neb.	1838	Mother Helen Casey	164	20	20	—	18,000
Charlottesville College of Education, Va.	1886	David A. Lockmiller	562	68	44	—	803,669	Duke University, Durham, N.C.	1838	Robert Lee Flowers	3,596	333	511	47,001,343	722,613
Chester Hill Col. of Philadelphia, Pa.	1871	Sister Maria Koska	401	2	47	—	30,100	Duluth Junior College, Duluth, Minn.	1927	R. D. Chadwick	173	43	13	—	8,500
Cheyney Training School for Teachers, Chey-ney, Pa.	1837	Leslie Pinckney Hill	164	10	17	—	16,500	Dunbarton College of Holy Cross, Washington, D.C.	1935	Sister Mary	180	25	25	—	17,500
Chicago School of the Art Institute of Chicago, Illinois	1869	Hubert Ropp	823	328	57	—	48,000	Duquesne University, Pittsburgh, Pa.	1878	Frederick	1,111	109	148	2,000,000	48,188
Chicago Teachers College, Chicago, Ill.	1891	Robert M. Hutchins	5,364	1,262	918	70,856,444	1,500,000	D'Youville College, Buffalo, N.Y.	1908	Raymond V. Kirk	359	31	31	—	24,300
Chico State College, Chico, Calif.	1869	John A. Barkley	823	22	35	—	42,000	East Carolina College, Richmond, Ind.	1847	Wm. C. Dennis	323	15	36	1,438,445	69,000
Christian College (Jr.), Columbia, Mo.	1851	Kymer Jay Hamilton	453	33	35	—	14,000	East Central Col. of Decatur, Miss.	1907	Howard J. McGinnis	911	18	59	—	54,680
Chickadee, University of Cincinnati, Ohio	1819	James C. Hill	3,524	924	604	100,000	583,546	East Central State College, Ada, Okla.	1909	L. O. Todd	290	34	18	—	5,287
Chadwell, The, Charleston, S.C.	1842	Raymond Walters	400	9	35	—	37,000	Eastern Ill. St. Tch. Col., Charleston, Ill.	1895	A. Lindsey	348	35	62	—	48,350
Clark College, Atlanta, Georgia	1867	C. P. Summerall	474	9	34	676,457	16,000	Eastern Ky. St. Tch. Col., Richmond, Ky.	1906	Robert G. Buzzard	405	22	76	—	70,445
Clark College, Dubuque, Iowa	1843	James P. Brawley	396	—	39	—	25,500	Eastern Oregon College of Education, La Grande, Ore.	1929	W. F. O'Donnell	437	31	65	—	63,639
Clark University, Worcester, Mass.	1887	Sister Mary Ambrose	321	42	39	5,000,000	174,000	East Texas State Teachers College, Commerce, Texas	1890	Robert J. Maaske	279	17	26	—	25,829
Clemson Agri. Col. of S. C., Clemson, S.C.	1889	Wallace W. Alwood	1,032	198	116	276,983	67,563	East Texas State Teachers College, Commerce, Texas	1890	Walter W. Isle	223	18	50	—	61,000
Coe College, Cedar Rapids, Iowa	1881	Robert Franklin	504	33	48	1,816,680	54,203	Edinburg Junior College, Edinburg, Texas	1889	Sam H. Whitely	725	65	101	—	82,000
Coker College for Women, Hartsville, S.C.	1908	Byron S. Hollinshead	318	42	37	692,766	20,405	Elmhurst College, Elmhurst, Ill.	1927	H. A. Hodges	148	9	14	—	10,000
Colby College, Waterville, Me.	1813	Donald C. Agnew	543	42	57	3,000,000	180,000	Elmhurst College, Elmhurst, Ill.	1871	Timothy Lehmann	300	17	27	260,000	40,895
Colby Junior College, New London, N.H.	1837	J. S. Bixler	177	1	86	300,000	16,000	Emmanuel College, Boston, Mass.	1855	William S. A. Pelt	352	—	47	556,566	56,263
Colgate University, Hamilton, N.Y.	1819	H. Leslie Sawyer	566	117	86	5,693,543	160,000	Emmanuel College, Boston, Mass.	1919	Sister Teresa	725	—	70	—	26,000
Colorado College, Boulder, Colo.	1877	Everett N. Case	4,500	700	350	870,000	530,000	Emmanuel Miss. Col., Berrien Spgs., Mich.	1874	A. W. Johnson	499	20	49	300,000	32,000
Colorado College, Colorado Springs, Colo.	1874	Robert L. Stearns	794	65	52	2,453,000	50,000	Emory and Henry College, Emory, Va.	1836	Foye G. Gibson	289	20	15	544,226	24,390
Colorado State College of Agriculture and Mechanic Arts, Fort Collins, Colo.	1874	M. F. Coolbaugh	235	94	43	—	—	Emory Junior College, Oxford, Ga.	1929	Virgil Y. C. Eady	117	15	15	—	5,380
Colorado St. Col. of Edu., Greeley, Colo.	1870	Roy M. Green	1,057	261	137	542,720	118,014	Ermine University, Ermine, S.C.	1836	Goodrich C. White	1,513	167	418	10,000,000	230,000
Colorado Woman's College (Jr.), Denver, Colo.	1888	George W. Fraser	801	85	35	106,000	8,500	Evansville College, Evansville, Ind.	1839	Robert C. Grier	192	10	21	381,000	30,000
*Columbia College, Columbia, S.C.	1854	J. E. Hutchingson	416	—	32	527,024	15,400	Evansville Junior College, Evansville, Ind.	1854	Lincoln B. Hale	355	45	45	400,000	22,844
Columbia College, Columbia, S.C.	1854	J. Caldwell Guilds	352	—	35	88,265,934	2,000,000	Fairmont St. Col., Fairmont, W. Va.	1919	C. H. Gibson	59	4	8	—	12,000
Columbia University, New York, N.Y.	1754	Frank D. Fackenthal	19,090	1,912	1,740	—	—	Fayetteville State Tch. Col., Fayetteville, N.C.	1867	Joseph Rosier	430	—	41	—	26,500
Compton Jr. Col., Compton, Calif.	1927	O. Scott Thompson	2,702	17	30	—	20,350	Fenn College, Cleveland, Ohio	1881	J. W. Seabrook	547	5	25	—	20,000
Concordia Col., Athens, W. Va.	1875	Virgil H. Stewart	348	17	41	573,510	30,083	Fenn College, Cleveland, Ohio	1881	Cecil V. Thomas	800	1,200	145	650,000	25,000
Concordia College, Moorhead, Minn.	1875	J. N. Brown	614	18	41	—	—	Finch Junior College, New York, N.Y.	1900	Jessica G. Coxgrave	260	42	42	—	7,500
Connecticut Junior College of Bridgeport, Conn.	1891	E. Everett Cortright	340	211	50	307,295	7,600	Findlay College, Findlay, Ohio	1882	C. A. Morey	97	7	15	481,828	20,000
Connecticut University of Storrs, Conn.	1881	Albert N. Jorgensen	2,928	205	222	—	95,000	*Fisk University, Nashville, Tenn.	1866	Thomas E. Jones	652	—	72	3,326,784	80,553
Connecticut College for Women, New London, Conn.	1911	Katherine Blunt	753	—	93	2,128,098	108,651	Flat River Junior Col. of Flat River, Mo.	1922	Irvin F. Coyle	96	15	15	—	8,000
Converse College, Spartanburg, S.C.	1849	Herbert D. Walte	355	13	41	600,000	37,500	Florida, University of, Gainesville, Fla.	1923	Mark W. Bills	149	15	16	—	11,500
Copiah-Lincoln Junior College, Wesson, Miss.	1915	Edw. M. Gwatney	419	14	40	—	—	Florida Normal & Industrial College, St. Augu- stine, Fla.	1887	Wm. H. Gray, Jr.	1,092	81	138	—	16,350
Cornell College, Mount Vernon, Iowa	1853	James M. Ewing	260	17	53	2,447,834	60,000	Florida Southern College, Lakeland, Fla.	1892	John Lee Tilley	337	33	27	—	6,000
Cornell University, Ithaca, N.Y.	1865	Russell D. Cole	326	1,152	1,127	34,903,861	1,187,734	Florida State Col. for Women, Tallahassee, Fla.	1883	Ludd M. Spivey	830	100	55	1,000,000	35,000
Coyle Jr. Col. for Women, Nevada, Mo.	1884	Edmund Ezra Day	6,679	133	219	2,500,000	127,173	*Fordham University, New York, N.Y.	1905	Dock S. Campbell	2,405	2	120	200,000	106,836
Craigton University, Omaha, Neb.	1879	Marjorie Mitchell	1,256	133	219	850,000	30,000	Fort Hays Kansas State College, Hays, Kansas	1841	Robert I. Gannon	1,520	—	227	744,700	220,544
Culver-Stockton Col., Canton, Mo.	1853	Thomas S. Bowdoin	210	10	25	—	—	Fort Valley State College, Fort Valley, Ga.	1901	Lyman Dwight	309	23	61	—	55,000
Dakota Wesleyan Univ., Mitchell, S.D.	1885	Joseph H. Edge	180	17	22	590,000	30,000	Franklin & Marshall Col., Lancaster, Pa.	1895	C. V. Troup	374	6	34	—	12,000
*Dalhousie Univ., Halifax, N.S., Canada	1818	Carleton Stanley	668	140	140	3,591,968	67,923	Franklin College, Franklin, Ind.	1853	Albin C. Bro	225	35	35	162,415	11,916
Danforth State Tch. Col., Danbury, Conn.	1904	Ralph C. Jenkins	160	—	40	—	25,000	Franklin College, Franklin, Ind.	1787	Theodore A. Disler	411	163	25	1,501,650	100,400
Dartmouth College, Hanover, N.H.	1769	John Sloan Dickey	1,743	322	255	22,208,455	595,084	Fresno State College, Fresno, Calif.	1834	William G. Spencer	2,257	54	30	1,128,209	39,894
Davidson College, Davidson, N.C.	1837	John R. Cunningham	317	16	27	4,200,000	47,000	Fullerton Junior College, Fullerton, Calif.	1911	Frank W. Thomas	1,261	143	82	—	61,261
Dayton University of Dayton, Ohio	1850	George J. Renneker	606	115	80	—	42,000	Furman University, Greenville, S.C.	1826	W. T. Boyce	502	27	37	—	13,500
Delaware College of Newark, Del.	1833	W. O. Sypher	467	40	91	4,338,334	104,000	Geneva College, Beaver Falls, Pa.	1848	John Laney Plyler	897	25	48	834,356	55,000
Delta State Tch. Col., Cleveland, Miss.	1924	William M. Kehley	300	—	32	3,468,936	108,000	Geo. Peabody Col. for Tch., Nashville, Tenn.	1875	M. M. Pearce	356	60	32	666,450	37,697
Denison University, Granville, Ohio	1831	Kenneth I. Brown	762	32	60	2,100,000	189,000	George Pepperdine College, Los Angeles, Cal.	1875	Henry Harrington	759	53	82	5,228,967	454,626
Denver Univ. of Denver, Colo.	1864	Ben Mark	2,561	669	337	2,000,000	76,955	Georgetown College, Georgetown, Ky.	1837	Hugh M. Tiner	436	26	52	1,090,000	24,000
DePaul University, Chicago, Ill.	1898	Cherrington	2,919	505	226	6,000,104	105,740	Georgetown Univ., Washington, D.C.	1829	Samuel S. Hill	411	44	36	600,000	17,000
DePaul University, Greencastle, Ind.	1837	O'Malley	1,122	44	88	2,000,000	126,000	*Georgetown Visitation Junior Col., Washington, D.C.	1799	Sister Jane Frances	1,321	273	350	3,387,650	200,000
DePaul University, Greencastle, Ind.	1837	Clyde E. Wildman	1,219	505	226	2,000,000	126,000								
Detroit University of Detroit, Mich.	1873	William J. Miller	1,753	240	203	2,000,000	30,150								
Dickinson College, Carlisle, Pa.	1773	William Prehtyman	327	39	29	3,000,000	10,200								
Dillard College, St. George, La.	1930	A. W. Dent	413	6	25	—	28,250								
Dixie Junior College, St. George, La.	1911	Glenn E. Snow	325	12	25	—	—								
Doane College, Crete, Neb.	1872	Bryant Drake	182	8	22	1,225,030	—								

Institution and Location	Year Founded	Chief Executive	Students	Students in Program	Faculty	Endowment	Library Volumes	Institution and Location	Year Founded	Chief Executive	Students	Students in Program	Faculty	Endowment	Library Volumes
*Geo. Washington Univ., Washington, D.C.	1821	Cloyd H. Marvin	3,038	406	387	\$ 2,444,798	160,000	Idaho College of Caldwell, Ida.	1891	William W. Hall, Jr.	212	13	25	\$ 550,000	20,000
George Williams College, Chicago, Ill.	1860	Harold C. Coffman	140	28	24	224,023	27,500	Idaho, So. Branch of Univ. of (Id.), Pocatello, Ida.	1927	John R. Nichols	351	86	54	—	20,000
George Williams College, Montreal, Can.	1873	K. E. Norris	450	140	120	1,200,000	200,000	Idaho, University of, Moscow, Ida.	1927	Harmon C. Dale	1,450	200	136	4,347,000	100,000
Georgia College, Athens, Ga.	1801	Harmon W. Caldwell	2,550	360	190	—	—	Illinois College, Jacksonville, Ill.	1867	Arthur C. Willard	10,608	929	1,165	1,842,850	1,964,308
Georgia Military College (Jr.), Milledgeville, Ga.	1879	J. H. Jenkins	507	21	29	—	3,700	Illinois Institute of Technology, Chicago, Ill. (formerly Armour Institute [1872])	1829	H. Gary Hudson	165	29	19	1,160,382	34,244
*Georgia Sch. of Technology, Atlanta, Ga.	1885	Blake R. Van Leer	1,949	800	160	1,000,000	73,000	Illinois State Normal Univ., Normal, Ill.	1847	H. T. Heald	1,419	450	179	1,804,773	125,000
Georgia State College, Milledgeville, Ga.	1891	Benjamin F. Hubert	1,122	5	32	—	35,000	Ill. Wesleyan Univ., Bloomington, Ill.	1857	Raymond W. Fairchild	1,002	52	191	—	85,000
Ga. State Col. for Women, Milledgeville, Ga.	1889	Frank H. Wells	324	50	32	—	32,000	Immaculate College, Immaculate, Pa.	1830	William E. Shaw	499	34	48	1,580,755	45,000
Ga. State Women's Col., Valdosta, Ga.	1906	M. S. Pittman	267	55	38	—	20,000	Immaculate Jr. College, Washington, D.C.	1920	Francis J. Furey	320	41	—	—	20,600
Georgia Teachers College, Collegeboro, Ga.	1832	Henry W. A. Hanson	740	6	16	1,502,342	50,000	Innate State College, Los Angeles, Calif.	1906	Sister St. Philomena	312	1	12	—	7,091
Georgetown College, Georgetown, Ky.	1875	B. H. Peterson	807	241	61	—	20,000	Innate State College, San Antonio, Tex.	1881	Mother Eucharist	337	1	35	12,498	23,752
Glendale State College, Glendale, Calif.	1927	D. L. Haught	277	18	37	—	100,000	Innate State College, Terre Haute, Ind.	1870	Sister M. Columella	1,069	308	104	79,638	34,393
Gonzaga University, Spokane, Wash.	1863	Francis E. Corkery	62	2	28	185,653	29,139	Indiana State College, Indianapolis, Ind.	1882	Ralph Noble Tiley	5,356	1,013	438	2,500,000	146,000
Good Counsel College, White Plains, N.Y.	1923	Mother M. Aloisia	283	2	28	213,300	18,016	Iowa State College of Agriculture and Mechanical Arts, Ames, Iowa	1847	Herman B. Wells	4,748	563	519	1,194,124	600,000
Gordon Military College, White Plains, N.Y.	1852	J. E. Guilbeau	577	15	22	—	16,000	Iowa State College of Agriculture and Mechanical Arts, Ames, Iowa	1858	Virgil Hancher	4,600	520	500	1,250,000	400,000
Goshen College, Goshen, Ind.	1885	Ernest Edgar Miller	306	45	31	—	32,000	Iowa State College of Agriculture and Mechanical Arts, Ames, Iowa	1876	Charles E. Friley	1,233	30	140	—	104,237
Goucher College, Baltimore, Md.	1885	David A. Robertson	473	45	31	—	32,000	Iowa Wesleyan College, Mt. Pleasant, Ia.	1842	Stanley B. Niles	1,56	—	26	568,422	30,000
Graceland College, Lamoni, Iowa	1895	A. R. Gilbert	429	—	45	—	32,000	Jackson Jr. College, Jackson, Mich.	1928	W. N. Atkinson	140	25	20	—	9,387
Grand Rapids Junior College, Grand Rapids, Mich.	1914	Arthur Andrews	259	—	28	80,000	11,000	James Millikin University, Decatur, Ill.	1901	Walter S. Malone	335	44	40	1,031,093	37,134
*Great Falls College, Great Falls, Mont.	1932	J. J. Donovan	369	—	39	566,940	26,627	James Ormond Wilson College, Wash., D.C.	1873	Walter E. Hager	276	—	42	—	23,676
Green Mountain Junior College, Poughkeepsie, N.Y.	1831	Jesse Parker Bogue	214	6	21	118,875	17,400	Jamestown College, Jamestown, N.D.	1883	B. H. Kroeze	224	9	29	1,100,000	18,000
Greensboro College, Greensboro, N.C.	1838	Luther L. Gobbel	500	21	64	2,514,966	42,000	John B. Steison University, De Land, Fla.	1883	William S. Allen	639	43	60	900,000	47,000
Greenville College, Greenville, Ill.	1846	Samuel N. Stevens	545	40	41	847,361	28,000	John Carroll University, Cleveland, Ohio	1886	Thomas J. Donnelly	187	76	35	2,500,000	38,738
Grove City College, Grove City, Pa.	1876	Weir C. Keller	360	22	27	668,650	5,785	La. State College, Baton Rouge, La.	1899	L. E. Frazier	211	14	22	—	52,15
Guilford College, Guilford College, N.C.	1837	Clyde A. Miller	260	28	34	560,436	23,386	La. State College, Baton Rouge, La.	1876	Isaiah Bowman	1,104	328	762	32,408,395	718,259
*Gulf Park College, Gulfport, Miss.	1921	Richard G. Cox	363	—	25	—	206,939	La. State College, Baton Rouge, La.	1867	Henry L. McCrory	449	—	32	1,500,000	25,333
Gustavus Adolphus College, St. Peter, Minn.	1862	Edgar Carlson	125	26	25	393,343	46,100	La. State College, Baton Rouge, La.	1901	E. J. Howell	601	40	48	137,326	28,386
Hamilton College, Clinton, N.Y.	1812	David Worcester	694	46	48	4,038,684	32,000	La. State College, Baton Rouge, La.	1917	Rosevelt Badler	155	—	20	—	11,838
Hamilton University, St. Paul, Minn.	1854	Charles Nelson Pace	92	22	12	974,196	72,109	La. State College, Baton Rouge, La.	1901	J. B. Young	267	55	36	575,000	12,796
Hampden-Sydney College, Hampden-Sydney, Va.	1776	E. C. Gannon	972	43	108	1,000,000	11,000	La. State College, Baton Rouge, La.	1876	John Charles Ellis	278	14	31	750,283	51,200
Hanover College, Hanover, Ind.	1848	Ralph P. Braggman	207	44	17	300,000	35,000	Kalamazoo College, Kalamazoo, Mich.	1833	Paul L. Thompson	301	30	33	1,215,078	36,226
Hardin Junior College, Wichita Falls, Texas	1927	James B. Boren	696	45	48	1,256,188	24,323	Kansas, University of, Lawrence, Kan.	1865	Deane W. Malott	3,800	495	250	256,000	370,000
Hardin-Simmons Univ., Abilene, Tex.	1881	Rupert N. Richardson	467	512	120	156,079,411	47,027,272	Kansas City, Univ. of, Kansas City, Mo.	1915	A. M. Swanson	938	18	43	—	30,000
Harris Teachers College, St. Louis, Mo.	1905	Charles H. Philpott	3726	176	38	730,000	47,000	Kansas State College of Agriculture and Applied Sci., Manhattan, Kan.	1863	Clarence R. Decker	867	252	175	1,088	133,055
Harvard University, Cambridge, Mass.	1638	James B. Conant	3,726	512	120	156,079,411	47,027,272	Kan. St. Coll. of Emporia, Kan.	1863	Milton S. Eisenhower	2,192	296	325	517,956	146,000
Hastings College, Hastings, Neb.	1832	Wm. M. French	188	27	35	700,000	34,000	Kan. State Teachers College, Pittsburg, Kan.	1903	James F. Price	356	65	83	250,000	83,000
Haverford College, Haverford, Pa.	1863	Archibald Macintosh	280	17	125	42,316	13,500	Kenner Teachers College, Keene, N.H.	1909	Rees H. Hughes	216	11	24	—	14,500
Hawaii, University of, Honolulu, Hawaii	1907	Gregg M. Sinclair	1,399	17	29	983,242	31,184	Kemper Military School (Jr.), Booneville, Mo.	1844	L. P. Young	570	74	94	200,000	8,000
Heidelberg College, Tiffin, Ohio	1850	Nevin C. Harner	344	17	33	730,000	47,000	Kent State University, Kent, Ohio	1910	A. M. Hitch	1,275	350	277	189,259	367,151
*Henderson St. Coll., Arkadelphia, Ark.	1929	D. D. McBrien	283	13	33	730,000	47,000	*Kentucky State College for Negroes, Frankfort, Ky.	1865	Herman Lee Donovan	2,494	12	24	500,000	13,000
Hendrix College, Conway, Ark.	1884	Matt L. Ellis	283	13	33	730,000	47,000	Kenyon College, Gambier, Ohio	1824	Rufus B. Atwood	310	28	35	1,910,708	77,500
Hershey Junior College, Hershey, Pa.	1938	A. G. Breidenshtein	45	2	15	30,000	9,000	Keuka College, Keuka Park, N.Y.	1824	Gordon K. Chalmers	141	12	35	375,000	77,500
Herzli Jr. Coll., Chicago, Ill.	1934	Dorothy Brown	489	24	30	—	13,500	Keystone College, La Plume, Pa.	1890	Henry E. Allen	366	31	31	—	11,868
Hibbing Junior College, Hibbing, Minn.	1916	V. E. Forseth	149	7	22	—	6,230	Kilgore College (Jr.), Kilgore, Tex.	1868	Blake Tewksbury	167	11	20	—	12,000
Highland Park Jr. Coll., Highland Park, Mich.	1918	D. L. Pyle	380	76	16	750,000	30,000	Knox College (Jr.), Galesburg, Ill.	1935	B. E. Masters	353	32	30	270,000	11,000
Hillsdale College of Mich., Hillsdale, Mich.	1844	Harvey L. Turner	263	21	25	—	5,000	Knoxville College, Knoxville, Tenn.	1837	Carter Davidson	456	40	57	—	70,000
Hinds Jr. Coll., Raymond, Miss.	1917	George M. McLendon	192	7	15	973,250	40,000	Lafayette College, Easton, Pa.	1875	Wm. Lloyd Ives	258	12	24	—	13,000
Hiram College, Hiram, Ohio	1850	Paul H. Fall	233	11	24	—	28,702	Lake Erie College, Painesville, Ohio	1832	Ralph Cooper	292	90	59	4,130,244	112,557
Hobart and William Smith Colleges, Geneva, New York	1822	John Milton Potter	334	38	32	701,220	88,240	Lake Forest College, Lake Forest, Ill.	1859	Helen D. Bragdon	149	—	27	815,493	34,332
Hofstra College, Hempstead, L.I., N.Y.	1935	John Cranford Adams	370	98	32	705,998	20,307	Lamar College (Jr.), Beaumont, Tex.	1837	Ernest A. Johnson	312	25	25	1,355,100	54,963
Hollins College, Hollins College, Va.	1842	Bessie C. Randolph	339	39	40	496,381	39,000	Lane College, Jackson, Tenn.	1923	O. B. Archer	467	45	26	—	5,000
Holy Cross, Col. of the, Worcester, Mass.	1843	Wm. J. Healy	800	140	88	490,000	134,000	La Salle College, Philadelphia, Pa.	1863	Dean S. Varbrough	327	15	18	30,000	10,600
Holy Names, Col. of the, Oakland, Calif.	1880	Sister M. Rose	2,469	261	81	1,115,261	325,000	La Salle-Peru College, Peru, Pa.	1882	Brother D. Luke	136	24	20	—	17,960
Holy Names College, Spokane, Wash.	1907	Emmanuel	243	—	42	—	28,702	La Sierra Junior College, La Sierra, Calif.	1924	Frank A. Jensen	90	—	8	—	5,000
Hood College, Frederick, Md.	1893	Sister M. Elizabeth	115	—	18	825,474	26,087	La Sierra College, Auburndale, Mass.	1851	Gray M. Winslow	486	—	54	—	10,000
Hope College, Holland, Mich.	1866	Henry I. Shahr	483	—	50	925,474	26,087	La Sierra College (Jr.), Arlington, Calif.	1922	L. R. Rasmussen	304	6	907	28,500	13,650
Houghton College, Houghton, N.Y.	1863	Irwin J. Lubbers	387	30	37	250,084	45,000	Laval University, Quebec, Canada	1852	Cyrille Gagnon	4,720	—	—	2,500,000	760,000
Howard College, Birmingham, Ala.	1842	Stephen W. Paine	442	13	33	750,000	217,547	Lake Erie College, Painesville, Ohio	1859	Helen D. Bragdon	149	—	27	815,493	34,332
Howard University, Washington, D.C.	1867	Harwell G. Davis	500	60	40	1,115,261	325,000	Lake Forest College, Lake Forest, Ill.	1859	Ernest A. Johnson	312	25	25	1,355,100	54,963
H. Sophie Newcomb Memorial College for Women, New Orleans, La.	1886	Logan Wilson	828	—	81	27,671,87	325,000	Lamar College (Jr.), Beaumont, Tex.	1923	O. B. Archer	467	45	26	—	5,000
Hunter College of the City of New York, New York, N.Y.	1870	George N. Shuster	4,766	15	361	184,617	152,994	La Salle College, Philadelphia, Pa.	1863	Dean S. Varbrough	327	15	18	30,000	10,600
Huntingdon College, Montgomery, Ala.	1854	Hubert Searcy	519	—	35	400,000	25,000	La Sierra Junior College, La Sierra, Calif.	1924	Frank A. Jensen	90	—	8	—	5,000
Huron College, Huron, S.D.	1883	George F. McDougall	127	4	22	850,000	25,000	La Sierra College (Jr.), Arlington, Calif.	1922	L. R. Rasmussen	304	6	907	28,500	13,650

Institution and Location	Year Founded	Chief Executive	Students	Students under Program	Faculty	Endowment	Library Volumes	Institution and Location	Year Founded	Chief Executive	Students	Students under Program	Faculty	Endowment	Library Volumes
Lawrence College, Appleton, Wis.	1847	Nathan Marsh Pusey	581	45	59	\$1,500,000	73,000	Medical Evangelists, College of, Loma Linda and Los Angeles, California	1909	W. E. Macpherson	576	11	348	—	16,800
Lebanon Valley College, Annville, Pa.	1866	Clyde A. Lynch	283	25	27	1,000,000	31,240	Memphis State College, Memphis, Tenn.	1912	Jennings B. Sanders	772	17	32	—	36,000
Lehigh University, Bethlehem, Pa.	1865	E. K. Smiley	675	241	117	7,287,000	238,000	Mercer University, Macon, Ga.	1833	Spright Dowell	533	123	31	2,000,000	75,000
LeMayne College, Hickory, N.C.	1870	Hollis F. Price	261	18	27	3,000	15,000	Mercyhurst College, Erie, Pa.	1926	Sister M. De Sales Preston	225	—	32	1,600,000	17,000
LeMayne College, Hickory, N.C.	1870	P. E. Monroe	487	34	31	679,321	25,000	Meredith College, Raleigh, N.C.	1891	Carlyle Campbell	562	45	35	553,464	29,418
Lewis and Clark College, Portland, Ore.	1867	Morgan S. Odell	248	34	34	300,000	21,411	Meridian, Miss.	1937	J. B. Pearson	661	55	32	—	9,000
Limestone College, Gaffney, S.C.	1845	R. C. Granberry	352	1	7	516,987	30,000	Miami Univ. of Coral Gables, Fla.	1925	Bowman Foster Ashe	1,607	336	106	—	75,000
Lincoln College (Jr.), Lincoln, Ill.	1865	Milton D. McLean	31	10	24	722,526	47,000	Miami University, Oxford, Ohio	1809	A. K. Morris	1,894	201	106	—	185,000
Lincoln Memorial Univ., Harrogate, Tenn.	1897	Sherman D. Scruggs	636	37	57	1,049,006	37,000	Michigan State Col. of Agriculture and Mech. Col. of Eng. & Tech., Houghton, Mich.	1817	Alexander G. Ruthven	1,431	766	81	16,910,294	124,942
Lincoln University, Lincoln, Pa.	1854	Horace Mann Bond	208	22	51	—	38,000	Middle Georgia College (Jr.), Cochran, Ga.	1885	Grover C. Dillman	722	132	81	—	50,000
Lindenwood College, St. Charles, Mo.	1827	Harry Leslie Dillin	502	—	51	2,477,186	37,000	Middle Tennessee State College, Murfreesboro, Tenn.	1855	John A. Hannah	4,939	289	515	1,902,144	205,940
Linfield College, McMinnville, Ore.	1857	J. A. Larson	255	21	29	1,125,000	30,000	Mills College, Oakland, Calif.	1849	John M. Munson	1,180	55	160	—	130,000
Little Rock Junior Col., Little Rock, Ark.	1927	William J. Trent	322	40	22	1,000,000	20,103	Millsaps College, Jackson, Miss.	1852	Samuel S. Stratton	711	67	15	4,200,000	170,000
*Livingstone College, Salisbury, N.C.	1879	George E. Dalton	1,038	300	127	46,500	67,833	Miner Tech. Col., Washington, D.C.	1879	Leo H. Browning	260	8	15	—	10,000
Long Beach City College (Jr.), Long Beach, Calif.	1927	C. E. Peoples	1,599	8	12	—	17,000	Minn. State Col., Bemidji, Minn.	1851	Q. M. Smith	500	30	42	—	30,000
Long Beach City College (Jr.), Long Beach, Calif.	1927	M. J. Martin	344	50	37	—	60,000	Minn. State Col., Duluth, Minn.	1851	Lynn T. White, Jr.	713	2	79	2,423,069	94,437
Long Beach City College (Jr.), Long Beach, Calif.	1927	Paul J. Keirick	277	—	—	—	17,000	Minn. State Col., Moorhead, Minn.	1852	Marion L. Smith	402	65	30	850,000	35,000
Long Beach City College (Jr.), Long Beach, Calif.	1927	George E. Dalton	2,905	83	125	—	319,000	Minn. State Col., St. Cloud, Minn.	1852	Eugene A. Clark	386	—	49	2,358,187	47,570
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., Hattiesburg, Miss.	1879	James L. Morrill	11,396	1,096	1,167	25,970,514	1,327,278
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Kenneth M. Kerans	912	15	100	—	34,025	Miss. State Col., State College, Miss.	1884	A. C. Clark	168	44	44	—	27,329
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Herbert Sorenson	340	11	48	23,000	28,407
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Frank D. McElroy	351	15	51	—	28,565
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	O. W. Snarr	247	2	35	—	50,815
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Dudley S. Brainard	395	15	55	—	50,815
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Nels Minné	177	4	39	—	27,789
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Sister Mary Gonzaga	292	3	41	1,100,000	21,200
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Alfred B. Butts	1,267	201	110	733,808	128,031
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	D. M. Nelson	400	60	24	700,000	30,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	75,000
Louisiana State Univ. and A. & M. College, Baton Rouge, La.	1906	Edgar Godbold	423	13	26	—	34,025	Miss. State Col., State College, Miss.	1884	Robert C. Cook	815	230	60	—	



Institution and Location	Year Founded	Chief Executive	Students Full Time	Students un-der Program	Faculty	Endow-ment	Library Volumes	Institution and Location	Year Founded	Chief Executive	Students Full Time	Students un-der Program	Faculty	Endow-ment	Library Volumes
National College of Edw., Evanston, Ill.	1886	Edna Dean Baker	325	—	48	\$ 134,965	30,836	North Park College (Jr.) and Theol. Sem., Chicago, Ill.	1891	Algoth Ohlson	470	17	29	\$ 10,170	16,800
Nazareth College, Louisville, Ky.	1920	Sister Mary Anastasia Coady	408	—	58	—	22,095	North Texas Agri. Col. (Jr.), Arlington, Tex.	1917	E. E. Davis	795	50	50	—	24,705
Nazareth College, Nazareth, Mich.	1897	Sister M. Kevin	300	—	28	—	25,000	Nor. Tex. State Tch. Col., Denton, Tex.	1890	W. Joseph McConnell	1,230	118	175	—	165,000
Nazareth College and Academy (Jr.)	1814	Sister Margaret Gertrude	171	—	31	—	16,000	Northwestern State College, Alva, Okla.	1897	Sabin C. Percell	219	14	31	—	21,230
Nazareth Coll. of Rochester, Rochester, N.Y.	1924	Mother Rose Miriam	380	—	42	—	20,000	Northwestern State Col., Natchitoches, La.	1884	Joe Farrar	805	55	79	—	45,355
Nebraska University of Lincoln, Neb.	1869	C. S. Boucher	3,930	416	306	996,250	422,000	N.W. Mo. State Tch. Col., Maryville, Mo.	1851	Franklyn B. Snyder	5,678	976	1,250	60,000,000	848,792
Neb. State Teachers Col., Chadron, Neb.	1911	Wiley G. Brooks	275	—	43	—	27,000	Norfolk Nazareth Col., Nampa, Ida.	1906	Uel W. Lemkin	350	25	60	—	40,000
Neb. State Tch. Col., Kearney, Neb.	1905	Herbert L. Cushing	414	22	39	70,000	36,000	Norfolk Nazareth, Norfolk, Va.	1913	Lewis T. Corlett	361	10	22	—	11,000
Neb. State Tch. Col., Wayne, Neb.	1910	J. T. Anderson	258	26	48	—	29,267	Norfolk Univ. of Notre Dame, Ind.	1819	Homor L. Dodge	361	17	45	979,370	40,000
Nevada University of Reno, Nev.	1887	Beni. F. Schwartz	304	10	27	944,483	35,000	Notre Dame College, South Euclid, Ohio	1842	Hugh O'Donnell	2,832	591	226	3,000,000	219,214
Newark College of Engin., Newark, N.J.	1874	John O. Moreley	619	68	35	594,832	34,363	Notre Dame of Md., Col. of Baltimore, Md.	1922	Mother Mary Vera	219	—	29	—	23,000
Newberry College, Newberry, S.C.	1881	George H. Black	367	284	35	—	30,500	Oakwood College (Jr.), Huntsville, Ala.	1895	Sister Mary Frances	382	1	52	50,000	26,000
New Brunswick College, New Brunswick, N.B., Can.	1886	James C. Kinard	405	33	40	95,600	19,244	Oberlin College, Oberlin, Ohio	1896	Frank L. Peterson	447	3	26	—	8,203
New Hampshire Univ. of Durham, N.H.	1866	Harold M. Stakke	772	—	32	300,000	22,000	Oberlin College, Los Angeles, Calif.	1833	Ernest H. Wilkins	1,602	85	169	23,412,620	449,654
New Haven St. Tch. Col., New Haven, Conn.	1893	Harold M. Stakke	1,366	170	142	1,354,943	33,338	Ohio State University, Columbus, Ohio	1870	Arthur G. Coons	760	87	60	1,239,266	74,980
N.J. State Tch. Col., Glassboro, N.J.	1922	Edgar F. Bunce	267	5	92	—	21,000	Ohio State University, Athens, Ohio	1880	H. L. Bevis	10,533	1,025	800	2,036,957	644,401
N.J. State Tch. Col., Jersey City, N.J.	1928	Chris C. Rossey	200	—	26	—	22,000	Ohio Wesleyan Univ., Delaware, Ohio	1804	John Calhoun Baker	2,014	211	196	155,640	155,640
N.J. State Tch. Col., Montclair, N.J.	1913	Harry A. Sprague	528	28	61	—	49,647	Oklahoma University of Norman, Okla.	1890	H. J. Burgstaller	1,267	—	88	3,608,000	170,000
N.J. State Tch. Col., Newark, N.J.	1855	John B. Dougal	373	13	40	—	36,000	Oklahoma Agri. & Mech. Col., Stillwater, Okla.	1891	George Lynn Cross	3,652	512	315	4,681,889	260,000
N.J. State Tch. Col., Paterson, N.J.	1855	Clair S. Whitman	240	20	71	—	17,000	Oklahoma Col. for Women, Chickasha, Okla.	1908	Henry G. Bennett	5,200	2,500	461	4,083,363	165,000
N.M. Col. Agri. & Mech., Albuquerque, N.M.	1889	Roscoe L. West	603	21	24	949,101	46,250	Omaha, Municipal Univ. of Omaha, Neb.	1908	C. Don Procter	713	57	—	—	33,000
New Mexico Highlands University, Las Vegas, New Mexico	1889	John Philip Wernette	1,510	274	115	481,659	52,500	Oregon Univ. of Eugene, Ore.	1872	Rowland Haynes	1,435	153	82	140,578	76,521
New Mexico Sch. of Ed., Roswell, N.M.	1893	Edward Eyring	166	60	38	493,167	30,662	Oregon Cal. of Ed., Monmouth, Ore.	1856	Harry K. Newburn	3,794	315	232	857,238	358,938
New Mexico State Col., Las Cruces, N.M.	1889	Daniel C. Pearson	586	—	40	—	20,000	Oregon State College, Corvallis, Ore.	1886	A. L. Strand	3,406	375	289	265,872	210,000
New Mexico St. Tch. Col., Silver City, N.M.	1893	R. H. Reese	30	9	10	—	6,000	Ottawa University, Ottawa, Ont., Can.	1848	Philippe Cornellier	1,435	—	234	135,450	20,000
New Rochelle, Col. of the City of N.Y., N.Y.	1904	Haddon W. James	77	11	66	50,000	26,400	Ottawa Heights College (Jr.), Ottumwa, Iowa	1865	Andrew B. Martin	197	10	25	451,651	20,000
N.Y. St. Col. of the City of N.Y., N.Y.	1844	Frank N. Wright	4,880	470	492	—	307,116	Ouachita College, Arkadelphia, Ark.	1825	Mother Mary	432	33	40	1,209,709	35,000
N.Y. St. Col. of Forestry, Syracuse, N.Y.	1911	Joseph S. Illick	1,048	11	98	—	54,597	Ouachita College, Arkadelphia, Ark.	1825	Geraldine Upham	110	—	21	—	10,000
N.Y. St. Tch. Col., Albany, N.Y.	1866	John M. Sayles	358	19	79	—	32,865	Our Lady of the Lake Col., Chapee, Mass.	1886	James Richard Grant	509	53	27	500,000	27,000
N.Y. State Tch. Col., Buffalo, N.Y.	1872	Donald M. Tower	1,038	18	41	—	16,238	Ottawa Heights College (Jr.), Ottumwa, Iowa	1825	Thomas M. O'Leary	202	2	55	—	50,000
N.Y. State Tch. Col., Corland, N.Y.	1869	Harvey W. Rockwell	634	32	52	100,000	25,000	Pacific College of the Stockton, Calif.	1851	Tully C. Knoles	284	55	60	571,292	46,700
N.Y. St. Tch. Col., Fredonia, N.Y.	1866	Donna V. Smith	357	9	44	—	18,760	Pacific Union College, Angwin, Calif.	1909	Henry J. Klooster	389	13	49	—	31,316
N.Y. St. Tch. Col., Genesee, N.Y.	1867	Leslie R. Gregory	340	4	46	—	27,941	Pacific University, Forest Grove, Ore.	1849	Walter C. Giersbach	214	36	26	339,324	30,537
N.Y. St. Tch. Col., New Paltz, N.Y.	1886	James B. Welles	402	6	39	—	24,267	Packer Collegiate Institute (Jr.), Brooklyn, N.Y.	1853	Paul D. Shafer	97	—	21	316,459	12,295
N.Y. St. Tch. Col., Oneonta, N.Y.	1889	Wm. J. Haggerty	289	2	42	—	24,000	Paine College, Augusta, Ga.	1882	Edmund C. Peters	279	2	21	35,000	20,000
N.Y. St. Tch. Col., Oswego, N.Y.	1861	Charles W. Hunt	243	300	42	—	27,000	Palm Beach Junior College, West Palm Beach, Fla.	1933	John I. Leonard	88	3	18	—	5,133
N.Y. State Tch. Col., Plattsburgh, N.Y.	1889	Ralph W. Swelman	542	11	46	—	21,308	Park Junior College, Parkville, Mo.	1924	Geo. Irwin Rohrbough	310	41	17	—	7,200
N.Y. St. Tch. Col., Potsdam, N.Y.	1869	O. H. Voelker	462	11	46	—	16,238	Parsons College, Fairfield, Iowa	1875	Herbert C. Mayer	365	10	39	1,760,725	40,000
N.Y. St. Tch. Col., Saratoga, N.Y.	1831	Harvey W. Chase	13,000	3,774	2,073	9,768,066	687,580	Parsons College, Pasadena, Calif.	1902	H. Orton Wiley	122	13	24	544,559	24,332
N.Y. St. Tch. Col., Schenectady, N.Y.	1869	C. J. Duke, Jr.	331	20	51	—	11,500	Pasadena Jr. College, Pasadena, Calif.	1924	John Wesley Harbeson	4,432	30	25	—	20,000
N.Y. St. Tch. Col., Utica, N.Y.	1856	Joseph M. Noonan	460	86	54	—	63,000	Pearl River Jr. Col., Poplarville, Miss.	1922	R. D. McLendon	350	22	23	—	40,000
N.Y. St. Tch. Col., West Co., N.Y.	1930	Ferdinand D. Bluford	1,362	254	83	3,045,178	32,000	Pennsylvania Univ. of Philadelphia, Pa.	1740	George Wm. McLendon	5,601	1,843	1,346	24,824,844	1,013,653
N.Y. St. Tch. Col., West Co., N.Y.	1891	Frank Porter Graham	1,811	2,400	308	—	447,560	Pa. Cal. for Women, Pitsburgh, Pa.	1869	Paul Russell Anderson	346	—	1,346	24,824,844	1,013,653
N.C. Agri. and Tech. Col. of Greensboro, N.C.	1891	W. C. Jackson	2,138	181	181	—	114,185	Pa. State Tch. Col., Bloomsburg, Pa.	1855	Ralph D. Hetzel	5,112	1,200	775	517,000	250,000
N.C. College of the Univ. of Greensboro, N.C.	1910	James E. Shepard	778	285	72	—	29,969	Pa. State Tch. Col., Clarion, Pa.	1839	Robert M. Andrus	310	35	21	—	23,257
N.C. St. Col. of Agri. & Eng., Raleigh, N.C.	1889	J. W. Harrelson	1,266	200	22	—	74,488	Pa. State Tch. Col., Clarion, Pa.	1855	Robert M. Steele	222	20	21	—	20,632
N.C. St. Tch. Col., Elizabeth City, N.C.	1861	Harold L. Trigg	514	1	22	—	13,500	Pa. State Tch. Col., Edinboro, Pa.	1893	Joseph F. Noonan	160	10	21	—	22,000
North Central College, Naperville, Ill.	1883	Edward E. Rall	440	24	40	1,173,330	32,000	Pa. State Tch. Col., Edinboro, Pa.	1893	L. H. Van Houten	330	28	38	—	22,000
N.D. University of Grand Forks, N.D.	1889	John C. West	979	170	125	1,700,000	67,000	Pa. State Tch. Col., Edinboro, Pa.	1893	Joseph M. Uhler	185	20	20	—	22,000
N.D. Agri. Col., Fargo, N.D.	1889	Frank L. Eversoll	755	108	84	1,566,720	16,800	Pa. State Tch. Col., Edinboro, Pa.	1893	Joseph M. Uhler	185	20	20	—	22,000
N.D. St. Tch. Col., Ellendale, N.D.	1918	John C. McMillan	195	7	20	—	15,900	Pa. State Tch. Col., Edinboro, Pa.	1893	Joseph M. Uhler	185	20	20	—	22,000
N.D. St. Tch. Col., Mayville, N.D.	1889	Charles E. Scott	211	34	24	—	15,900	Pa. State Tch. Col., Edinboro, Pa.	1893	Joseph M. Uhler	185	20	20	—	22,000
N.D. St. Tch. Col., Minot, N.D.	1913	J. W. Headley	68	6	18	—	20,953	Pa. State Tch. Col., Edinboro, Pa.	1893	Joseph M. Uhler	185	20	20	—	22,000
N.D. St. Tch. Col., Valley City, N.D.	1889	C. C. Swain	283	20	38	—	28,980	Pa. State Tch. Col., Edinboro, Pa.	1893	Joseph M. Uhler	185	20	20	—	22,000
N.E. St. Tch. Col., Moorhead, Minn.	1907	Edna Klempell	390	37	34	—	10,000	Pa. State Tch. Col., Edinboro, Pa.	1893	Joseph M. Uhler	185	20	20	—	22,000
N.E. St. Tch. Col., Moorhead, Minn.	1907	Walter H. Ryle	395	35	58	—	10,000	Pa. State Tch. Col., Edinboro, Pa.	1893	Joseph M. Uhler	185	20	20	—	22,000
Northeastern Univ., Boston, Mass.	1863	John Vaughan	704	41	38	—	38,378	Pa. State Tch. Col., Edinboro, Pa.	1893	Joseph M. Uhler	185	20	20	—	22,000
Nor. Ill. State Tch. Col., DeKalb, Ill.	1899	Carl Stephens Ell	1,483	471	140	954,203	37,944	Pa. State Tch. Col., Edinboro, Pa.	1893	Joseph M. Uhler	185	20	20	—	22,000
Nor. Mich. Col. of Edu., Marquette, Mich.	1899	Henry A. Tape	582	21	34	—	37,944	Pa. State Tch. Col., Edinboro, Pa.	1893	Joseph M. Uhler	185	20	20	—	22,000
Northern Montana Col. (Jr.), Havre, Mont.	1929	G. H. Vande Bogart	143	18	16	—	18,213	Pa. State Tch. Col., Edinboro, Pa.	1893	Joseph M. Uhler	185	20	20	—	22,000
Nor. State Tch. Col., Aberdeen, S.D.	1901	G. H. Steele	265	128	35	—	28,189	Pa. State Tch. Col., Edinboro, Pa.	1893	Joseph M. Uhler	185	20	20	—	22,000
North Georgia Col. (Jr.), Dalton, Ga.	1873	J. C. Rogers	675	2	35	—	12,000	Pa. State Tch. Col., Edinboro, Pa.	1893	Joseph M. Uhler	185	20	20	—	22,000

Institution and Location	Year Founded	Chief Executive	Students— Full Time	Students un- der Veterans' Program	Faculty	Endow- ment	Library Volumes	Institution and Location	Year Founded	Chief Executive	Students— Full Time	Students un- der Veterans' Program	Faculty	Endow- ment	Library Volumes
Plymouth Teachers Col., Plymouth, N.H.	1870	Ernest L. Silver	140	20	30	\$	18,000	St. Joseph's College, Emmitsburg, Md.	1809	Francis J. Dodd	173	—	32	—	15,000
Pomona College, Claremont, Calif.	1887	Ellah Wilson Lyon	672	43	68	—	114,408	St. Joseph's College, Philadelphia, Pa.	1851	J. J. Long	205	—	38	—	12,500
Port Huron Jr. Col., Port Huron, Mich.	1923	John H. McKenzie	136	17	10	—	5,998	St. Joseph's Univ., Women, Brooklyn, N.Y.	1916	William T. Dillon	470	—	45	29,000	20,446
Portland, Univ. of, Portland, Ore.	1925	Chas. C. Milner	364	106	40	—	35,000	St. Joseph's Univ., St. Joseph, Mo., Can.	1864	Hector Léger	560	—	68	—	18,300
Potomac State School of W. Va. Univ. (Jr.), Keyser, W. Va.	1901	E. E. Church	200	16	17	—	9,100	St. Lawrence University, Canton, N.Y.	1856	Eugene Garrett	476	—	59	1,661,818	82,000
Prairie View University, Prairie View, Tex.	1876	W. R. Banks	1,329	86	110	—	26,000	St. Louis University, St. Louis, Mo.	1818	Patrick J. Holleran	5,102	—	854	464,320	464,320
Prince of Wales College and Provincial Normal School (Jr.), Charlottetown, P.E.I., Can.	1860	George-Douglas Steel	134	—	28	—	4,419	St. Martin's College, Lacey, Wash.	1893	Raphael Heider	347	—	17	9,082,154	20,000
Princeton University, Princeton, N.J.	1746	Harold W. Dodds	1,875	370	315	40,000,000	1,000,000	St. Mary College, Xavier, Kan.	1923	Arthur M. Murphy	325	—	43	—	26,000
Principia Col. of Lib. Arts, The, Elmhurst, Ill.	1898	Frederick C. Morgan	303	21	28	744,234	33,355	*St. Mary of the Springs College, Columbus, Ohio	1911	Sister M. Anacletus	210	—	34	—	33,298
Providence College, Providence, R.I.	1919	Frederick C. Foley	313	82	52	85,000	30,000	Saint Mary-of-the-Wasatch, Salt Lake City, Utah	1926	Sister Mary Benedictus	103	—	19	—	11,797
Puget Sound, College of, Tacoma, Wash.	1888	R. Franklin Thompson	422	51	32	—	44,711	St. Mary-of-the-Woods Col., St. Mary-of-the-Woods, Ind.	1840	Mother Mary Bernard	363	—	49	550,000	62,700
Purdue University, Lafayette, Ind.	1869	Frederick L. Hovde	5,746	1,510	605	340,000	228,000	St. Mary's College, St. Marys, Kan.	1844	Sister Mary Madeleva	180	—	53	—	34,849
Queens College, Charlotte, N.C.	1837	Hunter B. Blakely	427	—	43	400,000	21,000	St. Mary's College, Winona, Minn.	1848	Daniel H. Conway	220	—	27	—	31,000
Queens College of the City of New York, Flushing, N.Y.	1937	Paul Klapper	1,941	102	136	4,420,000	65,000	St. Mary's College, Univ. of, Halifax, N.S., Can.	1912	Brother Joel	308	—	30	—	25,000
Queen's University, Kingston, Ont., Can.	1841	Robert C. Wallace	2,278	—	—	—	211,357	St. Mary's Junior College, Raleigh, N.C.	1841	T. J. Mullaly	308	—	17	19,650	7,103
Radcliffe College, Cambridge, Mass.	1879	Wilbur K. Jordan	1,189	3	400 part time	5,691,610	96,000	St. Michael's College, Winoski Park, Vt.	1842	Mrs. Ernest Cruikshank	154	—	27	201,276	10,590
Randolph-Macon College for Men, Ashland, Va.	1830	J. Earl Moreland	113	11	16	992,931	38,526	St. Michael's College, West DePere, Wis.	1904	James H. Petty	138	—	14	83,000	30,000
Redlands, Univ. Col., Lynchburg, Va.	1893	Theodore H. Jack	693	—	72	1,259,531	62,000	St. Norbert College, Northfield, Minn.	1898	B. H. Pennings	112	—	25	1,012,022	29,000
Regis College, Portland, Ore.	1907	George H. Amara	691	82	58	3,000,000	67,645	St. Olaf College, Northfield, Minn.	1874	Clemens M. Granskou	834	—	30	—	60,800
Regis College, Weston, Mass.	1904	Peter H. Odegar	389	65	43	1,636,185	77,000	St. Peter's College, Jersey City, N.J.	1927	Roland A. Wakefield	170	—	17	—	11,000
Rensselaer Poly. Inst., Troy, N.Y.	1824	Sister Mary Honora	583	—	51	—	25,000	St. Peter's College, St. Petersburg, Fla.	1872	Vincent J. Hart	225	—	22	—	21,000
Rice Institute, Houston, Texas	1854	Lucius A. Whipple	1,583	384	144	9,100,091	38,320	St. Rose, College of, Duluth, Minn.	1920	Edmund Gibbons	439	—	52	90,737	16,101
Rhode Island State Col., Kingston, R.I.	1892	Carl R. Woodward	305	2	54	—	27,616	St. Scholastica, College of, Duluth, Minn.	1912	Mother M. Ahanasius	498	—	45	—	25,000
Rice Institute, Houston, Texas	1892	William V. Houston	833	82	71	18,700,000	175,000	St. Teresa, College of, Winona, Minn.	1910	Sister M. A. Malloy	479	—	42	297,950	34,994
Richmond, University of, Richmond, Va.	1832	F. W. Boatwright	820	65	14	2,936,316	100,000	St. Vincent College, Latrobe, Pa.	1885	Vincent J. Flynn	338	—	30	1,773,624	65,274
Ricker Junior College, Houlton, Maine	1848	Roy M. Hayes	230	6	76	42,000	1,000	St. Vincent College, Winston-Salem, N.C.	1846	Alfred Koch	128	—	35	660,243	29,729
Ricks College (Jr.), Rexburg, Idaho	1888	John L. Clarke	192	28	18	883,854	41,244	Sam Houston State Teachers College, Huntsville, Texas	1879	Herman Lowman	766	—	63	57,483	57,483
Ripon College, Ripon, Wis.	1851	Clark G. Kuebler	316	26	21	700,000	25,000	Samuel Huston College, Austin, Texas	1928	Karl E. Downs	267	—	32	6,861	6,337
Roanoke College, Salem, Va.	1816	A. G. Paul	244	26	30	883,854	41,244	San Bernardino Valley Junior College, San Bernardino, Calif.	1926	John L. Lounsbury	575	—	18	—	25,000
Rochester College, Rochester, N.Y.	1842	Charles J. Smith	285	16	21	700,000	25,000	San Diego State College, San Diego, Calif.	1897	William R. Hapner	1,460	—	94	92,716	92,716
Rockford College, Rockford, Ill.	1850	Alan Valentine	274	337	650	53,256,317	436,703	*San Francisco Univ. of, San Francisco, Calif.	1855	William J. Dunne	265	—	72	—	43,000
Rockhurst College, Kansas City, Mo.	1847	Mary Ashby Cheek	291	45	43	991,185	34,000	San Francisco State College, San Francisco, Calif.	1930	Mother Leonora Meija	234	—	38	—	100,000
Rollins College, Winter Park, Fla.	1910	William Hugh McCabe	179	45	15	950,000	65,000	San Mateo Jr. Col., San Mateo, Calif.	1899	J. Paul Leonard	981	—	79	—	43,917
Rosemary College, River Forest, Ill.	1885	Sister Mary Peter	432	44	54	100,472	52,000	San Mateo Jr. Col., San Mateo, Calif.	1857	T. W. MacQuarrie	2,472	—	133	—	87,459
Rosemont College, Rosemont, Pa.	1901	Mother M. Cleophas	704	1	64	100,472	52,000	Scraper Institute (Jr.), Knoxville, Tenn.	1923	C. S. Morris	450	—	32	—	11,000
Rose Polytechnic Inst., Terre Haute, Ind.	1874	Donald B. Prentice	105	35	22	2,100,000	23,000	Scraper Institute (Jr.), Knoxville, Tenn.	1923	John H. McCoy	326	—	8	—	15,000
Russell Sage College, Troy, N.Y.	1916	Helen M. McKinstry	776	2	70	1,059,237	42,941	Scripps College, Claremont, Calif.	1909	Clarence L. Phelps	902	—	27	—	35,000
Rutgers University, New Brunswick, N.J.	1766	Robt. C. Clothier	2,415	252	353	5,800,000	367,640	Seattle Pacific College, Seattle, Wash.	1851	Charles J. Walsh	189	—	36	—	75,000
Sacramento Col. (Jr.), Sacramento, Calif.	1916	Nicholas Ricciardi	1,227	46	59	—	25,000	Seton Hill College, South Orange, N.J.	1918	Floyd P. Bailey	281	—	21	—	12,050
Sacré-Cœur, Université du, Bathurst, N.B., Can.	1899	Jules Comeau	365	—	29	—	10,000	Shaw University, Raleigh, N.C.	1865	James S. Thomson	292	—	55	315,367	45,368
St. Ambrose College, Davenport, Iowa	1882	Ambrose J. Burke	239	108	29	600,000	25,000	Shaw University, Raleigh, N.C.	1865	Hugh C. Thomson	2760	—	177	243,986	85,000
St. Anne's College, Church Point, N.S., Can.	1890	W. Hache	186	—	23	60,000	7,500	Schreiner Institute (Jr.), Knoxville, Tenn.	1892	J. J. Delaney	141	—	14	493,987	15,000
St. Anselm's College, Manchester, N.H.	1893	Bertrand C. Dolan	90	13	21	60,000	7,500	Scraper Institute (Jr.), Knoxville, Tenn.	1923	Wm. C. Nevils	288	—	22	175,000	7,000
St. Augustine's College, Raleigh, N.C.	1867	Edgar H. Gould	257	18	20	—	12,000	Scripps College, Claremont, Calif.	1926	Frederick Hard	396	—	23	2,500,000	26,185
St. Benedict's College, St. Joseph, Minn.	1913	Mother R. Pratschke	241	36	19	200,000	16,000	Seattle Pacific College, Seattle, Wash.	1892	Harold O. Small	237	—	29	950,636	30,615
St. Benedict's College, Atchison, Kan.	1856	Cuthbert McDonald	177	16	28	10,800	30,000	Seton Hill College, South Orange, N.J.	1891	Chas. Hoyt Watson	844	—	91	—	27,000
St. Bernard Junior Col., St. Bernard, Ala.	1892	Thomas Plasmann	40	14	14	250,000	80,000	Seton Hill College, South Orange, N.J.	1891	James F. Kelley	249	—	19	100,000	19,000
St. Bonaventure Col., St. Bonville, N.Y.	1859	Sister Antonius	276	42	43	616,250	73,000	Shaw University, Raleigh, N.C.	1865	Robert A. Reeves	344	—	123	—	27,000
St. Catherine's College, St. Paul, Minn.	1911	Sister Plasmann	742	1	72	—	40,000	Shaw University, Raleigh, N.C.	1865	Robert A. Reeves	344	—	123	—	27,000
St. Charles College (Jr.), Catonsville, Md.	1831	George A. Gleason	156	—	12	—	8,000	Shaw University, Raleigh, N.C.	1865	Robert A. Reeves	344	—	123	—	27,000
St. Dunstan's Univ., Charlottesville, P.E.I., Can.	1855	R. V. MacKenzie	260	—	20	—	8,000	Shaw University, Raleigh, N.C.	1865	Robert A. Reeves	344	—	123	—	27,000
St. Edward's University, Seattle, Wash.	1931	John P. McCormick	140	1	17	—	14,000	Shaw University, Raleigh, N.C.	1865	Robert A. Reeves	344	—	123	—	27,000
St. Elizabeth, Col. of, Convent St., N.J.	1899	Sister Marie J. Byrne	580	—	54	16,000	24,000	Shaw University, Raleigh, N.C.	1865	Robert A. Reeves	344	—	123	—	27,000
St. Francis College, Joliet, Ill.	1925	Sister M. Anticia	265	—	39	—	10,000	Shaw University, Raleigh, N.C.	1865	Robert A. Reeves	344	—	123	—	27,000
*St. Francis College, Loretto, Pa.	1847	John P. J. Sullivan	72	—	18	—	10,000	Shaw University, Raleigh, N.C.	1865	Robert A. Reeves	344	—	123	—	27,000
*St. Francis Xavier College for Women, Chicago, Ill.	1912	Sister Mary Huberta	385	—	44	—	60,000	Shaw University, Raleigh, N.C.	1865	Robert A. Reeves	344	—	123	—	27,000
St. Francis University, Antigonish, N.S., Can.	1853	P. J. Nicholson	620	—	29	502,708	36,000	Shaw University, Raleigh, N.C.	1865	Robert A. Reeves	344	—	123	—	27,000
St. Helen's Hall Junior Col., Portland, Ore.	1932	Gertrude Houk Fariss	52	—	16	—	5,000	Shaw University, Raleigh, N.C.	1865	Robert A. Reeves	344	—	123	—	27,000
St. John's University, Brooklyn, N.Y.	1870	William J. Mahoney	1,390	474	115	—	67,979	Shaw University, Raleigh, N.C.	1865	Robert A. Reeves	344	—	123	—	27,000
Saint Joseph College, West Hartford, Conn.	1932	Sister M. Rosa	393	—	38	—	17,521	Shaw University, Raleigh, N.C.	1865	Robert A. Reeves	344	—	123	—	27,000
St. Joseph Jr. Col., St. Joseph, Mo.	1915	Nelle Blum	260	7	17	—	8,000	Shaw University, Raleigh, N.C.	1865	Robert A. Reeves	344	—	123	—	27,000

Institution and Location	Year Founded	Chief Executive	Students	Students under Program	Faculty	Endowment	Library Volumes	Institution and Location	Year Founded	Chief Executive	Students	Students under Program	Faculty	Endowment	Library Volumes
South Dakota, Univ. of, Vermillion, S.D.	1882	I. D. Weeks	587	118	87	\$ —	117,750	Trinity College, Hartford, Conn.	1823	G. Keith Funston	224	85	33	\$ 3,797,882	140,000
South Dakota School of Mines and Technology, Rapid City, S.D.	1885	Joseph P. Connolly	225	144	22	250,000	22,000	Trinity College, Washington, D.C.	1897	Sister Catherine Dorothea	480	—	58	530,531	44,000
So. Dak. St. Col. of Agri. and Mech. Arts, Brookings, S.D.	1881	Lyman E. Jackson	573	117	108	598,972	81,671	Trinity Univ., San Antonio, Texas	1869	Monroe G. Everett	558	87	52	322,356	31,860
Southwestern State College, Durant, Okla.	1909	T. T. Montgomery	524	168	46	—	34,272	Tulane University of Louisiana, New Orleans, La.	1852	Leonard Carmichael	2,391	489	570	8,825,715	200,000
S.E. Mo. St. Col., Cape Girardeau, Mo.	1873	Walter W. Parker	517	101	50	—	80,000	Tulsa, University of, Tulsa, Okla.	1834	Rufus C. Harris	3,555	562	664	10,889,533	400,000
So. Calif. Univ. of Los Angeles, Calif.	1879	R. B. von Kleinsmid	4,688	1,200	750	1,600,000	323,938	Tusculum College, Greeneville, Tenn.	1894	E. L. Pontius	1,157	417	76	1,366,935	80,940
Southern Christian Inst. (Jr.), Edwards, Miss.	1875	John Long	343	6	22	—	9,977	Tuskegee Inst., Tuskegee Institute, Ala.	1881	Jere A. Moore	200	11	22	800,000	19,000
So. Ill. Normal Univ., Carbondale, Ill.	1869	Chester F. Lacy	1,109	182	126	—	55,000	Tyler Jr. College, Tyler, Tex.	1926	F. D. Patterson	1,418	167	130	7,101,325	50,000
Southern Methodist Univ., Dallas, Texas	1911	Umphrey Lee	2,700	750	145	2,660,804	125,000	Union College, Barboursville, Ky.	1879	J. M. Hodges	100	22	18	—	7,320
Southern Missionary College, Collegeville, Tenn.	1893	Kenneth A. Wright	320	28	35	—	9,000	Union College, Lincoln, Neb.	1879	Conway Boatman	188	12	21	478,000	17,000
*Southern Oreg. Col. of Educ., Ashland, Ore.	1926	Waller Redford	100	—	20	—	16,883	Union College, Schenectady, N.Y.	1891	E. E. Cassentine	565	19	42	—	34,977
*Southern St. Norm. Sch., Springfield, S.D.	1897	Wm. A. Thompson	20	—	17	126,888	31,000	U.S. Coast Guard Acad., New London, Conn.	1795	Carter Davidson	751	114	65	4,000,000	115,000
So. Univ. of Agri. and Mech. Col., Scaledale, La.	1880	Felton G. Clark	1,041	103	112	—	7,000	U.S. Military Academy, West Point, N.Y.	1869	James P. B.	354	—	45	—	35,204
South Georgia College (Jr.), College, Ga.	1907	J. M. Thrash	473	76	37	1,414,000	54,481	U.S. Naval Academy, Annapolis, Md.	1802	Maxwell D. Taylor	2,271	—	267	—	124,700
Southwestern College, Winfield, Kan.	1885	Charles E. Diehl	473	76	37	611,000	28,000	U.S. Naval College, East Orange, N.J.	1845	Arthur W. Fitch	2,671	—	375	—	103,000
Southwestern College, Weatherford, Okla.	1901	W. H. Burton	378	82	39	—	32,546	Ursula College, Collegeville, Pa.	1893	E. L. Lawson	353	47	22	204,985	18,200
Southwestern Ind. of Tech., Weatherford, Okla.	1901	Joel L. Fletcher	1,356	276	123	747,000	67,000	Ursuline Col. for Women, Cleveland, Ohio	1891	Norman E. McClure	340	45	41	750,000	34,000
Southwestern Univ., Georgetown, Texas	1898	J. N. R. Score	919	52	78	—	—	Utah, University of, Salt Lake City, Utah	1871	Mother Marie Sands	240	476	32	—	18,500
Southwest Missouri State Teachers College, Springfield, Mo.	1906	Roy Ellis	695	100	81	—	69,374	Utah State Agri. Col., Logan, Utah	1888	Leroy E. Cowles	4,200	476	331	778,486	174,000
S.W. Tex. St. Col., San Marcos, Tex.	1899	John Garland Flowers	536	59	60	—	57,800	Valparaiso University, Valparaiso, Ind.	1859	O. P. Kretzmann	700	46	65	500,000	50,000
Spelman College, Atlanta, Ga.	1881	Florence M. Reed	439	—	43	3,178,000	76,971	Vanderbilt University, Nashville, Tenn.	1872	Oliver C. Carmichael	1,527	98	198	28,529,565	454,626
Springfield College, Springfield, Mass.	1825	Ernest M. Best	—	6	21	1,078,000	29,709	Vassar College, Poughkeepsie, N.Y.	1861	Henry N. MacCracken	1,362	301	191	12,000,000	250,000
Springfield Jr. Col., Springfield, Ill.	1899	Mother Mary Barbara	142	—	21	—	10,000	Vermont, Univ. of, and State Agri. Col., Burlington, Vt.	1791	John S. Mills	753	120	164	2,768,989	156,450
Spring Hill College, Spring Hill, Ala.	1830	Wm. D. O'Leary	159	38	30	220,000	49,310	Vermont Junior College, Montpelier, Vt.	1937	John H. Kingsley	180	15	20	125,000	2,500
Stanford Univ., Stanford University, Calif.	1885	Donald B. Tresidder	3,284	133	625	34,931,350	920,000	*Villa Maria College, Erie, Pa.	1925	Sister M. Dalorella	140	—	32	1,535,241	15,000
State Agri. and Mech. Col. (Jr.), Magnolia, Ark.	1910	Charles S. Wilkins	165	10	22	—	17,423	Villanova College, Villanova, Pa.	1842	F. X. N. McGuire	785	157	157	75,143	75,143
Stephens College (Jr.), Columbia, Mo.	1833	James M. Wood	2,142	245	68	160,770	32,000	Virginia, Univ. of, Charlottesville, Va.	1819	John L. Newcomb	1,899	500	205	12,304,725	443,128
Stevens Inst. of Tech., Hoboken, N.J.	1870	Harvey N. Davis	700	100	68	100,000	29,779	Virginia Intermont Col. (Jr.), Bristol, Va.	1884	Reuben L. Brantley	410	36	36	486,000	11,000
Stillman Institute (Jr.), Tuscaloosa, Ala.	1876	A. L. Jackson	173	3	20	—	10,150	Virginia Junior College, Virginia, Minn.	1921	Floyd B. Noe	165	17	17	—	18,000
Stout Institute, The, Menomonie, Wis.	1903	Verne C. Frylund	373	70	44	—	15,000	Virginia Military Inst., Lexington, Va.	1859	John R. Hutcheson	256	7	47	324,801	72,240
*Stowe Teachers and Jr. Col., St. Louis, Mo.	1890	Ruth M. Harris	470	21	15	—	14,000	Va. Polytechnic Inst., Blacksburg, Va.	1872	C. E. Kilbourne	1,332	145	171	349,312	113,383
Sue Bennett College (Jr.), London, Ky.	1897	Oscie Sanders	72	—	42	240,000	26,260	Va. St. Col. for Negroes, Norfolk, Va.	1884	L. H. Foster	978	25	50	173,000	32,610
Sullins College (Jr.), Bristol, Va.	1920	Wm. E. Martin	410	22	27	—	5,500	Va. State Tech. Col., Farmville, Va.	1910	Joseph L. Jarman	851	—	51	—	35,528
Sul Ross State Tech. Col., Alpine, Tex.	1927	R. M. Horton	207	18	20	—	22,000	Va. State Fair Col., Radford, Va.	1910	David Wilbur Peters	511	—	38	786,476	29,450
Sunflower Junior College, Moorhead, Miss.	1920	W. B. Horton	230	15	28	470,000	8,364,311	Virginia Union University, Richmond, Va.	1865	John Marcus Ellison	697	17	25	44,000	19,700
Susquehanna Univ., Selinsgrove, Pa.	1858	G. Morris Smith	227	83	109	—	795,000	Voorhees N. & I. Sch. (Jr.), Denmark, S.C.	1897	J. E. Blanton	93	6	35	2,517,003	91,886
Swarthmore College, Swarthmore, Pa.	1864	John Nason	819	54	54	—	351,186	Wabash College, Crawfordsville, Ind.	1832	Frank Hugh Sparks	238	35	21	390,000	38,826
Sweet Briar College, Sweet Briar, Va.	1901	Meta Glass	446	—	688	—	—	Wagner Mem. Luth. Col., Staten Island, N.Y.	1883	Walter Consuelo	371	42	50	3,000,000	22,729
Syracuse University, Syracuse, N.Y.	1870	William P. Tolley	5,489	742	29	1,133,389	40,422	Wake Forest College, Wake Forest, N.C.	1834	Thurman D. Kitchin	946	85	56	—	—
Talladega College, Talladega, Ala.	1867	Adam Daniel Beithel	258	2	22	680,000	19,000	Wallia Walla College, College Place, Wash.	1892	George W. Bowers	640	49	40	—	—
Tarkio College, Tarkio, Mo.	1883	M. Earle Collins	200	15	53	196,272	207,288	Ward-Belmont Sch. (Jr.), Nashville, Tenn.	1865	Robert Calhoun	819	—	81	—	16,000
Temple University, Philadelphia, Pa.	1884	Robert L. Johnson	4,216	760	553	612,945	50,000	*Washington Municipal University of Topeka, Topeka, Kan.	1865	Bryan S. Stoffer	367	200	54	1,254,452	58,258
Tenn. Univ. of Knoxville, Tenn.	1794	James D. Hoskins	2,467	378	224	—	30,000	Washington, State Col. of Pullman, Wash.	1865	Wilson Compton	2,707	281	54	7,331,531	500,000
Tenn. Agri. & Indus. St. Col., Nashville, Tenn.	1912	W. S. Davis	1,385	65	71	—	30,000	Washington, University of, Seattle, Wash.	1861	Lee Carl Sieg	9,463	2,108	690	577,582	577,582
Tenn. Jr. Col., Univ. of, Martin, Tenn.	1927	Paul Meek	194	12	16	—	13,357	Washington & Jefferson Col., Wash. Pa.	1780	C. J. Pietsch	135	46	25	1,426,154	55,090
Tennessee Poly. Inst., Cookeville, Tenn.	1915	Everett Derryberry	600	125	50	—	15,485	Washington and Lee Univ., Lexington, Va.	1719	Francis P. Gaines	167	65	32	3,428,900	130,500
Tenn. St. Col., East, Johnson City, Tenn.	1911	Charles C. Sherrard	610	110	48	117,625	721,392	Washington College, Chestertown, Md.	1782	Benjamin W. Mead	310	35	27	—	30,000
Tenn. Wesleyan Col. (Jr.), Athens, Tenn.	1866	James L. Robb	114	6	13	—	100,000	Washington Miss. Col., Takoma, D.C.	1904	Benjamin W. Mead	392	15	29	—	31,572
Texarkana College (Jr.), Texarkana, Texas	1927	H. W. Shilwell	114	6	13	—	100,000	Wayne University, Detroit, Mich.	1868	Arthur H. Compton	3,607	900	693	22,006,270	355,343
Texas Agri. & Mech. Col. of, Col. Station, Texas	1876	Gibb Gilchrist	2,938	480	300	64,923,600	29,600	Webster College (Jr.), Osgood, Mo.	1899	David D. Henry	3,567	699	759	—	18,000
Texas, University of, Austin, Tex.	1881	Theophilus S. Painter	9,300	2,250	438	4,000,000	17,000	*Webster College, Webster Groves, Mo.	1915	H. A. Dixon	702	253	60	15,969	25,355
Texas Christian Univ., Fort Worth, Texas	1873	M. E. Sadler	1,800	300	138	—	20,000	Wellesley College, Wellesley, Mass.	1870	George F. Donovan	316	32	52	—	234,000
Texas College, Tyler, Texas	1894	D. R. Jones	656	43	23	—	10,000	Wells College, Aurora, N.Y.	1868	Horton	1,597	1	192	12,411,784	100,680
Tex. Col. of Arts and Indus., Kingsville, Tex.	1923	E. N. Wiggins	526	35	49	—	170,000	Wentworth Mil. Acad. (Jr.), Lexington, Mo.	1923	William E. Weld	321	45	45	1,506,878	8,629
Tex. Col. of Mines and Metall., El Paso, Tex.	1914	William F. Kraushaar	765	58	12	—	1,400,000	Wesleyan College, Macon, Ga.	1836	J. M. Sellers	361	—	33	—	8,269
Texas Tech. Col. for Women, Denison, Tex.	1901	William M. Hubbard	2,524	204	163	—	20,000	Wesleyan University, Middletown, Conn.	1831	N. C. McPherson, Jr.	598	121	68	1,018,000	31,000
Texas Theological Col., Lubbock, Tex.	1925	Louis H. Hubbard	2,348	161	18	—	2,000	Westbrook Junior College, Portland, Maine	1925	Victor L. Butterfield	268	1	68	8,800,000	320,000
Thom. S. Clarkson Mem. Col. of Tech., Potsdam, N.Y.	1866	William F. Zimmerman	225	25	30	170,000	10,000	Western Carolina College, Cullowhee, N.C.	1889	Milton D. Proctor	350	37	37	61,671	6,600
*Thornton Junior College, Harvey, Ill.	1895	John A. Ross, Jr.	385	200	31	1,400,000	8,500	Western College, Oxford, Ohio	1853	Hiram T. Hunter	385	2	44	787,863	20,698
*Tillotson College, Austin, Texas	1927	William E. McVey	130	—	18	—	25,356,000	Western Ill. St. Col., Macomb, Ill.	1859	Philip E. Henderson	700	74	81	—	57,341
Toledo, University of, Toledo, Ohio	1872	Philip C. Nash	1,643	339	145	—	708,726	*West Ky. St. Col., Bowling Green, Ky.	1906	Paul L. Garrett	475	—	90	—	65,000
*Toronto University of, Toronto, Ont., Can.	1827	Henry J. Cody	6,738	—	4	—	—								
Tougaloo College, Tougaloo, Miss.	1869	Judson L. Cross	196	10	18	—	—								
Transylvania College, Lexington, Ky.	1780	Henry Noble Sherwood	187	10	18	—	—								



Institution and Location	Year Founded	Chief Executive	Students— Full Time	Students un- der Program	Faculty	Endow- ment	Library Volumes	Institution and Location	Year Founded	Chief Executive	Students— Full Time	Students un- der Program	Faculty	Endow- ment	Library Volumes
Western Maryland Col., Westminster, Md.	1867	Fred G. Holloway	482	8	45	\$ 900,000	43,572	Winston-Salem Tch. Col., Winston-Salem, N.C.	1892	Francis L. Atkins	587	10	26	—	22,244
West. Mich. Col. of Ed., Kalamazoo, Mich.	1903	Paul V. Sangren	1,900	150	220	—	65,000	Winthrop College, Rock Hill, S.C.	1886	Henry R. Sims	1,499	112	112	—	63,000
West. Ontario, Univ. of, London, Ont., Can.	1878	W. Sherwood Fox	2,405	305	305	489,868	170,000	Wisconsin Univ. of Madison, Wis.	1848	Edwin Brown Fred	7,769	775	899	2,711,272	1,200,000
Western Reserve Univ., Cleveland, Ohio	1826	Winifred G. Leulier	3,158	611	700	16,755,540	574,000	Wisconsin State Tch. Col., Eau Claire, Wis.	1916	W. R. Davies	382	18	44	—	31,000
West. St. Col. of Colo., Gunnison, Colo.	1911	Chas. C. Casey	312	7	27	—	32,344	Wisconsin St. Tch. Col., LaCrosse, Wis.	1909	Frank S. Mitchell	433	34	54	—	35,990
West. Wash. Col. of Edu., Bellingham, Wash.	1893	Wm. W. Haggard	312	45	16	—	67,551	Wisconsin St. Tch. Col., Milwaukee, Wis.	1880	Reford S. Baker	960	34	83	—	62,196
West. Ga. College (Jr.), Genoa, Ga.	1933	L. S. Ingram	305	2	23	—	18,081	Wisconsin State Tch. Col., Oshkosh, Wis.	1871	Forrest R. Polk	375	14	49	—	14,000
West. Liberty St. Col., W. Liberty, W. Va.	1837	Paul N. Elbin	102	17	18	600,000	29,794	Wisconsin State Tch. Col., Platteville, Wis.	1866	Chester O. Newlin	186	30	40	—	27,000
Westminster College, Fulton, Mo.	1851	Francis L. McCluer	164	2	31	900,000	30,500	Wis. State Tch. Col., River Falls, Wis.	1874	J. H. Ames	300	60	41	—	21,885
Westminster Col., New Wilmington, Pa.	1852	R. F. Galbreath	625	31	51	1,300,000	21,250	Wisconsin St. Tch. Col., Central, Stevens Point, Wis.	1894	William C. Hansen	318	28	42	—	40,000
West. Texas St. Tch. Col., Canyon, Tex.	1875	Robert D. Steele	94	3	22	—	219,250	Wisconsin St. Tch. Col., Superior, Wis.	1893	William C. Hansen	318	28	42	—	40,000
West Virginia State Col., Institute, W. Va.	1891	J. A. Hill	588	68	34	115,300	29,216	Wisconsin St. Tch. Col., Whitewater, Wis.	1898	Claude M. Yoder	350	25	45	—	32,978
West Virginia Univ., Morgantown, W. Va.	1890	C. T. Neff, Jr.	1,837	303	272	337,181	188,000	Wittenberg College, Springfield, Ohio	1845	Rees E. Tullos	400	230	45	2,087,875	75,000
W. Va. Wesleyan Col., Buckhannon, W. Va.	1860	A. A. Schoolcraft	227	18	68	1,200,774	57,112	Woodrow Wilson Jr. Col., Chicago, Ill.	1834	Walter K. Greene	1,444	21	15	846,218	40,000
Wheaton College, Norton, Mass.	1834	V. R. Edman	475	51	86	706,617	90,000	Woodrow Wilson Jr. Col., Chicago, Ill.	1934	J. I. Swearingen	1,219	13	51	3,200,000	49,000
Wheaton College, Wheaton, Ill.	1860	A. Howard Menzies	1,214	28	41	1,318,114	77,560	Worcester College of Wooster, Ohio	1866	Howard Foster Lowry	714	28	70	160,739	10,000
Whitman College, Walla Walla, Wash.	1859	Windsor S. Anderson	461	28	41	700,000	50,000	Wright Jr. Col., Chicago, Ill.	1865	Wat T. Cluettus	472	79	54	—	35,000
Whitman College, Walla Walla, Calif.	1901	William C. Jones	425	33	43	30,000	18,000	Wyoming Univ. of Laramie, Wyo.	1934	Dorothy Brown	898	147	160	4,195,996	124,685
Whitworth College, Spokane, Wash.	1890	Frank F. Warren	312	6	32	94,274	71,485	Xavier University, Cincinnati, Ohio	1831	Celestin J. Steiner	337	143	55	—	84,101
Whitworth College, Spokane, Wash.	1873	William M. Jardine	884	86	70	600,000	16,214	Xavier University, New Orleans, La.	1925	Mother M. Agatha	499	17	65	470,655	44,069
Wichita Municipal Univ. of Wichita, Kan.	1926	E. C. McLeod	464	15	26	1,800,000	36,000	Yale University, New Haven, Conn.	1701	Charles Seymour	5,240	926	731	121,374,572	3,432,363
Wiley College, Marshall, Texas	1842	G. Herbert Smith	550	101	50	1,692,522	246,450	Yankton College, Yankton, S.D.	1881	J. Clarke Graham	161	7	28	701,486	40,000
William Jewell Col., Liberty, Mo.	1849	John Edwin Pomeroy	1,092	60	101	1,448,703	56,146	Young L. G. Harris College (Jr.), Young Harris, Ga.	1886	J. W. Sharp	320	6	14	127,000	12,000
Williams College, Williamstown, Mass.	1793	James P. Baxter	315	106	45	11,962,080	201,923	Yuba Junior Col., Marysville, Calif.	1927	J. J. Collins	175	12	30	—	6,100
Williamsport Pa. . . . .	1848	John W. Long	185	11	25	281,818	10,518								
William Woods College (Jr.), Fulton, Mo.	1890	Harlie L. Smith	319	—	32	583,000	13,000								
Williamson State Teachers College, . . . . .	1889	George H. Shafer	135	70	40	—	9,000								
Williamson College, Wilmington, Ohio	1870	S. Arthur Watson	142	8	24	312,000	20,722								
Wilson College, Chambersburg, Pa.	1869	Paul Swain Havens	433	—	55	865,205	55,000								

**U.N.O.:** see UNITED NATIONS CONFERENCE ON INTERNATIONAL ORGANIZATION.

**U.N.R.R.A.:** see UNITED NATIONS RELIEF AND REHABILITATION ADMINISTRATION.

**Uranium:** see ATOMIC BOMB; CHEMISTRY; METALLURGY.

**Urology.** During 1945 the increased importance of antibiotic agents in combating infection in the genito-urinary tract was amply demonstrated. Particular reference is made to penicillin and streptomycin. Penicillin was in 1945 being produced in tremendous quantities, and as a result, it became widely available and at a reasonable cost. The generally accepted method of administration of penicillin was by intermittent intramuscular injection. A simpler method of application was employed by combining penicillin with a solution of beeswax and peanut oil. A single intramuscular injection of this preparation would sustain a high level of penicillin in the blood for from 24 to 48 hours. Oral administration of penicillin was tried with a variable degree of success. It should be emphasized that self-administration of these antibiotic agents is inadvisable. Careful supervision by a physician is essential to their successful employment.

The other antibiotic agent which was used with success in combating infection during 1945 was streptomycin. Preliminary clinical use showed that streptomycin was of particular value in that it affected bacteria against which penicillin was not of value. This is true particularly in infections with certain gram-negative bacilli. Streptomycin was found to have almost a specific effect against infection of the genito-urinary tract with *Proteus ammoniae*. Heretofore, urinary infections with this organism were difficult to control, but streptomycin eliminated it from the urine in many cases when nothing else could. Streptomycin was also of value in treating urinary infection with other forms of gram-negative bacilli, such as *Aerobacter aerogenes*. It was not quite as efficient in the elimination of *Escherichia coli*.

Of particular interest was the effect of streptomycin on infections in the urinary tract with *Mycobacterium tuberculosis*. It was shown in several cases that it has a distinctly deterrent action on the activity of this bacillus. In a few cases of renal tuberculosis in which it was administered, it temporarily eliminated this organism from the urine. Unfortunately, the quantities of this antibiotic agent which were produced in 1945 were so limited that its clinical application was insufficient to make final conclusions. Thus far the workers with this preparation emphasized that patients should not abandon accepted methods of treatment for tuberculosis.

Although it had long been known that dysfunction of the muscles of the neck of the bladder would often be the cause of a variable degree of urinary obstruction, the importance of transurethral removal of the obstructing tissue was not fully appreciated as applied to patients with paralysis of the bladder following injury to the spinal cord. During World War II many soldiers suffered from spinal injuries of this type which caused paralysis of the bladder. As a result atrophy of the muscles of the bladder developed, together with spastic dysfunction of the muscles at the neck of the bladder, and urinary retention resulted. Following wide transurethral resection of the obstructing tissue at the neck of the bladder, many of these patients who were unable to empty the bladder without the use of a catheter had the function of this organ restored to normal. This method of treatment, together with orthopaedic care and physical therapy, proved to be of great benefit to the hundreds of unfortunate persons who were so afflicted. (W. F. Br.)

**Uruguay.** A republic in the southeastern part of South America, bounded by the Atlantic on the east, the Rio

de la Plata on the south, Argentina on the west and Brazil on the north. Area, 72,172 sq.mi. (the smallest of any South American republic); pop. est., Jan. 1, 1943, 2,202,936; pop. density, 30.28 per sq.mi. Racial distribution was estimated at 90% white and most of the rest mestizo. The capital and chief port is Montevideo (1943 pop. est., 708,233); other important cities with 1942 pop. est. are Paysandú (46,000), Salto (46,000), Minas (32,000), Mercedes (30,000), San José (30,000), Durazno (27,000), Santa Lucía (27,000), Rocha (25,000). Uruguay is a unitary republic headed by a popularly elected president and with the congress and cabinet filled on a basis of proportional representation. The chamber of deputies has 99 members and the senate 30. President in 1945: Juan José Amézcaga.

**History.**—Development in 1945 continued to be influenced largely by Uruguay's location between Argentina and Brazil. The General Workers' Union (U.G.T.) held a 15-min. general strike Jan. 9 in protest against the Argentine regime. Foreign Minister Eduardo Rodríguez Larreta on Nov. 22 proposed, supposedly with Argentina in mind, that the principle of collective intervention be adopted in case of "the notorious and repeated violation by any republic of the elementary rights of man and of the citizen"; the suggestion aroused great interest elsewhere in the hemisphere and several other foreign ministries gave qualified endorsement, most notably U.S. Secretary of State James F. Byrnes on Nov. 27. The Uruguayan congress on Feb. 21 approved a war declaration against Germany and Japan; Juan Carlos Blanco, ambassador to the U.S., signed the United Nations pact on Feb. 24. The Uruguayan delegation at the Mexico City inter-American conference in Feb.-March took a leading role in urging a plan for a pact of peace and mutual guarantees. A newly formed Latin Republican union urged at Montevideo on March 22 that democratic governments be established in Italy, Spain, France and Portugal. A serious diplomatic crisis developed with Spain late in September. Serious labour unrest, accompanied by strikes, prevailed in September, caused by the high cost of living.

**Education and Religion.**—Statistics for 1942 showed 220,833 pupils enrolled in 1,768 primary schools, 27,000 in 98 intermediate schools and 2,670 in the one university. The predominant religion is Roman Catholicism.

**Finance.**—The monetary unit is the peso, valued in Dec. 1945 at 52.63 cents U.S. Government revenues in the first nine months of 1945 increased 26.5% over the corresponding period in 1944; expenditures increased 15.9%. The government reduced its floating debt in 1944 by more than 23,000,000 pesos but deficit spending continued for the sixth successive year and caused serious concern in business and financial circles. Presence of large amounts of foreign capital resulted in the large total of 8,471,000 pesos in Montevideo building permits in the first quarter of 1945, a gain of 93.6% over the same period in 1944; total Montevideo building permits in 1945 were 25,853,000 pesos as against 14,423,000 in 1944. Public works expenditures in the first quarter of 1945 totalled 14,888,000 pesos as against 11,245,000 in the same period of 1944. With prices continuing to increase in 1945, the government's anti-inflation program, led by the Bank of the Republic, involved the issuing of monetary defense bonds against deposits; the government imposed an excess profits tax but rejected an income tax. Export-Import bank dealings with Uruguay, as of June 15, 1945, involved total commitments of \$32,100,000, including an undisbursed balance of \$25,000,000.

**Trade and Communication.**—Large wool exports in the crop year ending Sept. 30, 1945, led to the expectation that the calendar year might show a record foreign trade total. Exports for the first eight months of 1945 totalled \$90,529,899 and imports \$59,510,867, a favourable trade balance of \$31,019,032. Exports for 1944 were valued at \$97,558,653 (1943: \$100,021,697) and imports at \$72,446,471 (1943: \$63,807,357). Trade in 1944 showed large gains with Uruguay's South American neighbours;

Sweden and South Africa also notably increased their proportion of trade with Uruguay. U.S. purchases of Uruguayan wool were 85% of the total in the year ending Sept. 30, 1945, and amounted to 201,826 bales of 420 kg.; this figure represented a 60% increase over the preceding year. New purchases of Uruguayan wool in 1944-45 included France, Belgium, the Netherlands, Norway, Spain and Switzerland. Wool prospects for 1945-46 were regarded as favourable.

The government's five-year public works program contemplated large expenditures for highway construction and improvement. Highways and railway mileage were listed in 1945 as 8,514 and 1,810 respectively.

**Agriculture.**—Wheat and linseed acreages were increased in 1945 over 1944; production was uncertain because of a bad threat from locusts. About 45% of the 1945 summer (Nov.-Jan.) potato crop was lost because of cryptogamic disease (tuber rot) and insect attacks; 23,736 ac. had been planted and the estimated 1945 crop was 20,000 metric tons as against 56,593 tons in 1944; the annual consumption is between 60,000 and 70,000 tons. Production of hides and skins in the first half of 1945 included 434,858 cattle, 30,179 calf and 489,194 sheep and lamb.

(R. H. FN.)

**U.S.O.:** see UNITED SERVICE ORGANIZATIONS.

**U.S.S.R.:** see UNION OF SOVIET SOCIALIST REPUBLICS.

**Utah.** A Rocky mountain state, admitted to the union in 1896, popularly known as the "Beehive state." Area 84,916 sq.mi. (82,346 sq.mi. land; 2,570 sq.mi. water); pop. (Dec. 1, 1945) 620,000; (U.S. census 1940) 550,310. The rural (nonfarm) population was 150,465 in 1940; (farm) 94,352; urban 305,493; with the following origins: white (native) 510,662; (foreign-born) 32,298; Negro (native) 1,225; (foreign-born) 10. Farm population decreased considerably after 1940, and urban population increased about 13%, because of war conditions. Capital, Salt Lake City (pop. est. 1945, 176,000). Other principal cities with 1945 est. pop.: Ogden (66,000), Provo (23,500) and Logan (12,000). In 1944 the Mormon Church gave its membership total as 917,715, about one-half in Utah.

**History.**—In 1945 the administration of the Democratic governor Herbert B. Maw, co-operated with federal authorities in essential war measures, while aiding business and industrial interests in the expansion of manufacturing, mining and metallurgical and transportation industries which were stimulated by war exigencies.

In 1945 E. E. Monson continued as secretary of state; Ferrell H. Adams was auditor; Reese M. Reese, treasurer; Grover A. Giles, attorney-general; and Dr. E. Allen Bateman, superintendent of public instruction.

**Education.**—There were 149,915 children of school age in Utah in 1944, only 122,414 actually enrolling in the public schools. The total cost of education was \$15,520,930.03, with \$13,192,113.43 devoted to operating expenses. There were 4,168 teachers and 444 principals.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—Total obligations of \$8,502,276.69 incurred in 1944 for public assistance were distributed as follows: old-age assistance, \$5,875,441.66; aid to dependent children, \$1,602,069.22; aid to blind, \$63,265.57; aid to employables, \$28,992.92; aid to unemployables, \$673,720.85; other assistance, \$258,786.47. A total of 14,990 households were receiving assistance in June 1944, as compared with 15,780 households in June 1943. From Jan. 1 to June 30, 1945, \$4,275,646.32 was distributed for public assistance.

**Communication.**—Highway mileage in 1944 was as follows: state, 5,438; county, 18,037; city, 2,547; federal, 3,888; total, 29,910. There were 1,835 mi. of steam railway and 239 mi. of electric railway in 1945. State expenditures for roads in 1944 were \$5,989,557.29 from gas tax and federal aid, and \$627,093.49 from motor vehicle registration fees, a total of \$6,616,650.78. These funds were administered only by the state road commission, and were distributed to cities and counties for the maintenance of city and county roads. Utah had 45 airports and fields in 1945.

**Banking and Finance.**—The 57 banks, 45 state and 12 national, had total assets of \$491,515,906.91 on June 30, 1945, and total bank deposits

reached \$465,376,336.82. On June 30, 1944, the state's 19 building and loan associations had aggregate assets of \$41,300,146.47. State receipts for the year ending June 30, 1945, were \$50,264,618.32; expenditures were \$47,414,699.60. The total of outstanding bonds in 1945 was \$1,495,000, with this amount available from the state liquor control fund for retirement of all outstanding bonds. Thus the state was out of debt.

**Agriculture.**—Cash income from farm marketings in 1944 was \$35,028,000 for crops and \$75,342,000 for livestock and livestock products, as compared with \$29,721,000 for crops and \$72,114,000 for livestock and livestock products in 1943. Preliminary value of 1945 truck and canning crops was \$6,649,000 as of Dec. 18, 1945; for 1944, \$6,280,000. Preliminary value of canning tomatoes in 1945 was \$1,366,000, and shipping tomatoes, \$112,000.

Table I.—Principal Agricultural Products of Utah, 1945 and 1944

Crop	Preliminary 1945	1944
Hay (tame and wild), tons . . . . .	1,178,000	1,234,000
Potatoes, bu. . . . .	3,366,000	2,765,000
Sugar beets, short tons . . . . .	452,000	396,000
Celery, crates . . . . .	287,000	204,000
Tomatoes, fresh, bu. . . . .	45,000	66,000
"    processing, tons . . . . .	56,200	69,700
Onions, 100-lb. sacks . . . . .	850,000	1,056,000
Peas, tons . . . . .	24,020	24,300

To offset partly the loss of agricultural workers, 950 Mexican farm labourers and 1,250 Italian and German prisoners of war were being used as of July 15, 1945.

**Manufacturing.**—The average employment in 1945 (total wages paid and total value of products) remained substantially the same as in 1944. War production was maintained at a high level. The average monthly workers numbered about 24,376 in 1944 as compared with 28,739 as of Dec. 31, 1943. This reduction resulted from the suspension of operation of the small-arms plant in the environs of Salt Lake City.

Total pay rolls in manufacturing were \$51,345,876 in 1944 as compared with \$66,959,696 in 1943.

It was estimated there would be employment for 10,000 more people in the postwar period than immediately preceding the prewar period.

**Mineral Production.**—The United States war program served to emphasize the production of copper, lead, zinc and iron in Utah. Deposits of alumite were exploited; a new bismuth mine was operated; arsenic mines were re-opened; tungsten and manganese mines and fluorite deposits continued in commercial production; and molybdenum production was increased. The peak production year for copper was 1943. In 1944 labour shortages were made up partly by the employment of women and the use of labour-saving machines, but nevertheless, critical labour shortages materially curtailed mineral production. In 1944 the state had a production of 344,223 fine oz. of gold and 7,593,075 fine oz. of silver, as compared with 390,470 fine oz. of gold and 9,479,340 fine oz. of silver in 1943.

Table II.—Mineral Production of Utah, 1944 and 1943

Mineral	1944	1943
Copper, lb. . . . .	565,150,000	647,978,000
Lead, lb. . . . .	105,038,000	130,514,000
Zinc, lb. . . . .	77,988,000	93,792,000
Value of all ores . . . . .	\$111,036,247	\$160,935,000

The 1944 coal production was 7,206,107 tons; the estimated 1944 coke production was 699,768 tons. (J. C. A.R.)

**Utilities, Public:** see PUBLIC UTILITIES.

**Valéry, Paul** (1871-1945), French poet and philosopher, born at Cette Oct. 30. Up to the age of 45 he was chiefly a mathematician. He then devoted himself to poetry. After *Les Charmes*, a series of firm, short poems published in 1922, he gave himself almost entirely to prose, particularly aphorisms and brief pieces on a variety of critical subjects. His essays were collected into four volumes entitled *Variétés*.

During the German occupation of France in World War II he aided the resistance movement. He survived the occupation safely and continued to write. He died aged 73 after a short illness on July 20, in Paris. Général de Gaulle and most of his ministers, together with the diplomatic corps, paid a last tribute to him on July 26. The funeral ceremony took place at the Palais Chaillot, where students had kept an all-night watch by torchlight. The poet was buried at Cette.

Despite a long and retiring life, he left a slender body of work in which everything had a condensed economical quality, displaying his disregard for facile writing as well as his bold and sensitive nature. Valéry was also known as a delightful companion and an enchanting conversationalist. (See *Encyclopædia Britannica*.) (P. B.N.)

**Vanadium.** The trend of the vanadium industry in the United States during World War II is indicated by the following data, in short tons of vanadium content.

	1940	1941	1942	1943	1944
Mine shipments . . . . .	1,081	1,257	2,220	2,793	1,764
Imports . . . . .	1,287	1,069	1,288	1,058	662

Domestic ore received at mills and government stock piles through Sept. 1945 totalled 1,345 short tons of contained vanadium. Imports during the same period were 610 tons, and consumption 2,151 tons. The chief source of outside supply for the U.S. is Peru, where production capacity was increased by construction of a new plant at Junasha, capable of handling 5,000 tons of ore monthly, against 2,500 tons in the old plant. In 1945 the new plant worked at a rate of 1,000 tons monthly, producing 25,000 lb. of concentrates.

Production by other important world sources is given below, so far as available, in short tons of contained vanadium.

	1940	1941	1942	1943	1944
Northern Rhodesia . . . . .	406	377	386	413	?
Peru . . . . .	1,338	1,121	1,119	942	568
South-West Africa . . . . .	472	297	499	636	424
World total . . . . .	3,310	3,100	4,200	4,750	?

Several other countries produce minor amounts, figures for which are lacking. (G. A. Ro.)

**Vandegrift, Alexander A.** (1887- ), commandant of the U.S. marine corps, was born March 13 in Charlottesville, Va. He entered the corps as a second lieutenant in 1909, took part in the landing in Nicaragua in 1912 and at Veracruz in 1914. In World War I, however, it was his fate not to fight against Germany but to stay in Haiti, helping keep peace there. In 1942, a major general and assistant commandant of the marine corps, Vandegrift directed the Solomon Islands campaign. His victories won for him the congressional medal of honour and promotion to lieutenant general. On Nov. 1, 1943, he led the marines again in their first landing at Bougainville. Shortly afterward he was recalled to Washington to succeed Lt. Gen. Thomas Holcomb, retired, as commandant of the marine corps on Jan. 1, 1944, and he was raised to the rank of a full general, March 29, 1945. Vandegrift proposed (Sept. 28) that the marine corps become the shock troops for the United Nations organization to preserve the peace and suggested that the postwar marine corps consist of 100,000 men and 9,200 officers.

**Varnishes:** see PAINTS AND VARNISHES.

**Vasconcellos Mottas, Carlo Carmelo de**

(1896- ), cardinal archbishop of São Paulo, Brazil, was born in the state of Minas Gerais on July 16. Ordained in 1918, he became auxiliary bishop of Diamantina in 1932, and was elevated to the metropolitan see of São Luiz de Maranhão in 1936. When the second largest see in South America became vacant through the death in an aeroplane of Archbishop de Affonseca e Silva, the Holy See transferred his excellency from São Luiz de Maranhão to São Paulo. He was installed in his new see, which ranked next to Rio de Janeiro in importance, in Oct. 1944. He was nominated to the Sacred College of Cardinals in Dec. 1945, and was created and proclaimed a cardinal on Feb. 18, 1946.

**Vassar College.** A college for women at Poughkeepsie, N.Y., founded by Matthew Vassar in 1861. During 1945 Vassar continued, as an experiment in



education for the future, the three-year course for the bachelor's degree originally adopted in 1943 as an emergency measure to train women more quickly for war and reconstruction work. A four-year course remained available for students who thought it better suited to their needs. The faculty carried on studies for curriculum revision that would keep the course of study in line with Vassar's traditional objective of education for social usefulness. Both academic work and the social organization of the college, including the co-operative system of household work, are designed to prepare each student for helping to create a democratic society and a world where men can live in peace. A new interdepartmental program of study for first-year students in the third term was offered under the title "Today's Cities." Taking the city as a dominant form of culture, students who elected this program studied the physical, social, psychological and artistic forces shaping life in modern centres of population. The chief co-operating departments were physics, economics, sociology, psychology, political science and English. (For statistics of the faculty, student enrolment, endowment, etc., see UNIVERSITIES AND COLLEGES.)

(H. N. MacC.)

### Vatican City State.

A sovereign independent state, established by the Lateran treaty between the Holy See and the royal Italian government on Feb. 11, 1929. The treaty is recognized in international law, and the reigning pope is the sovereign. The area of Vatican City is 108.7 ac., excluding the papal estate of Castel Gandolfo and certain basilicas in Rome which are extraterritorial. It has its own railroad station, radio station and aerial system and currency. Total issue of bronze, nickel, silver and gold coins is not to exceed 1,000,000 lire. Executive powers are exercised by the governor, responsible only to the pope; administrative power is exercised by a commission of cardinals.

The bombing of Vatican City on Nov. 5, 1943, was in 1945 viewed as having been deliberate, presumably by an Italian plane "in connivance" with German troops. A declaration to that effect was made on July 1, 1945, by Harold Tittman, assistant to Myron C. Taylor, special U.S. representative to the Vatican.

The *Osservatore Romano*, semiofficial Vatican daily newspaper, on Jan. 2 published a statement reiterating the incompatibility of Catholicism and communist doctrine, mentioning specifically the Christian Left party of Italy, a new name for the Catholic Communist party. In February the paper declared the soviet charges against Pope Pius XII to be false and inimical to the restoration of peace. The Russian Orthodox Church, it said, was being used as a political tool by the Kremlin. Mourning the death of President Roosevelt, the paper stated editorially that his passing marked the loss of a great statesman and a positive force for world peace.

On Aug. 7 the official Vatican press office let it be known that "the use of atomic bombs in Japan has created an unfavourable impression on the Vatican." Commenting on the event, *Osservatore Romano* observed that "this incredible destructive instrument remains a temptation to posterity."

The Vatican normally maintains diplomatic relations with 44 states. Unofficial relations are maintained with other countries by means of apostolic delegates. In February Jacques Maritain, noted author and lecturer, was appointed by the French government as ambassador to the Vatican. The Japanese diplomats, who had voluntarily decided to remain within the Vatican after the Germans surrendered Rome, were recalled to Japan on U.S. orders. Receiving the new Argentine ambassador to the Vatican, Pope Pius XII expressed the hope that the Argentine government would continue to guarantee the church freedom neces-

sary to carry on her work. Most Rev. Joseph Hurley, bishop of St. Augustine, Fla., was named interim regent of the papal nunciature in Belgrade, Yugoslavia. On Dec. 14 Mgr. Carlo Grano was announced chief of protocol of the Vatican secretariat of state.

During 1945 no further war damage was experienced by the Vatican City. Allied soldiers continued to be visitors in great numbers. In June a concert was held in the Vatican courtyard for the first time in 380 years. The same month a papal relief convoy left the Vatican for Austria and Germany, carrying supplies for refugees.

Documents released by the Vatican in 1945 revealed that the Holy See had rebuffed nazi attempts to control episcopal appointments in seized nations and had rebuked the nazis for protests they made against Cardinal Mundelein. A Vatican memorandum of 1939 was made public, listing nazi acts against the church. It was also shown that the Vatican had exerted tireless efforts to ease the plight of the Poles under the German occupation.

On Feb. 13 Israele Anton Zolli, Grand Rabbi of Rome, and his wife were baptized into the Catholic Church, after he had resigned his post and declined the presidency of the Rabbinical college. Previously, the rabbi had expressed the gratitude of the Italian Jews for the protection and assistance given them by the Vatican during the months of occupation. (See also PRUS XII; ROMAN CATHOLIC CHURCH.)

(J. LAF.)

**Veal:** see MEAT.

**V-E Day:** see BUSINESS REVIEW; WAR MANPOWER COMMISSION; WAR PRODUCTION, U.S.; WAR PRODUCTION BOARD.

**Vegetable Oils and Animal Fats.** The output of fats and oils in the United States in 1945 was estimated at 9,370,000,000 lb. compared with 10,849,000,000 lb. produced from domestic materials in 1944 and a prewar average of 8,230,000,000 lb. in 1937-41. The smaller output by more than 1,000,000,000 lb. was offset to some extent by the large stocks of lard, linseed oil and other fats at the beginning of 1945. By the middle of the year stocks were down to the minimum and in late summer were very low. The increase in the production of lard and smaller military purchases were bringing relief to consumers by the end of the year.

Exports of fats and oils to the Allies were large in the first half of 1945 but dropped off rapidly as U.S. stocks shrank. Imports were the smallest in many years. Net exports totalled only about 300,000,000 lb. compared with about 650,000,000 lb. exported in 1944. Before the war the United States usually imported about 1,500,000,000 lb. of soap fats, drying oils, olive oil and fish oils.

The shrinkage of the U.S. production was in lard and pork fat, butter and linseed oil. Civilian consumption of all fats and oils was estimated to be 65 lb. per capita compared with 70 lb. in 1944 and a prewar average of 74 lb. Food fats and oils were the smallest per capita for more than 20 years. Butter consumption was about 10.7 lb. per capita compared with 11.9 lb. in 1944 and a prewar average of 16.7 lb. Lard was down to 11.6 lb. per capita compared with 13.9 lb. in 1944 and soap fats were scarce all during 1945. Until July the government requirements took 50% of the butter, then 20% until September when the government returned nearly 100,000,000 lb. for civilian use. Total lard production was 35% below the high record output of 1944 and about 135,000,000 lb. was used in soap and other nonfood products.

Price incentives were continued on domestic oil-seed crops to maintain production of soybeans, peanuts and flaxseed. The

## U.S. Production of Principal Fats and Oils, 1942-1945

	(Millions of pounds)			
	1945	1944	1943	1942
Butter . . . . .	1,700	1,816	2,015	2,130
Lard . . . . .	2,100	3,215	3,056	2,469
Edible tallow, etc. . . . .	220	198	259	277
Corn oil . . . . .	220	211	237	248
Cottonseed oil . . . . .	1,240	1,132	1,313	1,386
Peanut oil . . . . .	100	108	153	77
Soybean oil . . . . .	1,330	1,246	1,234	762
Linseed oil . . . . .	450	729	715	699
Inedible tallow and grease . . . . .	1,750	1,943	1,650	1,742
Marine oils . . . . .	220	215	175	158
Other . . . . .	40	37	40	35
Total domestic . . . . .	9,370	10,849	10,848	9,983

flaxseed crop was 59% above the output of 1944 and 69% above the ten-year average. Another big crop was called for as a goal for 1946. The peanut crop was large, 41% above the 1934-43 average. The soybean crop was the second largest on record, almost two and a fourth times the prewar average. The consumption of all domestic vegetable oils except flax was somewhat smaller in 1945 than in 1944.

Imports of oil-bearing materials did not increase in 1945 but were expected to grow rapidly in 1946. Imports were sharply reduced after 1942 when the Japanese occupied the far eastern area. Supplies of fats and oils available to the U.S. and Europe in 1945 were approximately 4,300,000,000 lb. compared with 9,600,000,000 lb. in prewar years. This reduction was the loss of supplies from Asia, the Philippines, Netherlands Indies and the curtailment of fishing and whaling in the northern waters.

Household fat salvage was continued through 1945 and declined during the spring and summer as the pork supply declined. The saving of fats was stimulated Oct. 1 by the increase from two to four red points for each pound of fat turned in at meat stores. (See also BUTTER; COCO-NUTS; COTTON; MARGARINE; PEANUTS; SOYBEANS.) (J. C. Ms.)

**Vegetables.** Total production of vegetable crops in the United States, for sale fresh and for commercial processing made a new high record in 1945. The increase in tonnage of the 25 fresh market crops exceeded 1944 by 6% and more than offset the 4% loss of vegetables for processing. The great increase in vegetable production is shown by the fact that both of these groups of crops exceeded the average of 1934-43 by more than 30%. The total acreage of vegetables was 3,813,000 in 1945 compared with 3,830,000 in 1944, but a better average yield brought a larger total crop in 1945.

**Commercial Truck Crops for the Fresh Market.**—The total production of fresh vegetables in 1945 reached another new high record over the record of 1944. The total tonnage of 25 commercial truck crops was estimated by the U.S. department of agriculture at 8,458,100 tons compared with 7,995,400 tons in 1944 and 6,517,000 tons as the ten-year average 1934-43. The

1945 acreage was 1,900,600, 1% more than the 1,879,800 of 1944 and the average of 1,710,600. Yields were about 5% more than 1944 and 17% more than average. The greatest gain was in the fall group where the benefit of a good season brought high yields and a 22% larger tonnage on an acreage only 9% larger. The spring crops were 11% above 1944, and while summer acreage was larger the output was 3% below 1944. The new-record crops included cabbage, cauliflower, celery, lettuce, peppers, tomatoes, lima beans, cantaloupes, sweet corn, cucumbers and melons. The season was generally favourable except in mid-summer.

Prices of fresh vegetables were as a whole above 1944 with few notable exceptions. The composite level of prices as indicated by index numbers was more than 240 compared with 212 for 1944 and 102 for 1935-39. The cabbage crop was large and the demand for kraut increasing. Prices were lower than a year earlier because of the large supplies. The government purchased considerable amounts to support prices.

Carrots were in large supply and prices were below those of a year earlier. Lettuce prices were near the ceiling with a record production.

Civilian consumption of fresh vegetables in 1945 exclusive of supplies from towns and city gardens was estimated at 264 lb. per capita, which is slightly more than 1944 and 12% more than the average of 1935-39.

**Commercial Truck Crops for Processing.**—Total production of all 11 crops for canning, drying or otherwise processing was estimated at 5,251,000 tons in 1945, compared with 5,488,480 tons raised in 1944 and a ten-year average of 4,011,000 tons 1934-43. The acreage was 1,913,310 compared with 1,951,000 in 1944 and an average of 1,497,000. Yields were generally good. A record acreage of green peas was planted and early rains favoured the crop so that yields were very high. In Wisconsin 2,270 lb. per ac. was the best in 20 years. Late spring

Table II.—U.S. Production, Acreage and Price per Ton of 11 Truck Crops for Commercial Processing, 1945 and 1944

Crop	Acres		Production		Price per ton	
	1945	1944	1945 tons	1944 tons	1945	1944
Asparagus . . . . .	49,230	45,930	53,170	53,740	\$168.00	\$153.30
Beans, lima . . . . .	58,160	58,410	34,100	30,200	111.91	124.11
Beans, snap . . . . .	146,910	154,400	235,600	225,200	102.22	96.77
Beets . . . . .	16,870	17,730	176,300	161,500	19.76	20.59
Cabbage (sauerkraut) . . . . .	18,000	16,720	182,500	117,900	13.99	14.83
Corn . . . . .	474,800	489,920	1,126,800	1,043,500	19.33	19.33
Cucumbers . . . . .	97,700	99,000	185,420	183,860	48.33	45.83
Peas . . . . .	453,860	437,150	490,150	387,200	83.18	83.14
Pimentos . . . . .	8,720	6,460	12,470	8,560	60.00	55.13
Spinach . . . . .	35,960	44,100	89,300	106,900	49.98	49.91
Tomatoes . . . . .	581,180	448,800	2,665,200	3,169,900	26.59	27.22

crops were delayed by rains and tomatoes suffered, the acreage of sweet corn and snap beans was reduced below the high record of 1943. The tonnage of sweet corn was exceeded only in 1941 and 1942. Beets made a record crop but lima beans were 10% below the record.

The 1945-46 pack of canned vegetables was about 8% larger than that of 1944. About four-fifths consisted of green beans, corn, peas and tomatoes. Civilians received only about 34 lb. of canned vegetables per capita in 1945 because about one-fourth of the supply was taken for military needs. The government ceased reserving supplies in October and all canned vegetables were removed from the ration lists August 15, 1945.

The pack of commercially frozen vegetables was increased to a per capita consumption of about one and a half pounds. The pack was 14% larger than in 1944, a total of 267,000,000 lb. Dehydrated vegetables reached the wartime peak of about 196,000,000 lb. in 1945 and were expected to decrease considerably in 1946. Military requirements were reduced rapidly.

Prices of truck crops for processing were at high levels through the year. With government purchases reduced and general buying power declining, growers felt that 1945 was the last

Table I.—U.S. Production of Truck Crops for Fresh Market, 1945 and 1944

Crop	Unit	1945	1944
Artichokes . . . . .	boxes	702,000	759,000
Asparagus . . . . .	crates	8,676,000	9,546,000
Beans, lima . . . . .	bu.	1,406,000	1,137,000
Beans, snap . . . . .	bu.	16,504,000	15,392,000
Beets . . . . .	bu.	2,136,000	2,482,000
Cabbage . . . . .	tons	1,678,000	1,390,000
Cantaloupes . . . . .	crates	12,467,000	11,298,000
Carrots . . . . .	bu.	29,801,000	26,833,000
Cauliflower . . . . .	crates	11,841,000	9,505,000
Celery . . . . .	crates	18,925,000	18,040,000
Corn, sweet . . . . .	ears	268,000,000	242,400,000
Cucumbers . . . . .	bu.	5,384,000	4,134,000
Eggplant . . . . .	bu.	1,538,000	1,386,000
Garlic . . . . .	sacks	177,000	150,000
Kale . . . . .	bu.	655,000	822,000
Lettuce . . . . .	crates	29,648,000	28,690,000
Onions . . . . .	sacks	36,137,000	46,753,000
Peas, green . . . . .	bu.	6,137,000	6,257,000
Peppermint . . . . .	lb. oil	1,502,000	1,195,000
Peppers, green . . . . .	bu.	6,635,000	5,414,000
Shallots . . . . .	bu.	231,000	168,000
Spearmint . . . . .	lb. oil	295,000	217,000
Spinach . . . . .	bu.	15,205,000	15,371,000
Tomatoes . . . . .	bu.	32,331,000	27,768,000
Watermelons . . . . .	melons	73,134,000	70,775,000

Table III.—U.S. Cold-Storage Holdings of Frozen Vegetables,  
Sept. 1, 1945 and Sept. 1, 1944

Crop	Sept. 1, 1945 lb.	Sept. 1, 1944 lb.
Asparagus . . . . .	12,851,000	6,248,000
Beans, lima . . . . .	3,490,000	3,441,000
Beans, snap . . . . .	12,437,000	11,910,000
Broccoli . . . . .	2,109,000	2,879,000
Brussels sprouts . . . . .	793,000	1,862,000
Cauliflower . . . . .	921,000	1,038,000
Corn, sweet . . . . .	5,054,000	6,895,000
Peas, green . . . . .	89,560,000	60,704,000
Pumpkin squash . . . . .	4,115,000	2,696,000
Spinach . . . . .	11,507,000	10,740,000
Vegetable purees . . . . .	452,000	475,000
Other vegetables . . . . .	19,161,000	52,543,000

of a period of unusually profitable years. Better supplies of fresh vegetables and other foods would offer more competition in 1946. (See also AGRICULTURE; CORN; HORTICULTURE; LETTUCE; POTATOES; TOMATOES.) (J. C. Ms.)

**Venereal Diseases.** Injection methods of treating gonorrhoea with penicillin have made it possible for an increasing number of private physicians to treat gonorrhoea in their offices within a few minutes to three hours.

The network of special hospitals, known as rapid treatment centres, established as a wartime expedient for the intensive treatment of infectious venereal disease patients subject to public care, became a part of the long-range control program when congress appropriated \$5,000,000 to subsidize maintenance of existing centres.

During the first three years of their operation, these centres admitted approximately 160,000 patients. At the end of 1945 the centres were admitting patients at a rate of about 170,000 a year—almost a quarter of the number of venereal disease cases reported annually in the United States. The proportion of gonorrhoea admissions had been reduced to about one case to every four cases of syphilis; this reflected the trend toward returning the control of gonorrhoea to the private physician and outpatient clinic, and the increased emphasis on intensive, inpatient treatment of early syphilis.

Contract proposals for a total of 52 individual rapid treatment centres in 31 states had been approved by the U.S. public health service by Oct. 1, 1945. In addition, bed rental contracts had been made with more than 300 hospitals in ten states, to provide intensive treatment facilities in areas where rapid treatment centres do not exist.

All together, the rapid treatment hospitals, special wards and rented beds form a network which could provide inpatient facilities for the intensive treatment of all cases of infectious syphilis reported each year. Of the 182,000 infectious or potentially infectious cases of syphilis reported during 1945, 52,000 were treated at rapid treatment centres and the remaining 130,000 were treated elsewhere; an increasing proportion of these cases was expected to be treated in rapid treatment facilities in the future.

The average costs of treating patients in the centres had been reduced to \$55 for syphilis patients and \$12 for gonorrhoea patients, and the average patient stays had been reduced to 11 days for syphilis cases and 2 or 3 days for gonorrhoea patients.

High rates of cure have been obtained in the treatment of gonorrhoea with 150,000 to 200,000 units of penicillin administered intramuscularly. Single-injection doses are administered in an oil-wax mixture. Aqueous solutions of penicillin are administered in four doses injected an hour apart.

The schedule of intensive therapy most widely used for treatment of syphilis during the year consisted of five injections of an arsenical drug, 1,200,000 units of penicillin and three injections of bismuth. The penicillin is given intramuscularly in the amount of 16,667 units in 2 cc. of solution every three

hours for 72 injections, over a period of nine days. The arsenical drug is administered intravenously at the rate of one mg. per kilogram of bodyweight, but not to exceed 60 mg. per injection, on the first, third, fifth and ninth days of treatment. A total dosage of 200 mg. of bismuth subsalicylate is administered intramuscularly, in three equal doses on the first, fifth and ninth days of treatment. Probably further studies of this schedule of therapy might suggest more nearly optimal time-dosage relationships, and the schedule might be modified.

The 373,288 cases of syphilis and the 301,828 cases of gonorrhoea reported by all sources to state health departments during the fiscal year 1945 represented 21% and 3% decreases, respectively, compared with cases reported in 1944. Clinic admissions for syphilis were 278,369, a decrease of 22%; clinics admitted 200,176 gonorrhoea cases, 36% more than were admitted in 1944. Included in these clinic admissions were rapid treatment centre admission of 61,898 cases of syphilis and 67,326 cases of gonorrhoea, increases of 407% and 318% respectively.

The number of cases of primary and secondary syphilis reported was 78,015, and the number admitted to clinics was 51,631, including 22,985 admitted to rapid treatment centres; the number of early latent cases reported for the first time was 104,752, and the number admitted to clinics was 98,438 including 29,825 admitted to rapid treatment centres. (Cases reported to state health departments are cases reported for the first time. Clinic admissions and rapid treatment centre admissions include cases which may have been reported previously.)

The number of clinics receiving federal, state and local financial assistance during 1945 was 3,477, which was 230 fewer clinics than in the previous year.

Funds budgeted by the states in the venereal disease control program totalled \$22,282,067 from federal, state and local sources, an increase of 9.8% over 1944. This included budgets of \$10,555,308 of federal funds, a 3.9% decrease compared with 1944, and \$11,726,759 of state and local funds, an increase of 26%.

The value of public education in intensive mass case finding was shown in several communities. In a demonstration program in New Orleans, La., a concentrated campaign of public information and education brought to treatment 4,000 cases of gonorrhoea which was more than the total number of cases reported during 1943 and 1944. Approximately 40% of the patients were treated by 152 physicians in private practice. Free penicillin was provided to both private physicians and clinics.

A comparable campaign was conducted in the city of Birmingham and Jefferson county, Ala., where more than 30,000 persons with evidence of syphilis were discovered as a result of the 45-day blood testing program. During the course of the blood testing program 3,000 persons were treated for gonorrhoea. About 271,000 persons, or about 92% of the population of Jefferson county between the ages of 14 and 50 presented themselves for blood testing. A state law in Alabama requires blood testing of all persons between these ages. The success of the Birmingham program was, in part at least, attributable to intensified public education and information activity, for in no case was it necessary to invoke the law directly in order to obtain the blood test.

Another demonstration, including a tuberculosis survey as well as syphilis case finding, was completed Nov. 30, in the city of Savannah and Chatham county, Ga. More than 71,000 persons—from a population of 150,000 of all ages in the county—voluntarily received chest X-rays and blood tests during the 45-day Savannah-Chatham demonstration. The results of blood serologic tests were positive for about 11,000 of the persons



tested. As a by-product of the blood testing program, 285 cases of gonorrhoea also were discovered. The survey discovered in 45 days a number of cases of syphilis which ordinarily would not be discovered in months or years, and in the opinion of the health officers who participated in this program represents a most economical method of case finding. It is estimated that the survey cost approximately \$70,000 which would represent an individual cost of about 50 cents each blood test and each chest X-ray.

During World War II, mass blood testing on an enormous scale was utilized as a syphilis case finding device in connection with the mobilization and demobilization of the armed forces. Blood testing of selective service registrants resulted in the discovery of about 750,000 young men whose physical examinations indicated they were infected with syphilis. As a result of follow-up and treatment by state and local health departments approximately 273,000 of these men were reclaimed and made available for service in the armed forces if called and otherwise acceptable.

Early in the war, plans were made by the army, the navy, the coast guard and the public health service for assuring the return of demobilized servicemen to civilian life without venereal disease in an infectious stage. As the rate of demobilization increased, representatives of the U.S. public health service were stationed in army separation centres throughout the country to interview separatees whose blood serologic tests for syphilis showed positive or doubtful results, and to direct these men to private physicians, clinics or rapid treatment centres for further diagnosis and treatment if necessary. (*See also* EPIDEMICS AND PUBLIC HEALTH CONTROL.) (J. R. H.R.)

**Venezuela.** A north-coast South American republic, bounded on the west, south, east and north, respectively, by Colombia, Brazil, British Guiana and the Caribbean sea. Area: 352,143 sq.mi.; pop. (1941 census): 3,850,771, excluding an estimated 100,600 forest-dwelling Indians; pop. density: 10.90 per sq.mi. The Venezuelan census does not classify the population racially, but important fractions are Indian, mestizo, Negro and mulatto; about 80% of the population is rural. The capital is Caracas (1941 pop., 269,030); other important cities are Maracaibo (112,519), Valencia (53,938), Barquisimeto (54,176), San Cristóbal (31,447), Maracay (32,992) and Cumaná (25,893). Venezuela is a federal union composed of 20 states, a federal district and two territories. The president is elected by the congress, which is composed of two houses, a senate of 40 members and a chamber of deputies of 85. Gen. Isaías Medina Angarita was president in 1945 until ousted by revolution on Oct. 19; he was succeeded by Rómulo Betancourt as provisional president on Oct. 21.

**History.**—The outstanding event of 1945 was the October revolution which overthrew the administration. Revolt broke out in Caracas and the nearby military city of Maracay on Oct. 18, staged by the rank and file of the army, led by younger army officers of or below the rank of major, and joined soon afterward by the liberal Acción Democrática party. After fierce fighting for three days Pres. Medina was forced out and Dr. Betancourt, 40-year-old lawyer, became provisional president. The new regime announced that it would hold elections, as previously scheduled, in April 1946. Order was soon restored and popular support apparently gained. Oil companies were reassured with regard to their property. The revolt was allegedly caused by the belief of younger army officers that the election of Gen. Medina's candidate as successor, Angel Biaggini, would be engineered under any circumstances and the regime of recent years thus continued. Medina, ex-Pres. López Contreras, and others were exiled to Miami. The new regime promised a new



VENEZUELAN REBELS who took part in the military coup at Caracas on Oct. 18-20, 1945, overthrowing the regime of Pres. Isaías Medina Angarita. A revolutionary junta, headed provisionally by Socialist leader Dr. Rómulo Betancourt, was recognized by the U.S. on Oct. 30

constitution within six months. Recognition by the United States and many other governments was granted before the end of October.

The pro-administration Venezuelan Democratic party won an overwhelming victory in congressional elections Jan. 19, 1945. The government on Feb. 15 declared belligerency against Germany and Japan; Ambassador Diógenes Escalante on Feb. 20 signed the United Nations pact at Washington, D.C. The government on April 6 announced plans for liberal monthly quotas for admission of Spanish republicans and other immigrants. The third Inter-American Press congress met at Caracas May 11-17. Constitutional amendments legalizing communist activity, granting women a municipal vote, etc., became effective May 5.

**Education and Religion.**—School enrolment in 1944 exceeded 300,000. A convention of state governors at Caracas in November recommended a system of school lunchrooms, the immediate beginning of an anti-illiteracy campaign (illiteracy was estimated in 1943 at 70%), increased pay for teachers, construction of new colleges and technical schools, redistribution of rural schools and construction of new ones.

Venezuela is predominantly Roman Catholic. Pope Pius XII on June 22 reportedly asked the resignation of Enrique María Dubuc, bishop of Barquisimeto.

**Finance.**—The monetary unit is the bolívar, valued in Dec. 1945 at 29.85 cents (U.S.). The proposed budget for 1945-46 totalled 506,311,173 bolívares; the chief expected revenues were petroleum royalties (expected to increase 37%) and income taxes (expected to increase 120%). Actual budget appropriations for 1944-45 reached 465,000,000 bolívares by June 1945; revenues, through April, were 388,600,000. Total gold and foreign exchange holdings June 30, 1945, were \$200,326,077. The treasury surplus April 15, 1945, was 238,499,000 bolívares as against a national domestic debt of 24,952,000 bolívares; Venezuela has no foreign debt. Government revenues in 1944 were

532,000,000 bolívares as against 306,000,000 in 1943. The index of stock prices Jan. 1, 1945, was 163.9 as against 100 in 1938.

**Trade and Communications.**—Venezuela, with an overwhelming export trade balance, exchanges mineral and agricultural products for manufactured goods. Leading exports include petroleum, gold, hides, livestock, coffee and cocoa; chief imports are metals and manufactures, machinery, prepared food products, textiles, chemicals. In 1944 petroleum exports were more than 90% by value of total exports. Most petroleum goes to the U.S., much of it via Curaçao and Aruba for refining. About 35% of exports other than petroleum go to the U.S. The U.S. share in the import trade rose from 53% in 1939 to 86% in 1944. Petroleum exports in the first quarter of 1945 were: crude, 62,551,930 bbl.; refined, 4,765,065 bbl. Coffee exports in the first seven months of the 1944-45 crop year were 252,101 sacks of 60 kg. as against 226,481 sacks in the same period of 1943-44. Cocoa exports in 1944 were 15,869 metric tons as against 14,989 in 1943.

Highway mileage includes 3,750 mi. of all-weather and 1,600 mi. of unimproved, dry-weather roads. Railway mileage is about 500 mi., in largely unconnected short lines. Railways in 1943 carried 1,529,000 passengers and 527,000 metric tons of freight. Venezuela had 38 airports (with several more under construction in 1945) serving Pan American airways, K.L.M. (Royal Netherlands line), the government-owned Línea Aeropostal Venezolana, Aerovías Venezolanas and the newly organized Línea Aérea T.A.C.A. (Transportes Aéreos Central Americanos) de Venezuela, which began operations Jan. 9, 1945. Construction of a national airport at Caracas was approved; it would partially obviate use of the airport of La Guaira on the coast. Vehicle registration Jan. 1, 1945, included 15,095 automobiles, 12,573 trucks, 1,288 buses and 696 motorcycles.

**Agriculture.**—The 1944-45 coffee crop was estimated at 950,000 sacks of 60 kg. Other agricultural production in 1944 (in metric tons) included refined sugar (38,000), crude sugar (80,000), rice (9,000), cotton (3,000), tobacco (3,300), sesame (3,000). Livestock population was estimated at 4,000,000 cattle, 750,000 calves, 60,000 sheep and lambs, and 1,400,000 goats and kids; cattle hide production in 1944 was 9,600 metric tons.

**BIBLIOGRAPHY.**—Olga Briceño, *Cocks and Bulls in Caracas* (1945); Alfred Kidder, *Archaeology of Northwestern Venezuela* (1944).

**FILMS.**—*Colombia and Venezuela* (Encyclopædia Britannica Films Inc.). (R. H. FN.)

**Vermiculite.** Sales of vermiculite in the United States increased from 46,645 short tons in 1943 to 54,116 tons in 1944. New uses were being developed as a fire retardant in building construction, as an admixture in plaster for walls and ceilings, and in concrete flooring. Used in this way vermiculite is found to increase materially the time required for a fire to pass from one room to another, through walls, ceiling or floor. (G. A. Ro.)

**Vermont.** A north Atlantic state of the United States of America, the only one of the New England states without a sea coast; popularly known as the "Green Mountain state"; admitted to the union in 1791. Area, 9,609 sq.mi. (9,278 sq.mi. land; 331 sq.mi. water). Population (1940), 359,231 (including 235,992 rural, 123,239 urban); 327,079 native white, 31,727 foreign-born, 384 Negro, 41 of other races. On July 1, 1944, the U.S. bureau of the census estimated the civilian population of the state at 310,941. Montpelier is the capital city, with a population (1940) of 8,006. The chief cities are Burlington (27,686), and Rutland (17,082).

**History.**—The general assembly met in 1945, from Jan. 3 to April 18. Legislation enacted or amended included bills relating to the establishment of a minimum salary for teachers, provision for the regulation of air commerce, provision for standard nonforfeiture and valuation laws respecting life insurance and establishment of a state veterans' board. State officers in 1945 were Mortimer R. Proctor, governor; Lee E. Emerson, lieutenant governor; Rawson C. Myrick, secretary of state; and Levi R. Kelley, state treasurer.

**Education.**—There were 932 elementary schools in the state in 1945, with a teaching staff of 1,750 and enrolment of 38,800; of these schools, 640 were one-room rural schools. There were 87 approved public high schools, with a teaching staff of 678 and enrolment of 14,196. The four teacher training institutions had a total enrolment of 251 and a teaching staff of 43. State superintendent of schools in 1945 was the commissioner of education, Ralph E. Noble.

**Social Insurance and Assistance, Public Welfare and Re-**

**lated Programs.**—Relief in general was administered by the overseer of the poor in each town. A total of \$1,406,092 was expended by the old-age assistance department; the total number of recipients in Dec. 1945 was 5,149. Dependent children receiving aid from state funds numbered 1,481 in 576 cases; 1,125 children were committed as state wards. Blind assistance funds were distributed to 144 persons. There were seven state institutions with a total of 2,032 inmates. Payments of unemployment compensation benefits were made amounting to \$326,782.45; 2,159 individuals received their first checks in 1945.

**Communication.**—Total mileage of the public highway system (state, state-aid and town highways) as of Jan. 1, 1945, was 14,307.2, of which 1,802.7 mi. were in the state highway system, and 2,696.1 mi. in the state-aid highway system. Maintenance expenditures for state highways amounted to \$1,504,424.36 during the fiscal year ending June 30, 1945, and for state-aid highways in the same period, \$452,507.16.

There were 954.79 mi. of steam railroads and 4.25 mi. of electric Dec. 31, 1944 (est. to be the same Dec. 18, 1945). A total of 12 airports were in use for the public in 1945. The two airways were on routes from Boston to Montreal and New York to Montreal. Telephone subscribers were estimated at 64,500, Dec. 18, 1945.

**Banking and Finance.**—The number of state and national banks as of June 30, 1945, was 80, of which 41 were state banks with total deposits of \$171,383,594.15; of the 41 state banks, the eight mutual savings banks showed total deposits amounting to \$71,330,204.41. There were ten co-operative building, savings, and loan associations with total assets of \$2,975,009.93, and four credit unions with total assets of \$4,546.64.

Total receipts of the state as of June 30, 1945, were \$19,259,525.15; disbursements \$18,116,476.90; outstanding obligations \$3,374,031.90; unappropriated surplus \$1,585,855.28.

**Agriculture.**—The value of crop production in 1945, based on prices prevailing up to Jan. 5, 1946, was \$30,167,000, a decrease from the amount of \$30,309,000 in 1944. Total acreage harvested, all crops, was 1,013,750 in 1945, compared with 1,021,960 in 1944. Weather conditions were unfavourable for nearly all crops in 1945, except hay, because of excessive moisture and rainfall for every month except August from April to October. The apple crop was almost a complete failure and maple sugar, because of extended warm weather in March, was only 38% of the previous year's production. It was estimated that there were 463,000 head of cattle in the state in 1945, of which 308,000 were cows and heifers two years of age and older.

Leading Agricultural Products of Vermont, 1945 and 1944

Crop	1945 (est.)	1944	Value, 1945 (est.)
All corn, bu. . . . .	2,442,000	2,590,000	\$ 3,633,771
Potatoes, bu. . . . .	1,375,000	1,656,000	1,660,780
Oats, bu. . . . .	1,302,000	1,395,000	1,082,374
Hay, all, tons . . . . .	1,207,000	992,000	23,142,168
Maple syrup, gal. . . . .	351,000	944,000	1,099,050
Apples, bu. . . . .	106,000	513,000	449,295
Maple sugar, lb. . . . .	147,000	314,000	79,992

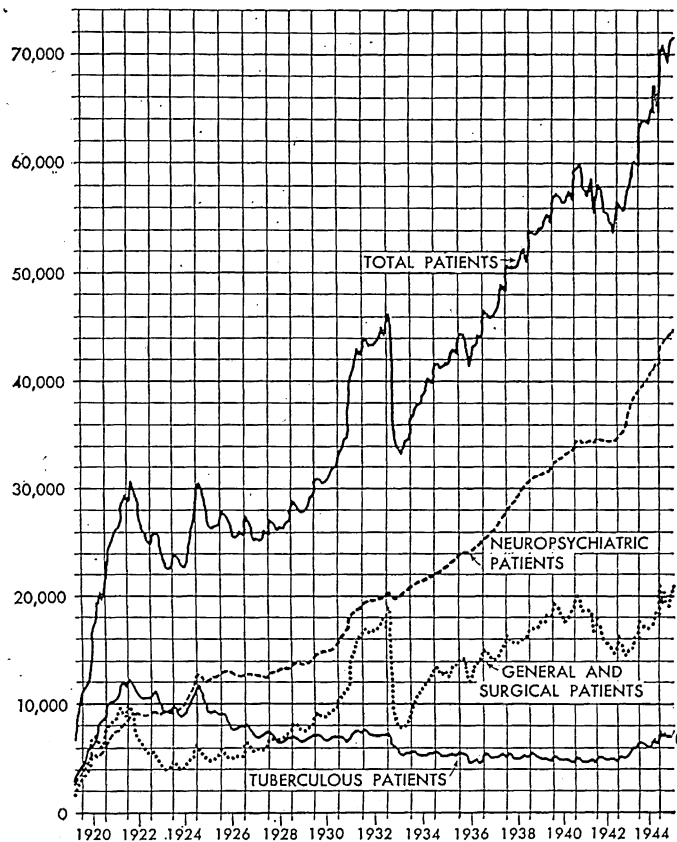
**Manufacturing.**—Output value for the fiscal year ending June 30, 1945, for manufacturing, quarrying, mining and processing industries was more than \$350,000,000. Total employees were nearly 44,000; wages more than \$80,000,000. Principal industries were machines, machine tools and foundries and textile manufacturing.

**Mineral Production.**—Principal mineral products of the state were granite, marble, asbestos, clay, limestone and dolomite, and talc. (C. E. FE.)

**Veterans' Administration.** **Insurance.**—As of June 30, 1945, there were 567,934 United States government life (converted) insurance policies in

force representing \$2,454,855,781 of insurance. Monthly payments were being made to 10,841 policyholders for permanent and total disabilities. Disbursements for this type of insurance during the fiscal year 1945 totalled \$32,273,258.28. On June 30, 1945, monthly payments of yearly renewable term insurance policies were being made to 9,301 permanently and totally disabled veterans and to the beneficiaries of 2,042 deceased veterans. Monthly payments on automatic insurance policies were being made to 215 veterans and the beneficiaries of 11 deceased veterans. Disbursements for term and automatic insurance during the fiscal year totalled \$19,756,071.97, including \$12,941,477.28 transferred to the U.S. Government Life Insurance Trust fund for cases traceable to hazards of war. As of June 30, 1945, there had been approved 17,492,388 applications for national service life insurance aggregating \$135,021,405,000. Benefits had been awarded as of June 30, 1945, in 223,626 cases on insurance valued at \$2,039,255,100. The average contract insurance in force at the time of the veteran's death was \$9,191.42. Widows were the sole beneficiary in 22% and parents in 68% of the awarded cases. An act approved Oct. 17, 1940, provided for suspension of enforcement of certain civil liabilities of persons serving in the armed forces of the United States. Article IV of the act provided that the government would, on application by the insured, guarantee to commercial insurance companies premiums on insurance carried with such companies by policyholders while in active service. Through June 30, 1945, 103,227 applications for this benefit had been received, of which 87,037 representing \$216,993,141.30 of insurance had been approved.

**Medical Treatment and Domiciliary Care.**—On June 30, 1945, the Veterans' administration was operating hospital facilities at 97 locations in 45 states and the District of Columbia. There were 81,133 beds for hospital treatment and 14,078 for domiciliary care. In addition, 5,438 hospital beds in other government facilities were being utilized. The hospital load of the Veterans' administration at that time was 71,439 patients, of whom 71,229 were United States veterans, 47 were Allied veterans of World War I, and 163 were miscellaneous beneficiaries. Of the United States veterans, 66,818 were in Veterans' administration facilities, 2,958 in other government hospitals and 1,453 in state or civil institutions. Approximately 67.24% of



NUMBER OF VETERANS remaining in all hospitals from 1920-45 by types of disability, as compiled by the Veterans' administration

these United States veterans were receiving treatment for disabilities not of service origin. During the fiscal year 1945, 13,979 United States veterans were admitted for observation and treatment of tuberculosis, 25,492 for psychotic or mental diseases, 19,973 for other neurological disorders and 181,569 for general medical and surgical conditions. The veteran population in domiciliary status on June 30, 1945, totalled 8,779. Of this number, 5,520 veterans were disabled by general medical and surgical conditions, 3,133 by neuropsychiatric diseases and 125 by tubercular ailments. During the fiscal year 1945, an average of 4,159 veterans eligible for care in Veterans' administration facilities was cared for in state or territorial homes. These homes were reimbursed by the federal government at not to exceed \$300 a year for each of such veterans domiciled therein. During the year, dental care was provided for 35,111 hospital patients, 4,725 domiciliary members and 6,371 out-patients in clinics maintained by the Veterans' administration.

**Pensions and Compensation.**—Table I shows the number of cases on the rolls as of June 30, 1945, and the disbursements during the fiscal year 1945 from appropriations "Army and Navy Pensions."

**Vocational Rehabilitation and Education.**—During the year ending June 30, 1945, an expanding program was carried on under the provisions of Public Law 16, 78th congress, approved March 24, 1943, for eligible disabled veterans with handicaps removable by training; also the first year of a program of education and training under the provisions of Title II, Public Law 346, 78th congress, approved June 22, 1944, for eligible nondisabled veterans in need of educational or occupational readjustment. As of June 30, 1945, 22,232 veterans had entered into training under Public Law 16. Of these, 14,986 were still in training, 5,013 had interrupted training, 1,469 had discontinued training and 764 had been rehabilitated. Under Title II, Public Law 346, 22,335 veterans were in training on June 30, 1945, and 990 veterans had completed courses of education

Table I.—U.S. Veterans on Roll, June 30, 1945

War	On Roll June 30, 1945	Disbursements, Fiscal Year 1945
Yellow fever experiments		
Participants	6	\$9,375.00
War of 1812		
Deceased veterans	1	240.00
Mexican War		
Deceased veterans	55	31,129.24
Indian Wars—total	3,788	2,261,440.30
Living veterans	1,115	955,573.20
Deceased veterans	2,673	1,305,867.10
Civil War—total	24,750	11,873,097.83
Living veterans	229	328,846.77
Deceased veterans	24,521	11,544,251.06
Spanish American War—total	200,059	142,797,472.04
Living veterans	128,104	111,313,837.15
Deceased veterans	71,955	31,483,634.89
Regular establishment—total	56,591	24,899,762.34
Living veterans	42,925	18,737,740.79
Deceased veterans	13,666	6,162,021.55
World War I—total	587,655	312,244,322.31
Living veterans	425,655	237,495,504.53
Service connected	332,628	180,349,901.86
Nonservice connected	90,477	53,061,553.55
Emergency officers, etc.	2,550	4,084,049.12
Deceased veterans	162,000	74,748,817.78
Service connected	84,416	50,019,402.78
Nonservice connected	77,584	24,729,415.00
World War II—total	631,711	235,299,540.21
Living veterans	537,084	175,174,535.25
Service connected	536,541	175,021,688.38
Nonservice connected	543	152,846.87
Deceased veterans	94,627	60,125,004.96
Service connected	94,463	60,058,586.30
Nonservice connected	164	66,418.66
Retired Officers, Army of the U. S. (except regulars)		
Living veterans	9,042	10,174,646.32
Grand total—pensions and compensation	1,513,658	739,591,025.59
Living veterans	1,144,154	554,180,684.01
Deceased veterans	369,498	185,400,966.58
Participants yellow fever experiments	6	9,375.00



or training.

**Readjustment Allowances.**—Operations under Title V of Public Law 346, 78th congress, were begun on a nation-wide basis on Sept. 4, 1944. The Readjustment Allowance program provides assistance to both unemployed veterans and those in self-employment.

During the period from Sept. 4, 1944, through June 30, 1945, a total of 180,798 veterans filed applications for determination of entitlement for allowances; 159,886 veterans submitted claims for unemployment allowances; and 15,221 filed claims for self-employment allowances. Weekly claims for unemployment numbering 1,062,481, and 51,856 monthly claims covering self-employment were filed. Veterans paid allowances for unemployment received an average of approximately six weekly payments to June 30, 1945.

Disbursements for the fiscal year 1945 totalled \$23,512,150 of which \$20,123,525 represented payments to unemployed veterans and \$3,388,625 payments to self-employed veterans.

During the month of June 1945, a weekly average of 31,832 veterans received unemployment allowances aggregating \$3,200,312 while \$1,069,512 was paid to 11,926 self-employed veterans.

**Loan Guarantee Activities.**—Title III of Public Law 346, 78th congress, provided for the guarantee of loans by the Veterans' administration for the purchase or construction of homes, farms and business property for any person who shall have served in the active military or naval service of the United States at any time on or after Sept. 16, 1940, and prior to the terminations of World War II and who shall have been discharged or released therefrom under conditions other than dishonourable after active service of 90 days or more, or by reason of an injury or disability incurred in service in line of duty. As of June 30,

Table II.—Net Disbursements of Veterans' Administration in Fiscal Year 1945

Appropriations:	Disbursements
Salaries and expenses . . . . .	\$158,824,748.47
Printing and binding . . . . .	553,756.46
Hospital and domiciliary facilities and services, Veterans' Administration . . . . .	15,800,635.66
Army and navy pensions and military and naval compensation . . . . .	771,796,516.61
Military and naval insurance . . . . .	19,756,071.97
National service life insurance appropriated fund . . . . .	1,117,548,383.54*
Adjusted service and dependent pay . . . . .	63,909.11
Vocational rehabilitation (World War I) . . . . .	363.94†
Military and naval family allowance . . . . .	2,346.96†
Vocational rehabilitation revolving fund (World War II) . . . . .	99,978.51
Soldiers' and sailors' civil relief, Veterans' administration (World War II) . . . . .	27,877.90
Penalty mail costs, Veterans' administration . . . . .	180,516.30
Miscellaneous . . . . .	18,066.40
Trust funds:	
U.S. government life insurance . . . . .	32,273,258.28
National service life insurance . . . . .	136,846,767.35
Adjusted service certificate fund . . . . .	11,223,396.84
General post fund . . . . .	96,462.50
General post fund auxiliary account, Veterans' administration . . . . .	270,931.49
Funds due incompetent beneficiaries . . . . .	185,223.06
Personal funds of patients, Veterans' administration . . . . .	5,754,543.87
Total . . . . .	\$2,271,318,333.42

\*Represents net amount transferred by voucher to national service life insurance for payment of claims traceable to the extra hazards of military or naval service.

†Credit—the amount shown for the appropriation "Salaries and expenses" includes net disbursements of \$27,036.39 from allotments made to other government agencies.

1945, the total applications received for guarantee of loans was 15,455.

Of this number 12,228 were guaranteed for a total of \$19,644,824.90, distributed by types as follows: home loans 11,220; farm loans 270; and business loans 738.

**Guardianship.**—The guardianship load of the Veterans' administration, June 30, 1945, was 87,346 wards, of whom 45,097 were incompetents and 42,249 minors. The value of estates of these wards approximated \$163,158,552.78.

**Finance.**—The actual net disbursements from appropriations and trust funds of the Veterans' administration (including adjustment on lapsed appropriations) during the fiscal year 1945 are shown in Table II.

(See also PHYSICAL MEDICINE AND OCCUPATIONAL THERAPY FOR THE WOUNDED.) (O. N. B.)

## Veterans of Foreign Wars.

The first postwar "United Nations Veterans Victory Conference" highlighted the 46th national encampment, Veterans of Foreign Wars of the United States, Chicago, Oct. 1-2-3-4, 1945. Representatives of 22 countries, mainly combat veterans of World War II, were brought to Chicago from all parts of the world as guests of the Veterans of Foreign Wars for a two-day meeting. The following nations were represented:

Australia, Belgium, Brazil, Canada, China, Czechoslovakia, Denmark, Dominican Republic, France, Great Britain, Greece, India, Lebanon, the Netherlands, Norway, Philippines, Russia, Yugoslavia, Turkey, Ecuador, Guatemala and the United States.

The delegates adopted resolutions in which they pledged themselves to call upon the veterans of their respective countries to help mobilize public opinion in support of the objectives of the United Nations charter. They also voted to establish an information centre in Washington, D.C., which would serve as a clearinghouse for communications between the veterans of the United Nations. They further recommended that the use of the atomic bomb be placed at the disposal of the Security commission of the United Nations.

The delegates to the V.F.W. 46th national encampment endorsed peacetime compulsory military training; advocated government control of the atomic power research; urged the establishment of an independent agency for foreign intelligence and espionage; reiterated endorsement of the United States participation in an international association of nations to prevent future wars; urged prompt return of enemy prisoners of war and temporary alien war refugees to their homeland.

On internal affairs, the V.F.W. urged congress to seek a high level of full employment through use of the free enterprise system and incentive taxation, rather than by government guarantee of jobs and spending. The construction of self-liquidating superhighways was also urged.

On veteran welfare, the V.F.W. reaffirmed its recommendation that the government should grant adjusted service pay to all World War II veterans, in recognition of the basic fact that an estimated 8,000,000 World War II veterans would not benefit by the G.I. Bill of Rights. Congress was also urged to liberalize existing provisions of the G.I. bill, particularly those dealing with the loan clause and educational aid. Early and orderly demobilization of the armed forces, with preference and priority based on length and type of service, was also urged.

The annual reports of officers indicated the growth of the organization. In 1941 the membership strength of the V.F.W. was less than 250,000. In 1945 the membership exceeded 1,000,000, which included approximately 750,000 World War II veterans. The total number of local units reached 4,500 in 1945, a new high in V.F.W. history. In 1945, 900 new posts were chartered. The expansion program of the organization had a total of 12,000 posts for its goal by the close of 1946.

The following national officers were elected for 1946: Joseph M. Stack, Pittsburgh, Pa., commander in chief; Louis E. Starr, Portland, Ore., senior vice-commander in chief; Ray H. Brannan, Denver, Colo., junior vice-commander in chief; Robert B. Handy, Jr., Kansas City, Mo., adjutant general-quartermaster general; Lyall T. Beggs, Madison, Wis., judge advocate general; Dr. Clarence R. Rungee, New Haven, Conn., surgeon general; Reverend Clarence G. Hall, Catlin, Ill., national chaplain. (B. Y.)

**Veterinary Medicine.** Change in Poultry Meat Inspection.—In the United States the marketing of fowl plucked and refrigerated with head, legs and viscera intact, leaving the actual "butchering" to the retail meat dealer or the housewife was disapproved in strong terms by

hygienists of the food industries as a common practice to be corrected in the interest of poultry production and public health. The uneviscerated carcass loses its delectable flavour and meat inspectors are best able to detect the presence of disease and evidence of unfitness for human food by inspecting the internal organs at the time of slaughter as is done in farm mammals. But, until quick and continuous freezing of poultry carcasses was developed, there was no economical plan of conducting meat inspection in the poultry dressing plants. Even under ordinary refrigeration, drawn poultry decomposes in a matter of hours. Specially constructed equipment comparable with the production line of a factory and the quick freezing refrigeration developed in 1944 and 1945 brought poultry meat inspection up to the same practical level as that of other farm animals.

**Hog-Cholera Vaccination.**—From the time the War Food administration urged the livestock farmers to accelerate swine production, there was a keen controversy over the relative, over-all merits of the three methods of vaccinating against hog cholera: (1) The original, 35-year-old serum-virus method of Marion Dorset, W. B. Niles and C. N. McBryde which confers immediate, solid, lifetime immunity (with rare exceptions) continued to be charged with spreading the disease under U.S. system of unregulated sale, distribution and reckless use of the elusive, disease-producing virus, without concurrent resort to the usual sanitary measures employed by livestock sanitarians, and (2) the crystal-violet vaccine or (3) tissue vaccine which were charged with conferring immunity of too short duration—from three weeks after vaccination to fade within the year—but was credited with the property of immunizing hogs sufficiently up to market age without risk of spreading the infection or of causing depressing vaccinogenic reaction. The trends of the controversy were toward a more general understanding of the preventable dangers of the serum-virus method and the known limitations of the others.

**The Veterinary Service of World War II.**—During 1944, the veterinary corps, of the U.S. army inspected, in round numbers, 8,000,000,000 lb. of meat, meat-food products and dairy products in addition to 1,000,000,000 lb. for the navy, marine corps and other government agencies. Of these amounts, 300,000,000 lb. were rejected prior to purchase or offer for delivery for failing to meet the contract specifications in respect to type, class or grade. About 60,000,000 lb. were rejected as insanitary or unsound. The figures reported were three times those of 1943, and 155% more than those of 1942. Losses from spoilage and unfitness from source to destination were small in the far-flung theatres and negligible in the zone of the interior.

While the number of transport animals was smaller than in former wars in which the U.S. participated, their use in some of the theatres was indispensable and their usefulness in all theatres was generally acknowledged by army commanders. In the Burma-India-China theatre, successful military operations were not possible without them. In southern China, from before the U.S. declaration of war, officers of the veterinary corps, U.S. army, were on duty training the native armies in horsemanship, horseshoeing, animal procurement and military veterinary medicine.

The new antitrypanosome developed by the U.S. public health service for the treatment of human trypanosomiasis was tried with promising results on animals suffering from surra, the grave protozoan disease of the oriental tropics.

**Bovine Infectious Keratitis.**—The bacteriological studies of infectious keratitis, or pink eye, of cattle which had been pursued for years terminated in 1945 on discovery of the specific organism—*Haemophilus bovis*, a plump, gram-negative, nonsporulating, nonmotile bacillus 1.5 to 2.0 microns long and 0.5 to 1.0 micron in diameter, regularly found end to end, with a tendency to bipolar staining. Along with other micro-organisms critically examined in the past, *H. bovis* appears to have escaped isolation because culture mediums containing blood were not used in examining the bacteria found in infected eyes. Tests for pathogenicity were positive in cattle but negative in sheep, a nonsusceptible species.

Although pink eye of cattle is rarely fatal, its morbidity is ubiquitous and effects grave. The stricken animals may be temporarily blind, unable to find water and subsistence on pasture or escape injury (falling into ditches, drowning, etc.) during the period of impaired vision. Feeders lose flesh, and milk secretion of dairy cows declines. The ulcerative form destroys the sight of one or both eyes completely. The economic value of the discovery depends upon the development of a protective vaccination.

**Equine Periodic Ophthalmia.**—Considerable advance was made in 1945 on the aetiology of the serious, ocular disease of horses commonly designated as periodic ephthalma or moon blindness. Officers of the veterinary research laboratory, Remount Depot, Front Royal, Va., in a series of controlled experiments were able to classify the disease as a nutrition disorder involving riboflavin and ascorbic acid. Though long suspected of being oecological or nutritional in nature, or both combined, proof to that effect was lacking prior to this investigation. The disease is a vicious photophobic iridocyclitis leading to lenticular cataract and other intraocular debacle that strikes the eyes of horses at the prime of life throughout several years of exacerbations and remissions. Arrest of the morbid process is rarer than complete loss of vision and unsightly eyeballs. It is a common affliction of solipeds and of wide geographic distribution. The veterinary corps investigation attached the cause to deficiency of the equine ration, specifically, to the interrelation (antagonism) between riboflavin and ascorbic acid concentration within the eyeball. Though all bars against error were closed as the research proceeded, the authors declared that the investigation was not complete.

**Artificial Insemination of Farm Animals.**—The popularity and use of artificial breeding in farm animals, especially in cows, made notable gains during 1944-45 in the U.S. The Purebred Dairy Cattle association and the American Dairy Science association, co-operating with state extension services, continued to participate in the development of local projects by dispersing information on methods and costs that encourage the organization of breeding units. A unit, or society, comprises a group of dairy farmers and a centre where bulls of the different breeds of the community are kept ready for the collection of semen to be conveyed and inseminated to waiting cows at distant points. Directions for increasing the longevity of spermatozoa were improved, methods of shipping semen, based on experience, were changed and the insemination of more cows from a given ejaculation was made possible by the use of new formulas for the dilution of semen.

**Treatment of Grubby Cattle Accelerated.**—Because the damage to cattle hides caused by heel flies (*Hypoderma bovis* and *Hypoderma lineatum*) fluctuates from \$50,000,000 to \$100,000,000 annually in the U.S. and was held responsible, in part, for the shortage of leather, new and more vigorous control measures were employed among range cattle during 1944 and 1945. The damage is done by the grub (maggot) of the fly when it settles in the thick skin of the back to develop to maturity. It builds a nut-sized nest of formative tissue (a warble), punctures a hole in the hide for air and for exit when mature. The number varies from few to many, scattered over the loins. The dimensions of the grub at maturity are 0.5 in. thick and 1.25 in. long. The damage to the hide corresponds to the number of holes made. The grub escapes from the warble in the spring months, falls to the ground, moults and becomes an insect with the first warm weather. Extermination depends upon killing the grub during its sojourn in the back. In gentle, stabled cattle the treatment consisted of squeezing out the grubs manually or applying an active larvicide to each of the warbles. But since that was not feasible in cattle of the open range, no treatment was attempted until entomologists of the U.S. bureau of animal industry determined the larvicide property of derris or cube, containing 5% rotenone, mixed with wettable sulphur and rubbed in to the infected skin in the form of a powder or sprayed in aqueous suspension. Cattle were treated while passing through chutes equipped with elevated platforms for the operators. The spraying was done under high enough pressure (400 lb.) to drive the suspension around the warble. The powder method though more cumbersome, was equally reliable provided the powder was thoroughly rubbed into the skin. The spray suspension used consisted of 5 lb. of derris or cube (containing 5% of rotenone) and 10 lb. of wettable sulphur to each 100 gal. of water. The powder was diluted in the same proportions with an inert clay.

**BIBLIOGRAPHY.**—Edward M. Lynn, "Proposed Pattern for Poultry Meat Marketing: Concept of a Needful Sanitary Reform," *J. Am. Vet. A.*, 106:145-152 (March 1945); Lt. Robert E. Savage, "Army Inspection of Eviscerated Poultry," *ibid.*, 104:208-211 (April 1944); L. Van Es and J. F. Olney, "Collected Observations Pertaining to Hog Cholera," *Bulletin 135*, College of Agriculture, University of Nebraska (Oct. 1944); Raymond A. Kelsner, "The Veterinary Service of World War II," *Bull. U.S. Army Med. Dept.*, 4:262-266 (Sept. 1945); Earl M. Baldwin, Jr., "A Study of Bovine Infectious Keratitis," *Am. J. Vet. Research*, 6:180-187 (July 1945); T. C. Jones, Fred C. Maurer and Thomas O. Roby, "The Role of Nutrition in Equine Periodic Ophthalmia," *Am. J. Vet. Research*, 6:67-80 (April 1945); Enos J. Perry and others, *The Artificial Insemination of Farm Animals* (Rutgers University Press, 1945); Editorial, "Artificial Insemination: Higher Dilutions of Semen," *J. Am. Vet. M. A.*, 104:217 (April 1944); W. T. Spencer, "The Treatment of Grubby Cattle," *Special Bulletin*, National Livestock Loss Prevention Board (Omaha 1945); R. W. Wells, "The Use of Derris and Cube Washes in the Control of Cattle Grubs," *Circular E-496*, U.S. Department of Agriculture, Bureau of Entomology and Plant Quarantine (1940).

(L. A. M.)

**Victoria.** A state of the Australian commonwealth, area 87,884 sq.mi.; pop. (est. Dec. 31, 1943) 1,997,804. Chief cities (pop. Dec. 31, 1943): Melbourne (cap. 1,107,000); Geelong (40,250); Ballarat (38,600); Bendigo (30,200). Governor in 1945: Maj. Gen. Sir W. J. Dugan.

**History.**—A. A. Dunstan's composite Country party Liberal government remained in office in 1945 until late September when, following a dramatic political crisis, the state government was refused supply and Dunstan tendered his resignation. The governor, by proclamation, dissolved parliament and called on the Labour leader, John Cain, the Liberal leader, T. T. Holloway and the Country party deputy leader, A. E. Lind, in turn to form a stopgap government. Each was unable to obtain the necessary assurance of support and eventually Ian MacFarlan, the attorney general, was successful in forming a government which obtained two months' supply from parliament. At the general election held on Nov. 10 the Labour party was returned to power and Cain became premier. Among the defeated members was MacFarlan, the stopgap premier. Earlier in the year the government decided to confer much wider activities on the agent general in London and in September appointed the minister for agriculture, Norman Martin, to the post. His new duties included finding additional markets in

postwar Europe, the active encouragement of migration and an expansion of Victoria's tourist traffic.

Drought conditions during 1945 seriously affected agricultural production, the wheat crop amounting to less than 120,000 tons compared with 600,000 tons in 1944 and a wartime average of 1,200,000 tons. Every effort was made to sow an extra 400,000 ac. during 1945 and, with good winter rains ending the drought, prospects were considered better for the 1945-46 crops.

**Education.**—In 1941: number of schools (state) 2,640, (private) 518; teachers (state) 8,868, (private) 2,744; scholars (state) 225,023, (private) 81,308; average attendance (state) 187,316, (private) 76,305.

**Finance.**—In 1943-44: revenue \$113,740,000; expenditure \$111,757,000; debt outstanding (June 30, 1944) \$559,242,000. (Conversion rate: £A1=\$3.2 U.S.).

**Communication.**—Roads (1941) 110,000 mi.; railways (1942-43) 4,758 mi. Motor vehicles licensed (March 31, 1945): cars 137,122, commercial vehicles 94,361, cycles 19,115. Wireless receiving set licences (June 30, 1944) 409,325. Telephones (June 30, 1941) 228,936.

**Agriculture, Manufacturing, Mineral Production.**—(In short tons) Wheat (1944-45) 120,000; wool (1943-44) 99,900; coal, brown (1942) 5,526,000; gold (1942) 101,497 fine oz. Industry and labour (1943-44): factories 9,317; employees 261,331; gross value of output \$910,874,000; unemployment (trade union returns) (Feb. 1945) 0.8%. (W. D. MA.)

**Victory Gardens:** see HORTICULTURE.

## Vinson, Frederick Moore

(1890- ), U.S. politician, was born Jan. 22 at Louisa, Ky. He was graduated from Kentucky Normal college, 1908, received his B.A., 1909, and his law degree, 1911, from Centre college and practised law in Louisa in 1911. He served seven terms in the national house of representatives, and was a key man in congress during the early days of the Roosevelt administration. In 1937, he accepted Pres. Roosevelt's offer of the post of associate justice in the U.S. court of appeals for the District of Columbia. Vinson was named director of the Office of Economic Stabilization in May 1943. He vetoed the 8-cent per hour increase asked for by 1,100,000 nonoperating employees of the railroad brotherhoods and warned that the "little steel" wage formula would be destroyed if the 8-cent increase was approved by congress. In Nov. 1944, he again declared that the administration was not contemplating an upward revision of the "little steel" formula but added that the rise in living costs "must stop." Vinson changed posts three times in 1945. Pres. Roosevelt made him federal loan administrator in charge of the Reconstruction Finance corporation, March 5, and director of the Office of War Mobilization and Reconversion, April 2. Pres. Truman appointed him secretary of the treasury, after Morgenthau's resignation, and Vinson was sworn in office, July 23. He signed the Anglo-American agreement, Dec. 6, under which Britain was to secure loans from the U.S. totalling about \$4,400,000,000.

## Virginia.

One of the 13 original United States, Virginia is known as the "Old Dominion" and as the "Mother of Presidents." It is southernmost of the middle Atlantic states, with an area of 40,815 sq.mi. including 916 sq.mi. of water. Pop. (1940) 2,677,773, 35.3% urban and 64.7% rural. On July 1, 1944, the bureau of the census estimated the civilian population of the state at 3,199,115. Capital, Richmond (193,042 in 1940 and 225,000 in July 1944). Other cities include Norfolk (144,332 and 167,900), Roanoke (69,287 and 66,641) and Portsmouth (50,745 and 59,472).

**History.**—The general assembly convened in extraordinary session in March 1945, following a referendum on March 6 in which the people voted 54,515 to 30,341 in favour of a constitutional convention to be restricted solely to providing means for Virginia servicemen to vote in state and local elections. In addition to arranging for the election of delegates to this convention, the legislature at this session provided a substantial increase in the state contribution to salaries of public school teachers, appropriated more than \$1,200,000 for visual education equipment and paved the way for study of election laws by



WILLIAM M. TUCK, Democrat, was elected governor of Virginia on Nov. 6, 1945

an interim commission. The constitutional convention in April added a new section to the state constitution to validate a plan for war voting. A general election in Nov. 1945 saw William Munford Tuck elected governor by a two-to-one margin over S. Floyd Landreth, Republican, and Howard Carwile, Independent. The 1945 governor was Colgate W. Darden, Jr.; Tuck was lieutenant governor that term. Dr. Dabney S. Lancaster was superintendent of public instruction.

**Education.**—In 1944-45, elementary school enrolment was 425,574 with a teaching staff of 11,064; secondary school enrolment 124,081 with a teaching staff of 4,240.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—For the year ended June 30, 1945, 11,338 persons received \$830,783.87 in general relief; 18,026 received \$2,463,212.38 in old-age assistance; 4,814 families with 13,881 dependent children, \$1,181,164.45; 1,107 blind, \$200,898.20; and in 1945 from January through Dec. 22, 74,139 unemployment compensation checks were written for \$1,095,068. This represented an increase of nearly 300% over the same period in 1944. An average daily population of 4,298 was in five penal institutions for adults, and of 589 in four industrial schools for juveniles at the end of the fiscal year in June 1945.

**Communication.**—On Jan. 1, 1945, there were 9,176.33 mi. of highway in the state's primary system; on July 1, 1945, there were 37,576.29 mi. in the secondary system. During the year ended June 30, 1945, the state spent \$23,839,412.32 on its highways. Total railroad mileage was 4,093.93 on Jan. 1, 1945. There were 346,244 telephones in Virginia on Nov. 30, 1945.

**Banking and Finance.**—On June 30, 1945, Virginia had 183 state banks with 62 branches and five "facilities" and 130 national banks and branches. On June 30, 1945, deposits in state banks totalled \$647,724,179 and assets, \$697,515,677. On June 30, 1945, deposits of national banks were \$1,015,857,242 and assets, \$1,082,702,067. Resources on Dec. 31, 1944, of 18 industrial loan associations were \$7,975,317; of 58 building and loan associations, \$36,416,006; of 28 credit unions, \$1,285,980. The state budget for the fiscal year ended June 30, 1945, showed receipts of \$170,407,655, some 23% more than the previous year. The gross debt on June 30 was \$16,908,076; there was no net debt, since a sinking fund of \$18,588,222 left an excess of \$1,680,145. The fiscal year ended with a general fund surplus of \$17,936,100.

**Agriculture.**—The value of Virginia's principal crops in 1945 was estimated at \$237,000,000, a decrease of 2% from 1944. Acreage harvested declined slightly from the 1944 figure to 3,874,000 ac. Severe shortages of farm labour persisted during the year, and a killing freeze on April 6 destroyed the great bulk of peach and apple blossoms which had appeared during an unseasonably warm March. Prolonged rains during the latter part of July added to the generally unfavourable growing season and contributed to some of the lean crops. In spite of these factors, yield per acre of corn and oats was the highest on



record, and the combined production of all tobacco crops was the highest from 1923. Cash receipts to Virginia farmers in 1945 from the sale of crops and livestock products were estimated at 5% more than 1944, when receipts were \$314,905,000.

Table I.—Leading Agricultural Products of Virginia, 1945 and 1944

Crop	1945	1944
Tobacco, lb.	154,077,000	148,827,000
Cotton, lint, bales.	17,000	29,000
Corn, bu.	40,359,000	34,272,000
Oats, bu.	3,780,000	3,672,000
Barley, bu.	1,836,000	2,124,000
Apples, commercial, bu.	3,145,000	14,580,000
Peaches, bu.	536,000	2,150,000
Wheat, winter, bu.	8,192,000	11,275,000
Hay, all tame, tons	1,711,000	1,357,000
Lespedeza seed, lb.	8,900,000	6,800,000
Potatoes, bu.	8,568,000	5,976,000
Sweet potatoes, bu.	3,441,000	3,960,000
Peanuts for nuts, lb.	152,100,000	191,180,000
Soybeans for beans, bu.	1,360,000	945,000

**Manufacturing.**—The total value of manufactured products for the year ended Dec. 31, 1944, was \$2,273,281,756. Wage earners were paid \$339,626,866 in this period, while total salaries amounted to \$79,208,569; an estimated 246,518 persons were engaged in manufacturing at the end of this period. The principal industries were tobacco products, food and kindred products, transportation equipment, textiles, paper and printing and chemical products.

Table II.—Principal Industries of Virginia, 1944 and 1943

Industry	Value of products 1944	1943
Tobacco products.	\$760,800,542	\$774,150,411
Food and kindred products.	298,882,246	176,109,103
Textiles and their products.	377,549,300	345,892,442
Wood products.	105,860,200	99,690,579
Paper and printing.	142,556,943	136,067,049
Chemical products.	111,694,596	95,117,022
Metals and machinery.	70,437,607	70,224,486
Transportation equipment.	244,324,461	251,903,591

**Mineral Production.**—The production value of raw mineral resources in the year ending Dec. 31, 1944, reached an all-time peak of \$88,528,000 compared with \$85,825,000 in 1943 and \$50,003,672 in 1940. Coal production in 1944 was valued at \$64,476,000 as compared with \$59,923,217 in 1943, an increase of more than 7%. About 3,000 bbl. of petroleum and 55,000,000 cu.ft. of natural gas were produced. The nonmetallic minerals had a production value in 1944 of \$16,955,450. The value of metallic ores, chiefly zinc, titanium and manganese, was about \$7,096,500.

(J. J. Kt.)

**Virginia, University of.** A state institution for higher education at Charlottesville, Va. Throughout the period of World War II, the university provided facilities for the school of military government, for various other military and naval units, and for experimental work in several scientific fields. Perhaps the most extensive research conducted was that carried on in connection with the atomic bomb project. The college department added during 1945 an Institute of Foreign Service and International Affairs, and Jesse H. Jones of Houston, Tex., gave the university \$300,000 to create the Woodrow Wilson School of International Affairs. (For statistics of student enrolment, faculty members, endowment, library volumes, etc., see UNIVERSITIES AND COLLEGES.)

(J. L. N.)

**Virgin Islands.** A United States dependency in the West Indies, east of Puerto Rico, comprising St. Croix (pop. 12,902); St. Thomas (11,265) and St. John (722) islands. Area, 133 sq.mi.; pop. (1940) 24,889, 13.1% more than in 1930 with whites 9%, Negroes 69% (1930: 78.3%), "mixed and other races" 22% (1930: 12½%). The chief cities are: Charlotte Amalie, the capital on St. Thomas, 9,801 (1930: 7,036); Christiansted 4,495 (1930: 3,767) and Frederiksted, 2,498 (1930: 2,698) on St. Croix. The governor

in 1945 was Charles Harwood.

**History.**—Ending of World War II construction and a sharp decrease in the sale of rum seriously affected the economy of the islands during 1945. However, the profits from the heavy rum shipments at high prices in 1944 prevented any immediate effect upon governmental operations, and a generally increased harbour activity at St. Thomas promised to help conditions in the future. Popularity of some of the island resorts among service personnel indicated that attractions of the islands to tourists could well be emphasized in the future.

As a backlog against postwar unemployment there was the \$10,028,420 authorization by congress in 1944 for the construction of public works, including hospital facilities, sanitation, roads, docks, markets, schools, communications and other improvements. In Dec. 1945 congress appropriated \$1,216,210 to start the program which was designed to extend over a five-year period.

**Education.**—Public and private elementary and secondary schools had an enrolment of 5,585 in 1945 (St. Thomas and St. John, 3,047; St. Croix, 2,538). Of the total Charlotte Amalie high school had 643 students.

**Finance.**—The monetary unit is the U.S. dollar. Government of St. Croix receipts during the fiscal year 1945 were \$515,383.28; budgeted expenditures, \$589,588; U.S. subsidy, \$100,000 (of which \$51,000 was unexpended). Government of St. Thomas and St. John receipts were \$1,257,416.53; budgeted expenditures, \$1,152,496.82; no U.S. subsidy (for fourth year).

**Trade.**—Shipping was slightly improved over 1944 and 204 vessels entered St. Thomas harbour. Exports from the islands in 1944, last year for which statistics were available in 1945, totalled \$6,657,669 (including \$5,715,480 which represented 2,661,248 gal. of rum) while imports totalled \$3,726,484. In 1943 exports only totalled \$3,456,235 (including \$2,457,301 which represented 1,725,533 gal. of rum) as compared with imports of \$3,861,055.

**Communication.**—External communication is by steamer and Pan American Airways through Charlotte Amalie. Inter-island traffic is by boat and aeroplane.

**Agriculture.**—Agriculture supplements shipping to support St. Thomas. St. Croix and St. John are largely agricultural. In 1940 (census) there were 828 farms of 3 ac. or more totalling 55,228 ac. St. Croix produced practically the entire sugar crop of the islands, amounting to 4,040 short tons of raw sugar in 1945 (2,687 short tons in 1944). Grazing was encouraged by a government-built abattoir on St. Croix and a cold storage market on St. Thomas. Vegetables, orchard products (guava, coco-nuts, limes, lemons and oranges) and livestock comprised the principal agricultural products other than sugar. The Virgin Island Co., a government corporation, mills the sugar and operates one of the two rum distilleries on St. Croix.

(E. G. A.)

**Virgin Islands, British:** see WEST INDIES, BRITISH.

**Viruses:** see INFANTILE PARALYSIS; MEDICINE; PNEUMONIA.

**Vital Statistics:** see BIRTH STATISTICS; CENSUS DATA, 1945; DEATH STATISTICS; INFANT MORTALITY; MARRIAGE AND DIVORCE; SUICIDE STATISTICS.

**Vitamins.** A "Lactobacillus casei factor" was synthesized by R. B. Angier and found effective in macrocytic anaemia and sprue. *L. casei* factor(s) belong to a group of substances variously known as "folic acid," "norit eluate factor," "growth factor for *Streptococcus lactis*," "vitamin M," "vitamin Bc," etc. They are parts of the B-complex vitamins and have been associated with the growth of certain micro-organisms and the prevention of an anaemia in the monkey and in the chick. Many of these substances are probably identical.

Neither the method of synthesis nor the structure was given. Absorption spectra, crystals and biologic activities of the synthetic product and natural compound are the same. T. D. Spies and associates reported haematologic responses following the administration of the synthetic *L. casei* factor to several cases of unspecified macrocytic anaemia. W. J. Darby and T. Jones reported the response of two cases of sprue to the intramuscular administration of the synthetic *L. casei* factor. Several as yet unpublished accounts reported a favourable haematologic response in pernicious anaemia following therapy with this material.

Outstanding advances were made in the understanding of the mechanism of action of pyridoxine or vitamin B<sub>6</sub>. A deficiency of this vitamin causes a dermatitis in the rat, a microcytic anaemia in the dog, swine and duck, and neurologic disturbances in all three species. The manifestations of pyridoxine deficiency in man have not been clearly defined. It was shown that pyridoxine deficiency results in a defect in the metabolism of protein, specifically in the metabolism of the amino acids tryptophane and tyrosine. Pyridoxal and pyridoxamine are naturally occurring derivatives of pyridoxine, closely related to it chemically, but varying in biologic activity. E. E. Snell and A. N. Rannefeld reported a detailed study of the three compounds which showed in general that pyridoxal and pyridoxamine are equal in activity or greater than pyridoxine, supporting the belief that they are more closely related chemically to the active catalytic form of pyridoxine. It was shown by H. C. Lichstein, I. C. Gunsalus and W. W. Umbreit that pyridoxal phosphate, previously shown to function as the coenzyme of several amino acid decarboxylases, also functions in certain transamination reactions. Thus it can be said that the mechanism of action of the vitamin B<sub>6</sub> compounds in protein metabolism is partially explained by coenzyme activity in amino acid decarboxylation and in transamination.

Several of the vitamins assume a different chemical form in the tissues before their functional or catalytic role in metabolism is possible. This functional form is usually a coenzyme; conceivably in certain conditions, the functional form of a vitamin may be lacking in spite of adequate amounts of the free vitamin. It was reported by W. M. Govier that the functional form of thiamin (cocarboxylase) and of niacin (coenzyme I) were greatly reduced in heart muscle made anoxic by an experimental technique designed to approximate the conditions following a common type of heart disease known as coronary occlusion.

Antivitamins, vitamin inhibitors or antimetabolites are substances whose chemical structures are similar (analogues and homologues) to those of essential cellular catalysts. There are known antimetabolites for several of the vitamins and amino acids. Galactoflavin, an analogue of the B-vitamin riboflavin, was found by G. A. Emerson, E. Wurtz and O. H. Johnson to interfere with the ability of riboflavin to support growth in rats and a similar phenomenon by a homologue of thiamin was reported by G. A. Emerson and P. L. Southwick. W. Shive and E. E. Snell reported inhibition of bacterial growth by a number of analogues of pantothenic acid. A thorough review of this important subject was published by A. D. Welch. P. R. Burkholder and Ilda McVeigh reported studies on several varieties of peas and beans which showed that during germination niacin, pantothenic acid, inositol, biotin, riboflavin and ascorbic acid increased greatly. Thiamin and pyridoxine remain unchanged and the vitamin B<sub>6</sub> content decreased. E. Stotz reported a variety of apple which is nearly as rich in ascorbic acid as an orange. An intensive study by K. C. Hammer, L. Bernstein and L. A. Maynard showed that the amount of sunlight previous to harvesting has a marked effect on the ascorbic acid content of tomatoes. (See also BIOCHEMISTRY; CHEMISTRY; CHEMO-

THERAPY; DIETETICS; FISHERIES; FLOUR AND FLOUR MILLING; MEDICINE.)

**BIBLIOGRAPHY.**—R. B. Angier, "Synthesis of a Compound Identical with the *L. Casei* Factor Isolated from Liver," *Science*, 102:227-228 (Aug. 1945); T. D. Spies, C. F. Vilter, M. B. Koch and M. H. Caldwell, "Observations of the Anti-Anemic Properties of Synthetic Folic Acid," *South. M. J.*, 38:707-709 (Nov. 1945); W. J. Darby and T. Jones, "Synthetic *L. Casei* Factor in the Treatment of Sprue," *Proc. Soc. Exper. Biol. & Med.* (Dec. 1945), to be published; E. E. Snell and A. N. Rannefeld, "Vitamin B<sub>6</sub> Group: The Vitamin Activity of Pyridoxal and Pyridoxamine for Various Organisms," *J. Biol. Chem.*, 157:475-489 (Feb. 1945); H. C. Lichstein, I. C. Gunsalus and W. W. Umbreit, "Function of the Vitamin B<sub>6</sub> Group: Pyridoxal Phosphate (Codecarboxylase) in Transamination," *ibid.*, 161:311-320 (Nov. 1945); W. M. Govier, "The Effect of Experimental Coronary Artery Ligation on the Coenzyme I and Cocarboxylase Content of Myocardium of the Dog," *Am. Heart J.*, 29:384-389 (March 1945); G. A. Emerson, E. Wurtz and O. H. Johnson, "The Antiriboflavin Effect of Galactoflavin," *J. Biol. Chem.*, 160:165-167 (Sept. 1945); G. A. Emerson and P. L. Southwick, "The Antithiamin Effect of the 2-N-Butylpyrimidine," *ibid.*, 160:169-171 (Sept. 1945); W. Shive and E. E. Snell, "Growth Inhibition by Analogues of Pantothenic Acid, Pantothenyl Alcohol and Related Compounds," *ibid.*, 158:551-559 (May 1945); "Growth Inhibition by Analogues of Pantothenic Acid," 160:287-292 (Sept. 1945); A. D. Welch, "Interference with Biological Processes Through the Use of Analogues of Essential Metabolites," *Physiol. Rev.*, 25:687-715 (Oct. 1945); O. A. Bessey and O. H. Lowry, "Biochemical Methods in Nutritional Surveys," *Am. J. Pub. Health*, 35:941-946 (Sept. 1945); R. Johnson *et al.*, "Laboratory Manual of Field Methods for Biochemical Assessments of Metabolic and Nutritional Condition" (1945); E. Stotz, "Ascorbic Acid Content of Apples," *Farm Research*, 11:2-6 (1945); K. C. Hammer, L. Bernstein and L. A. Maynard, "Effects of Light Intensity, Day Length, Temperature, and Other Environmental Factors on the Ascorbic Content of Tomatoes," *J. Nutrition*, 29:85-97 (Feb. 1945).

**FILMS.**—*Foods and Nutrition; Fundamentals of Diet* (Encyclopædia Britannica Films Inc.). (F. J. Se.)

**V-J Day:** see BUSINESS REVIEW; WAR MANPOWER COMMISSION; WAR PRODUCTION, U.S.; WAR PRODUCTION BOARD.

**V-Mail:** see PHOTOGRAPHY.

**Vocational Education:** see EDUCATION.

**Von (in personal names):** see under proper names.

**WAC:** see WOMEN'S ARMY CORPS.

**Wages and Hours.** During 1945 employment and pay rolls in manufacturing and nonmanufacturing industries of the U.S. experienced a progressive decline. The index numbers for January were about 15 points below the figures for the previous January (1944); and for August they were 25 points lower. Advance news releases of the United States bureau of labour statistics showed even more rapid decreases in September and October. The excessive amount of overtime hours declined rapidly after the Japanese surrender and discontent spread among wage earners when their "take-home" earnings decreased sharply because of both reduced hours per week and loss of overtime premiums.

Table I and the chart on page 808 show employment indexes for 1944 and the first eight months of 1945 in all manufactures, durable goods and nondurable goods. The table shows wage-earner employment and pay rolls in both durable and nondurable goods industries. These indexes were based upon 1939 as 100.

Table II shows the average hours and earnings in the two

Table I.—Employment and Weekly Wages Indexes for All Manufacturing Industries of the U.S. in 1945 (8 months) and 1944

Indexes are based on 1939 average and adjusted to census of manufacturers. They are not comparable to indexes published prior to Dec. 1942 by the bureau of labour statistics

Months	All manufacturers				Durable goods				Nondurable goods			
	Wage-earner employment		Wage-earner pay roll		Wage-earner employment		Wage-earner pay roll		Wage-earner employment		Wage-earner pay roll	
	1945	1944	1945	1944	1945	1944	1945	1944	1945	1944	1945	1944
Jan.	160.1	175.0	330.5	345.1	215.9	242.7	454.3	489.4	116.1	121.7	209.4	204.0
Feb.	159.7	174.0	329.0	344.7	215.2	240.9	451.1	487.3	115.9	121.3	209.6	205.3
March	158.0	171.6	325.5	341.3	212.2	237.3	444.0	481.6	115.2	119.8	209.7	204.1
April	154.8	168.6	317.0	335.0	206.9	232.2	430.4	474.8	113.7	117.7	206.1	198.2
May	153.6	166.7	307.0	334.2	204.1	230.3	413.3	470.9	113.7	116.5	202.9	200.7
June	150.5	166.1	302.5	334.6	196.9	228.4	399.8	469.0	113.9	117.1	207.3	203.2
July	145.6	167.7	286.5	331.7	187.8	229.3	372.7	461.4	112.3	119.3	202.2	204.9
Aug.	142.5	167.9	257.5	335.0	181.1	228.1	325.5	465.4	112.0	120.5	191.0	207.5
Sept.	...	156.3	...	313.1	...	209.7	...	428.6	...	114.2	...	200.1
Oct.	...	161.7	...	330.3	...	217.5	...	455.6	...	117.8	...	207.8
Nov.	...	160.7	...	327.3	...	215.7	...	450.3	...	117.3	...	207.0
Dec.	...	161.0	...	331.8	...	216.1	...	455.9	...	117.6	...	210.5

This table compiled from statistics released by the Monthly Labor Review, United States bureau of labour statistics.

sample months of January and July 1945, in the principal manufacturing and nonmanufacturing industries. It is evident that a high level of wage-earners' weekly "take-home" continued through July 1945, as the result of high earnings and overtime pay.

Table II.—Average Weekly Earnings, Average Weekly Hours and Average Earnings per Hour in Major Industrial Classifications, January and July, 1945 in the U.S.

Industry	Average weekly earnings		Average weekly hours		Average hourly earnings	
	Jan.	July	Jan.	July	Jan. cents	July cents
ALL MANUFACTURING	\$47.50	\$45.42	45.4	44.0	104.6	103.2
Durable goods	53.54	50.60	46.8	44.9	114.4	112.6
Nondurable goods	38.66	38.58	43.4	42.8	89.1	90.2
Iron and steel	51.65	50.22	46.9	45.2	110.1	111.0
Electrical machinery	49.64	47.95	45.5	45.4	106.9	105.7
Machinery, not electrical	55.92	53.54	48.7	46.6	114.9	114.8
Transportation equipment, except automobiles	62.61	59.64	48.0	45.8	130.4	130.2
Automobiles	59.42	53.05	45.2	42.4	131.4	125.2
Nonferrous metals	50.92	48.81	47.2	45.7	107.9	106.8
Lumber basic	33.72	33.64	42.6	41.5	79.1	81.0
Furniture	37.48	36.89	44.4	43.3	84.5	85.2
Stone, clay and glass	39.93	40.32	43.6	43.3	91.7	93.1
Textile-mill products	30.78	31.50	42.3	41.3	72.9	76.3
Apparel products	32.42	30.38	38.2	36.7	84.9	82.9
Leather	34.66	35.47	41.8	41.7	82.9	85.1
Food	39.51	39.98	45.6	45.8	86.7	87.4
Tobacco	31.93	30.73	43.4	41.0	73.6	74.9
Paper and allied products	40.18	40.78	46.2	46.3	86.9	88.1
Printing & publishing	46.03	46.62	41.5	41.5	110.9	112.4
Chemical products	44.41	44.99	45.7	45.1	97.2	99.9
Products of petroleum	56.20	58.01	46.6	47.7	120.6	121.7
Rubber products	54.49	51.81	47.3	45.5	115.1	113.8
NONMANUFACTURING						
Coal mining:						
Anthracite	44.81	47.47	38.9	39.4	115.4	121.9
Bituminous	54.11	50.70	44.9	40.8	120.4	125.5
Metalliferous mining	45.08	45.64	44.0	43.9	102.3	103.9
Quarrying	38.73	42.91	44.6	48.0	86.8	89.5
Crude petroleum	54.59	54.40	45.7	45.0	117.1	120.9
Telephone	39.49	*	42.4	*	93.4	*
Telegraph	37.14	37.98	45.0	46.0	82.6	82.6
Electric light	48.90	50.34	43.4	43.4	111.6	114.6
Street railways and buses	50.04	51.21	51.6	51.6	96.2	97.9
Wholesale trade	43.15	44.92	42.7	43.1	100.6	103.7
Retail trade	26.99	29.40	39.6	41.9	75.1	77.5
Hotels	23.71	24.40	44.2	44.0	53.2	54.4
Private building construction	52.98	55.57	38.8	40.1	136.4	138.7

\*Not available.

Compiled from Monthly Labor Review, United States bureau of labour statistics, Washington, D.C.

Incentive systems of wage payment were used extensively during World War II. This was another factor contributing to high weekly earnings in manufacturing.

Table III shows a steady rise in average hourly earnings from 1940 to 1945. The increase is greater than the rise in hourly rates since time-and-one-half and double-time overtime rates appreciably increased hourly average earnings. It was not possible to separate the increment added to hourly earnings by overtime work from the prevailing rates paid for standard hours of employment.

Table III.—Rise in Hourly Earnings Rates in U.S.A., 1940-45

Industry	Hourly earnings in August				
	1940	1941	1942	1943	1944
Manufactures in general	\$ .668	\$ .745	\$ .864	\$ .965	\$1.016
Durable goods manufactures	.731	.830	.966	1.060	1.111
Nondurable goods	.613	.658	.738	.811	.865
Iron and steel	.777	.871	.967	1.037	1.076
Machinery	.745	.844	.976	1.063	1.120
Lumber and products	.526	.588	.677	.744	.803
Food and kindred products	.615	.658	.732	.805	.844
Tobacco products	.492	.520	.587	.658	.715
Rubber products	.779	.861	.936	1.015	1.102
Anthracite mining	.926	.989	.992	1.073	1.179
Bituminous mining	.887	1.033	1.061	1.147	1.189
Wholesale trade	.736	.798	.861	.944	.939
Building	.956	1.001	1.174	1.246	1.323

Bureau of labour statistics figures showed a downward trend of hours in most industries from 1937 to 1939 because of reduction in hours-standards effected by union agreements. But in 1940 to 1945 average hours increased, particularly in the heavy industries. It was apparent during the closing months of 1945 that the industries generally were eliminating overtime and returning to prewar standards of normal working hours.

The much higher hourly earnings in some industries were due to one or more of the following factors: (1) character of the

labour supply employed, as to sex, age and skill, (2) productivity of the industry, principally determined by its degree of modernization, technical equipment and proportion of skilled workers, (3) degree to which union working conditions prevailed and (4) necessity of paying high wages to attract labour supply.

Weekly earnings measure wage-earner welfare better than do hourly rates. There were 12 industries of the 32 studied in which average weekly earnings exceeded \$50 per week in July 1945. The maximum was \$59.64 in transportation equipment industries. The lowest weekly earnings were in hotels: \$24.40. Of course, hotel earnings are supplemented by tips, and the statistics do not reveal this part of the employees' income. In July 1945, there were 21 industries in which average weekly earnings were between \$40 and \$59.64 and eight industries between \$30 and \$40. The average weekly earnings of durable goods manufacturers were \$50.60 in July 1945 compared with \$51.07 a year earlier.

The wages of farm labour, both monthly and daily wages varied little from 1944 levels, judging by the reports of the U.S. bureau of agricultural economics. Labour scarcity caused increased mechanization on farms. (See also AGRICULTURE; BUSINESS REVIEW; CANADA; CENSUS DATA, 1945; LAW.)

(D. D. L.)

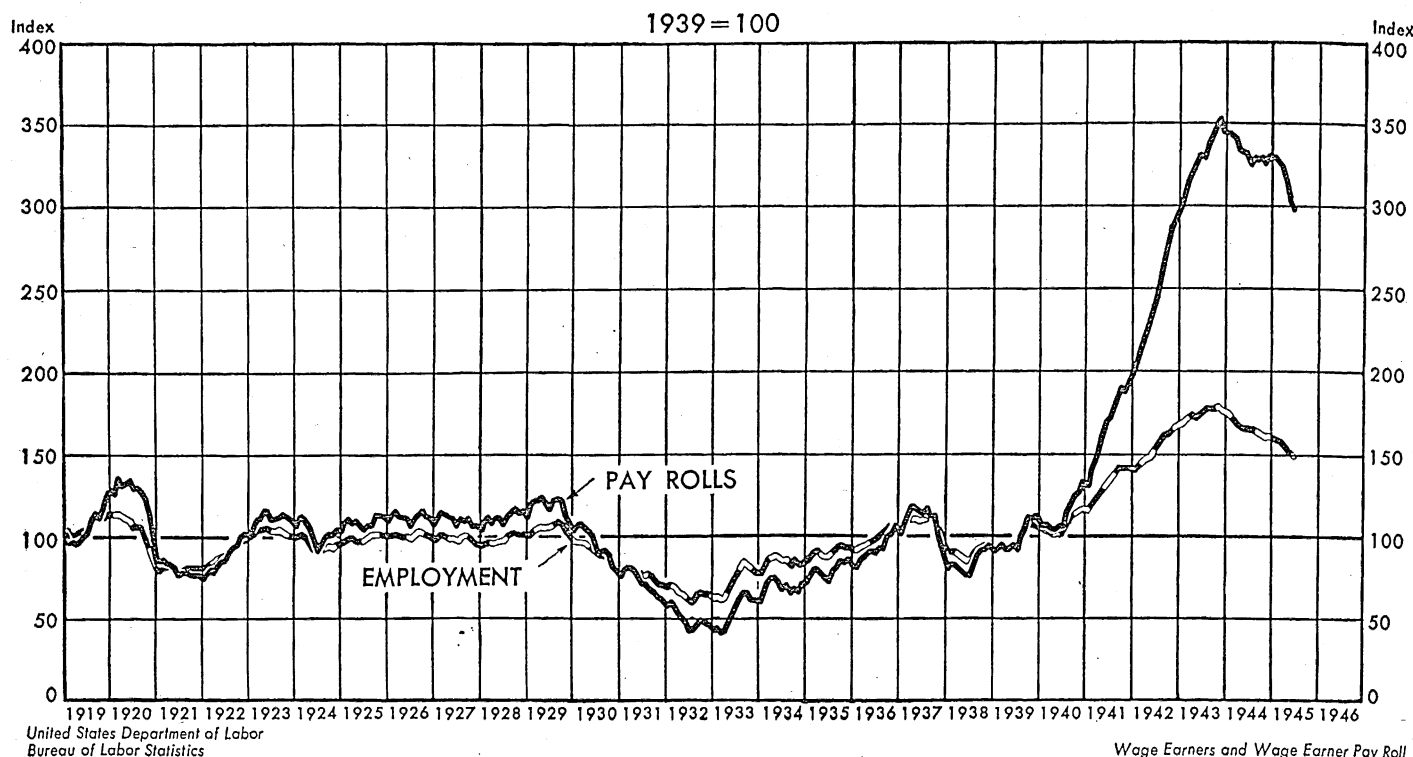
Great Britain.—The latest comprehensive returns available relating to wages and hours in Great Britain showed the weekly earnings and the hours worked in January by approximately 5,500,000 wage earners and were believed to be reasonably representative of general conditions in the industries covered. These did not include coal mining, railways, docks, shipping, agriculture, distribution and commerce or domestic and other personal services. They were primarily representative of manufacturing industries. In this wide group average earnings had increased by 76% above the level of Oct. 1938, as compared with a rise of only about 30% in the official cost of living index, which however underestimated the real increase as it was much affected by the keeping down of the prices of a limited range of necessary articles by means of subsidies. It has also to be borne in mind that most working-class incomes, except those of juveniles, were subject to fairly heavy direct taxation. The average rise of 76% included all workers: the rise was 73% for men, 69% for youths and boys, 94% for women and 82% for girls. The higher figure for women of course reflects the extensive movement of women into more highly paid industries and into jobs previously done by men. In the case of men, these earnings were for a longer working week than those of 1938, 49.4 hours for men as against 47.7; but for boys, women and girls there was a slight fall in the hours worked. For all workers together there was a slight rise, from 46½ hours to 47 hours.

It is a notable fact that in January both average earnings and average hours were less than those shown by previous inquiries. For men earnings fell below the averages shown in all previous inquiries from early in 1943 and for women from the beginning of 1944. Average hours were lower than those shown in any inquiry after the beginning of the war. For both men and women earnings reached their peak in July 1944. After then they fell, up to Jan. 1945, for men from 124s.4d. to 119s.3d. and for women from 64s.3d. to 63s.2d. These falls were in spite of a number of advances in wage-rates and were due to decreased overtime, week-end and piecework earnings. After Jan. 1945 there were further increases in weekly rates, but it was certain that average earnings fell further after the cessation of hostilities in Europe.

Earnings naturally differed widely from trade to trade. The highest averages for men were in metal, engineering and shipbuilding (131s.2d.) and in government factories (131s.6d.) and for women in the same two groups (70s.4d. and 84s.10d.) and in transport (78s.7d.). The lowest for men were in metal mining and quarrying (93s.8d.) and in public utility services (98s.3d.) and for women in bricks, pottery and glass (49s.9d.) and public utility services (50s.6d.). Of industries not covered by the main inquiry coal mining showed a rise, as against 1939, from 11s.5d. to 22s.5d. a shift, or in terms of weekly earnings from 60s.8d. to 114s.6d., or 89% (adult males only 86%). There were no up-to-date figures for the remaining industries.

The official cost of living index (July 1914=100), which stood at 200





EMPLOYMENT and pay rolls for all manufacturing industries, 1919 to 1946, as compiled by the U.S. bureau of labour statistics (1939=100)

throughout the first half of 1944, was afterwards allowed to rise slowly to 202 in January and 207 in July 1945. This increase was deliberately allowed by the Churchill government, which refrained from raising food subsidies by the full amount necessary to meet higher costs. An inquiry by the Oxford university institute of statistics showed that up to June 1944 nutritional standards had been well maintained, but that over a period of a year the cost of an adequate diet had risen by 3% or 4%. A further inquiry into the cost of an inexpensive "human needs" diet showed practically no change up to April 1945, the main price increases having been in goods not required for such a diet, if the less expensive items could be obtained in adequate amounts. Towards the end of the year, for international reasons, the food position became somewhat tighter; but the change up to September had not been great. On the other hand, the prices of nonfood articles rose much more sharply.

The future of wages seemed in September highly uncertain. New machinery for adjusting wage-rates was being set up under Ernest Bevin's Wage Councils act of 1944, and a number of important wage negotiations were pending. Only the railwaymen, among important groups, had so far concluded postwar wage agreements, bringing the minimum weekly wage up to 84s. in rural areas, 85s. in industrial areas and 87s. in London (Aug. 1945).

The future position in respect of working hours seemed in September also uncertain. The Trades Union congress put forward a demand for a general concession of the 40 hour week, without reductions in wages, as against a prewar week usually of 48 or 47 hours. Employers who were approached on this issue said that they regarded it as a matter to be settled centrally by legislation and not by sectional negotiations. The attitude of the new Labour government was at that date still unknown. (See also LABOUR UNIONS; PRICES.) (G. D. H. C.)

**Wainwright, Jonathan Mayhew** (1883— ), U.S. army officer, was born Aug. 23 in Walla Walla, Wash. He was graduated from West Point, N.Y., in 1906 and served in the Philippines during the Moro uprisings, 1909, and also saw service in France in World War I. During World War II, he was stationed in the Philippines and was second in command to General MacArthur when the Japanese invaded the islands in Dec. 1941. When MacArthur was sent to Australia, Wainwright assumed command (March 17, 1942) of the U.S.-Filipino armies in the Bataan peninsula. Wainwright retired from Bataan to Corregidor in April. He held out under a concentrated air and artillery bombardment until May 6, 1942, when he was compelled to surrender because his exhausted forces were no longer able to fight. He was confined in a prison camp in the Philippines, thence moved to three camps in Formosa and finally to two in Manchuria. Shortly after Hirohito's surrender broadcast (Aug.

15, 1945), a U.S. detachment in Manchuria released Wainwright from captivity and he was brought to Chungking, Aug. 28. The general participated in the Japanese surrender ceremonies aboard the battleship "Missouri" in Tokyo bay, Sept. 2. His nomination to the rank of a full general was approved Sept. 6.

Wainwright returned to the United States, Sept. 8, and was given an ovation in San Francisco, Calif., that day and in Washington, D.C., Sept. 10. On Sept. 28, Gen. Wainwright was named commanding general, eastern defense command, with headquarters at Governors Island, N.Y.

**Wake Island:** see PACIFIC ISLANDS, U.S.

**Wales:** see GREAT BRITAIN AND NORTHERN IRELAND, UNITED KINGDOM OF.

**Wallace, Henry Agard** (1888— ), U.S. statesman. (See *Encyclopædia Britannica*.) Wallace was secretary of agriculture in the cabinet of Franklin D. Roosevelt from March 4, 1933, until Sept. 5, 1940, when he resigned to campaign for the vice-presidency, to which he was elected the following Nov. 5.

President Roosevelt appointed him head of the Economic Defense board (later the Board of Economic Warfare) on July 31, 1941, and chairman of the Supply Priorities and Allocations board on Aug. 28. Following a dispute between Wallace and Jesse Jones, chairman of the Reconstruction Finance corporation, from which the BEW obtained funds to purchase war materials abroad, President Roosevelt abolished the BEW in July 1943, and transferred all subsidiaries of the RFC engaged in financing foreign purchases to a new Office of Economic Warfare (later the Foreign Economic administration). At the Democratic national convention in July 1944, Wallace was defeated for renomination as Roosevelt's running mate, but he played an active part in the campaign for the president's reelection. On Jan. 22, 1945, Roosevelt nominated Wallace to succeed Jesse Jones as secretary of commerce and directing head of the RFC and its affiliated lending agencies. Jones criticized Wallace's fitness for the two posts. The senate com-

merce committee rejected Wallace as head of the RFC; his nomination for secretary of commerce, however, was confirmed March 1. Wallace advocated full postwar employment, and his book, *Sixty Million Jobs* (1945), was a best-seller. In the commerce department, Wallace championed the cause of small business, urged extension of the Reciprocal Trade agreements, and asked for strict regulation of international cartels. In foreign affairs, Wallace stressed the need of U.S.-Russian amity.

**Walnuts:** see NUTS.

**War Boards, British-U.S.:** see BRITISH-U.S. WAR BOARDS.

**War Bonds.** Bond-selling drives of the United States treasury to finance World War II ended with 1945. In the Seventh War Loan of the year's spring months and the culminating Victory Loan of November-December more than \$47,000,000,000 was added to the sales total of the 1942-43-44 drives. For all eight loans of the series, spaced over a period of 36 months—from Dec. 1942, through Dec. 1945—sales totalled \$156,900,000,000. Goals set by the treasury for the eight loans aggregated \$106,000,000,000 so that the drives yielded an aggregate oversubscription of about 50%.

The results of each of the eight loans were as follows: First, goal \$9,000,000,000, sales \$12,900,000,000; Second, goal \$13,000,000,000, sales \$18,600,000,000; Third, goal \$15,000,000,000, sales \$18,900,000,000; Fourth, goal \$14,000,000,000, sales \$16,700,000,000; Fifth, goal \$16,000,000,000, sales \$20,600,000,000; Sixth, goal \$14,000,000,000, sales \$21,600,000,000; Seventh, goal \$14,000,000,000, sales \$26,300,000,000; Victory, goal \$11,000,000,000, sales \$21,100,000,000.

With the discontinuance of the drives, Secretary Vinson announced that the treasury would continue energetically the sale of United States savings bonds of the E-F-G series, through the pay roll deduction plan and otherwise. The treasury converted its war finance division into a savings bond division to direct this peacetime activity.

At the close of 1945, Series E savings bonds amounting to \$30,700,000,000 (current redemption value) were outstanding. Sales of this bond in 1945, inclusive of sales credited to the Seventh and Victory loans, totalled \$10,100,000,000. From May 1, 1941, when E bonds were first offered, through 1945, sales were \$39,700,000,000 and redemptions were \$9,600,000,000.

Two persons out of every three, approximately, in the U.S. entire population—men, women, children—bought E bonds. These bonds were responsible for \$20,000,000,000 of the receipts from all eight war loans.

The treasury placed on sale for the Victory Loan a new E bond denomination of \$200, bearing the portrait of President Franklin Roosevelt. The issue price of this bond is \$150. Sales of this denomination in the Victory Loan were reported as 950,000 pieces.

Securities offered in the Seventh and Victory loans followed in general the pattern of those sold in earlier drives. Sales by issues in the two loans were:

Series E savings bonds: Seventh \$3,976,000,000; Victory \$2,204,000,000.

Series F and G savings bonds: Seventh \$991,000,000; Victory \$657,000,000.

Savings notes, Series C: Seventh \$2,707,000,000; Victory \$1,682,000,000.

$\frac{7}{8}$ % certificates of indebtedness: Seventh \$4,784,000,000; Victory \$3,737,000,000.

$1\frac{1}{2}$ % bonds, short term: Seventh \$1,690,000,000.

$2\frac{1}{4}$ % bonds, medium term: Seventh \$5,077,000,000; Victory \$3,045,000,000.

$2\frac{1}{2}$ % bonds, long term: Seventh \$7,088,000,000; Victory \$9,819,000,000.

Aggregate sales by issues in all eight loans were: Series E savings bonds \$19,900,000,000, Series F and G savings bonds \$6,000,000,000, Series C savings notes \$17,100,000,000,  $\frac{7}{8}$ %



"THEY PUT HIM ACROSS." Jerry Costello in the *Knickerbocker News* (Albany, N.Y.), praised the U.S. press for its support in government war bond drives.

certificates of indebtedness \$35,900,000,000,  $1\frac{1}{4}$ % notes \$3,500,000,000,  $1\frac{1}{2}$ % bonds \$1,700,000,000,  $1\frac{3}{4}$ % bonds \$3,100,000,000, 2% bonds \$22,400,000,000,  $2\frac{1}{4}$ % bonds \$11,400,000,000,  $2\frac{1}{2}$ % bonds \$34,200,000,000, treasury bills \$1,700,000,000.

Emphasis on sales to individuals was continued in the two 1945 drives, and successfully so. In the Seventh Loan, individuals were assigned half of the loan's \$14,000,000,000 goal and their subscriptions reached \$8,700,000,000, exceeding the goal by 24%. This was a peak, for all eight loans, in the response of individuals. Sales of Series E bonds amounted to \$3,976,000,000 of the \$4,000,000,000 E bond goal in the Seventh Loan, and to \$2,204,000,000 against the \$2,000,000,000 E bond goal in the Victory Loan.

Quotas for the eight loans were based on analysis which measured the treasury's financial needs against available investment resources in the hands of the public. It took into account the importance of lessening inflationary pressure on commodity prices by converting surplus purchasing power into bond investments to the greatest possible extent. (See also BANKING; DEBT, NATIONAL.) (C. P. SR.)

**War Chest:** see COMMUNITY CHEST; RELIEF.

**War Committees, Joint** (U.S. and Canada): see CANADIAN-U.S. WAR COMMITTEES.

**War Communications, Board of.** During 1945 the U.S. Board of War Communications (created by executive order, Sept. 1940, as the Defense Communications board) issued seven orders cancelling or lessening restrictions imposed by previously issued orders deemed necessary for the national security and defense and the successful conduct of World War II. Eight orders and three supplemental orders remained operative.

Paul A. Porter, chairman of the Federal Communications commission, continued as chairman of the board in 1945. Other members were Rear Admiral Joseph R. Redman, director of naval communications; Major General Harry C. Ingles, chief signal officer of the army; Hon. William L. Clayton, assistant secretary of state; and Hon. Herbert E. Gaston, assistant secretary of the treasury and BWC secretary. The board had no paid personnel or appropriations. It operated through a coordinating committee and a law committee staffed by personnel from the five agencies represented on the BWC. Several committees made up of industry, government and labour representatives, experts in all fields of wire and radio communications, served the board as advisers. (See also FEDERAL COMMUNICATIONS COMMISSION; RADIO.) (P. A. P.)

**War Contracts:** see CONTRACT TERMINATIONS.

**War Crimes:** see UNITED NATIONS WAR CRIMES COMMISSION.

**War Damage Corporation:** see INSURANCE.

**War Damage Insurance:** see INSURANCE.

**War Debts.** A statement follows showing the World War I indebtedness of foreign governments to the United States as of July 1, 1945.

Country	Principal	Accrued Interest	Total Indebtedness
<b>Funded debts:</b>			
Belgium . . . . .	\$ 400,680,000.00	\$ 102,899,077.60	\$ 503,579,077.60
Czechoslovakia . . . . .	165,241,108.90	9,831,227.23	175,072,336.13
Estonia . . . . .	16,466,012.87	8,025,687.94	24,491,700.81
Finland . . . . .	7,842,131.29	731,931.95	8,574,063.24
France . . . . .	3,863,650,000.00	742,985,664.40	4,606,635,664.40
Germany (Austrian indebtedness) <sup>1</sup> . . . . .	25,980,480.66	44,058.93	26,024,539.59
Great Britain . . . . .	4,368,000,000.00	2,047,664,782.58	6,415,664,782.58
Greece . . . . .	31,516,000.00	5,357,535.10	36,873,535.10
Hungary . . . . .	1,908,560.00	832,378.07	2,740,938.07
Italy . . . . .	2,004,900,000.00	47,313,409.34	2,052,213,409.34
Latvia . . . . .	6,879,464.20	3,235,515.84	10,114,980.04
Lithuania . . . . .	6,197,682.00	2,866,458.62	9,064,140.62
Poland . . . . .	206,057,000.00	100,440,824.20	306,497,824.20
Rumania . . . . .	63,860,560.43	11,065,719.32	74,926,279.75
Yugoslavia . . . . .	61,625,000.00	1,771,718.78	63,396,718.78
<b>Total . . . . .</b>	<b>\$11,230,804,000.35</b>	<b>\$3,085,065,989.90</b>	<b>\$14,315,869,990.25</b>
<b>Unfunded debts:</b>			
Armenia . . . . .	\$ 11,959,917.49	\$ 15,431,161.84	\$ 27,391,079.33
Russia . . . . .	192,601,297.37	255,477,940.58	448,079,237.95
<b>Total . . . . .</b>	<b>\$ 204,561,214.86</b>	<b>\$ 270,909,102.42</b>	<b>\$ 475,470,317.28</b>
<b>Total of above . . . . .</b>	<b>\$11,435,365,215.21</b>	<b>\$3,355,975,092.32</b>	<b>\$14,791,340,307.53</b>
<b>Germany<sup>2</sup></b>			
Army costs (reichsmarks) . . . . .	997,500,000.00	64,640,364.00	1,062,140,364.00
Awards of Mixed Claims Commission (reichsmarks) . . . . .	2,040,000,000.00	187,170,000.00	2,227,170,000.00
<b>Total (reichsmarks) . . . . .</b>	<b>3,037,500,000.00</b>	<b>251,810,364.00</b>	<b>3,289,310,364.00</b>
Total (in dollars at 40.33 cents to the reichsmark) . . . . .	\$1,225,023,750.00	\$ 101,555,119.80	\$1,326,578,869.80

<sup>1</sup>The German government had been notified that the government of the United States would look to the German government for the discharge of this indebtedness of the government of Austria to the government of the United States.

<sup>2</sup>Indebtedness to the United States under agreements of June 23, 1930 and May 26, 1932. (D.V.B.)

**War Department, U.S.:** see GOVERNMENT DEPARTMENTS AND BUREAUS.

**Warfare, Incendiary.** With the close of World War II it became possible to evaluate the incendiary weapon in the light of military operations under widely differing conditions in the European and in the Pacific theatres. Incendiaries had been used but sparingly by Germany and Japan. This was due in part to the fact that the axis nations lacked the air power requisite to large-scale incendiary bombing. Moreover neither Germany nor Japan succeeded in producing technically adequate incendiary bombs. It was clear that the leadership of the Allies in incendiary warfare contributed largely to their military victory.

Employment of the incendiary bomb by air force overshadowed other usage of fire-producing weapons. The U.S.

chemical warfare service manufactured during the war some 250,000,000 incendiary bombs. At the same time the flame thrower proved itself an unexpectedly important ground force weapon. Use by artillery of incendiary loaded shell was negligible although German incendiary rockets were discovered in 1945.

Solid incendiary agents such as magnesium and thermit which found favour early in the war were largely replaced by gelatinous and viscous materials for loading into Allied aerial bombs. Gasoline thickened with "napalm" to lengthen burning and ensure adherence to walls and ceilings was an important innovation. By further thickening gelled gasoline with addition of magnesium powder, liquid asphalt and oil ingredients, a "pyrogel" mixture was obtained which proved highly effective in holding intense heat for extended periods against fire-vulnerable surfaces.

A type of incendiary bomb adopted by both Germany and Japan incorporated a large number (70 or more) of separate components charged with solid incendiary material which ignited and scattered on detonation. On the evidence of rather limited use these bombs could not be rated as outstandingly successful.

The most widely employed U.S. incendiary bombs were small units weighing less than 10 lb., "clustered" into packages having the ballistic characteristics of 500-lb. aerial bombs, thus permitting accurate aiming. Clusters were designed to open and release individual bombs at predetermined altitudes, usually within 1,000 ft. of the target.

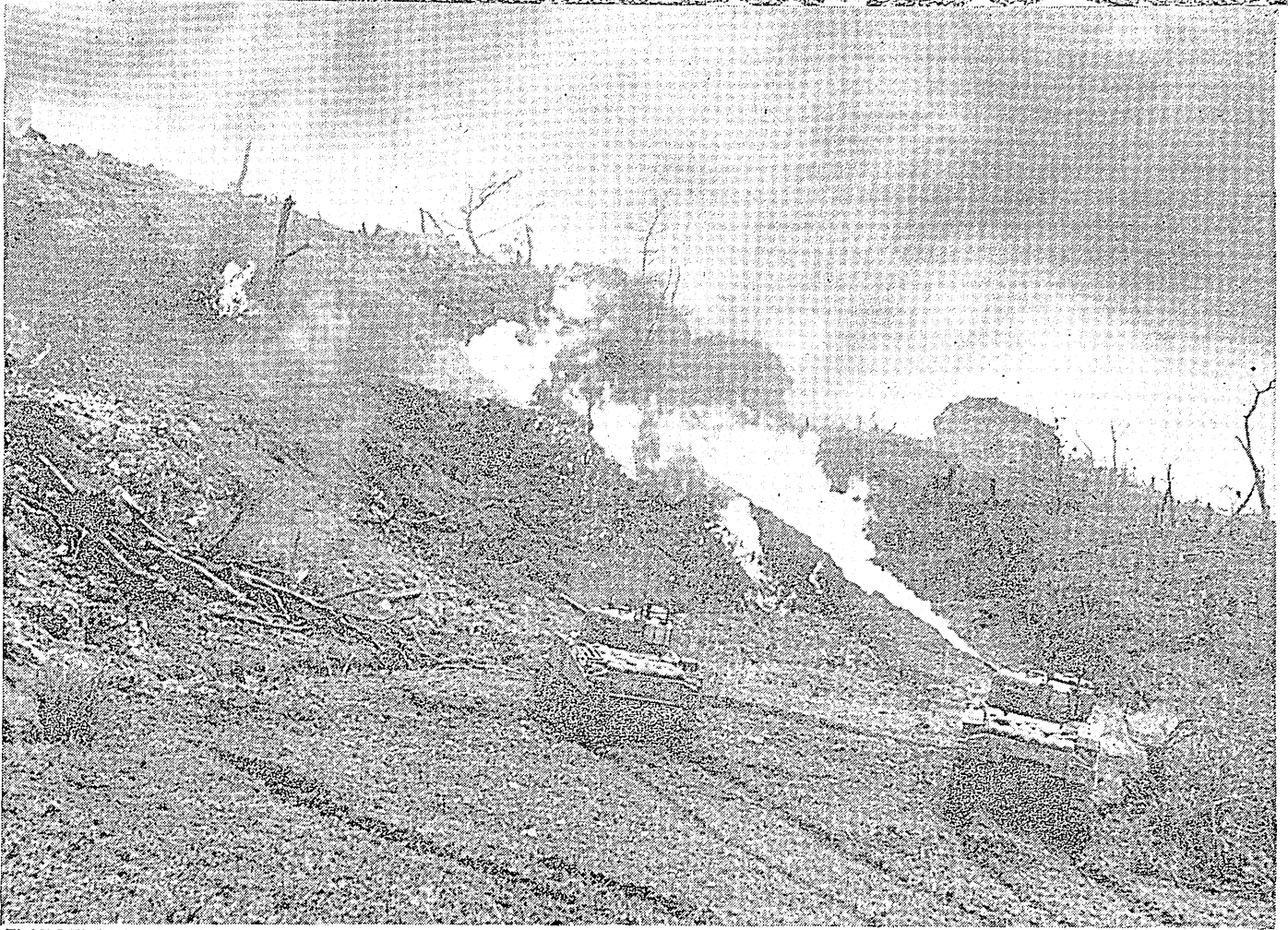
Of all aerial bombs dropped on Germany approximately 15% were incendiary, 85% high explosive. In early bombings the proportion of incendiary was much smaller; the U.S. army air force used no incendiary bombs on initial operations. The demonstrated effectiveness of fire bombing as practised by the royal air force led to increased interest in incendiaries so that by 1945 bomber loadings of 80% incendiaries were not unusual for operations against fire-vulnerable targets. However conditions encountered in Europe necessitated liberal use of explosive bombs in conjunction with incendiary attacks. When the right balance between explosive and properly selected incendiary bombs was attained the destructive efficiency of the incendiary proved to be high. This was clearly demonstrated following examination of German cities captured during 1945 and which had been subjected to brief but intensive incendiary attack.

Against Japan the over-all proportion of incendiary bombs employed was much greater than was the case in Europe, the figure running in the neighbourhood of 60%. In these operations the use of explosive bombs was frequently dispensed with altogether, because of the generally more combustible nature of the targets encountered. The dropping of more than 100,000 tons of incendiary bombs accounted for the elimination of 150 sq.mi. of Japanese industrial areas. Fire destruction had brought the industry of Japan virtually to a standstill when atomic bombs delivered the *coup de grace*.

Incendiary bombs were used primarily against industrial targets, seldom against tactical targets. The fire bomb, however, was of considerable tactical importance. The term "fire bomb" was reserved in U.S. practice to designate a jettisonable aeroplane fuel tank filled with napalm-thickened gasoline and equipped with detonating fuzes. The fire bomb came into regular use in 1943 by U.S. and British airmen but was classed as a secret weapon until 1945.

The flame thrower found but limited employment in European operations because tactical situations in that theatre seldom developed important opportunities for the use of flame. This weapon is of greatest value in reducing stubbornly held positions which can only be overcome by direct assault. Such ac-





FLAME-THROWING tanks directing a barrage at "Skyline Ridge," southern Okinawa. Japanese offered stiff resistance in this area and had to be burned out of caves during the campaign of April-June 1945

tion was characteristic of campaigns in the Western Pacific; consequently flame throwers appeared importantly in every island action from the Marianas to Okinawa.

Replacing early bunker oils which produced short-range (25 yd.) flame accompanied by black bellowing smoke, napalm-thickened gasoline provided much more satisfactory fuel. Characteristic flame jet in 1945 extended 60 yd., maintaining a compact fire rod along a rather flat trajectory. By 1945 development of the portable flame thrower weighing 60 lb. had extended in two directions: toward a much lighter one-shot model to be carried by a running soldier; and toward a much heavier apparatus for installation inside tanks. Experimental designs of both types had proved sufficiently satisfactory to justify general standardization by 1945. (G. J. B. F.)

**War Food Administration.** In June 1945, after the surrender of Germany but before the surrender of Japan, the War Food administration at its own request became merged by executive order with the United States department of agriculture. Marvin Jones, war food administrator from June 23, 1943, to June 30, 1945, resumed his duties as judge of the U.S. court of claims, from which he had been on leave from Jan. 15, 1943. Subsequently, Clinton P. Anderson, the secretary of agriculture, directed the nation's food program, which even after V-J day required huge production for military and civilian needs and for relief and other export shipments.

It had been evident from the beginning of the war period that food would be one of the most vital war materials, since the U.S. required vast quantities for its own armed forces and civilians and also for those of other United Nations. Accordingly, the WFA urged and aided farmers to reach the highest possible

goals. It offered and administered price supports, strove to obtain materials, transportation and labour for agriculture and co-operated with farmers and with state agencies in co-ordinating the war food effort, farm by farm throughout the country. Nevertheless, the country needed many things in addition to food, some of which had the first call on labour, materials and other facilities.

Price supports encouraged farmers to produce crops in the kinds and quantities desired. Main features of the price-support system were loan programs; purchases of some commodities direct from farmers; purchases of other commodities from dealers, with the middlemen required to pay minimum prices to farmers; and special payments to dairy and other producers, either directly or through processors. Meantime, the WFA co-operated with other government agencies in the program for stabilizing prices and preventing inflation.

On June 29, 1945, by executive order no. 9577, the president abolished the WFA and transferred its functions to the department of agriculture. This order took effect on June 30. Subsequently, the secretary of agriculture appointed a committee on reorganization to work out means for preventing overlapping of functions in the department. On this committee's recommendation the secretary issued a memorandum on Aug. 18, 1945 which announced the establishment of a Production and Marketing administration by consolidation of the following agencies: office of basic commodities, office of supply, office of the president of the Commodity Credit corporation, offices of the manager and of the secretary of the Federal Crop Insurance corporation, office of marketing services, Agricultural Adjustment agency, office of requirements and allocations, Office of Price Administration, office of transportation, office of materials and facilities, office of labour, office of home food supply, office of investigatory services and the liquidating of the Federal Surplus Commodities corporation. (See also AGRICULTURE.) (A. P. Cw.)

**War Frauds:** see FEDERAL BUREAU OF INVESTIGATION.

**War Information, Office of.** The overseas branch of the Office of War Information distributed general information about the United States and information about the war effort of the U.S. to Allied, neutral and occupied nations throughout the world, and in conjunction with the military establishment directed psychological warfare activities against enemy countries. While hostilities continued in 1945 against Germany and Japan, the operations of the overseas branch included radio broadcasting on a 24-hour schedule in virtually every language to every nation in the world, the distribution of news, pamphlets and leaflets, motion pictures, magazines, photographs and other materials.

The domestic branch during 1945 continued its activities of co-ordinating the many informational campaigns reaching the public through press, radio, magazines, posters and other media, providing centralized facilities for scheduling radio time, advertising space and the co-operation of advertisers who assisted in carrying these campaigns to the public.

On Aug. 31 the Office of War Information was directed to discontinue most of its domestic operations. The same order established in the state department an Interim International Information service (I.I.I.S.) to continue temporarily the world-wide distribution of information concerning the United States carried on by the overseas branch, and to assume jurisdiction of the information functions of the Office of Inter-American Affairs. On Dec. 31, 1945, the I.I.I.S. went out of existence and its functions were absorbed by the Office of International Information and Cultural Affairs of the state department, which was to continue a permanent world-wide information program under the direction of Assistant Secretary of State William Benton. The activities of the domestic branch were terminated with the exception of the bureau of special services and the inter-agency publications committee unit, which were transferred to the bureau of the budget.

The former bureau of special services of the domestic branch operated in 1945 in the bureau of the budget as the government information service. (M. Mw.)

**War Labor Board, National.** The year 1945 saw the operations of the National War Labor board reach full and fairly stable maturity during the first six months but, following the August victory over Japan, brought a gradual liquidation of the board's activities and final termination of the agency on Dec. 31 under executive order 9672. The executive order ended a four-year program for peaceable settlement of labour-management disputes by government arbitration, but transferred the modified wage stabilization program—second of the WLB's two wartime assignments—to a newly-created National Wage Stabilization board.

Probably the major action of the board during the initial six months, while the agency was in active operation, was a report of public members to the president on Feb. 20 recommending that no change be made in the Little Steel formula, a basic wage stabilization device under which general wage increases were permitted for groups of employees up to a limit of 15% above the level of Jan. 1, 1941, to offset advances in the cost of living.

Other significant developments of the early part of the year included the board's decision of Feb. 21 ordering 55-cent minimum wages for the New England and southern textile industries to correct substandards of living and calling, as well, for "balanced and properly aligned" wage structures; the Feb. 21

denial of general wage increases to packing house workers (but with an order for the parties to negotiate well-balanced wage structures), and a July 21 decision holding the War Labor Disputes act superior to any state law in connection with a contested maintenance of membership clause in a union contract with a Port St. Joe, Fla., paper company case.

A court test of the power of the president to seize a nonwar establishment (Montgomery Ward & Co.) for defiance of board orders resulted in a decision of the Chicago district federal court on Jan. 27, holding such seizure illegal, but the decision was reversed by a U.S. circuit court of appeals on June 8. (A final adjudication of this legal point appeared unlikely in view of subsequent refusal of the U.S. supreme court to review the case on the ground that the issue was "moot" because seizure of the property had been terminated).

With the collapse of Japan on Aug. 14 and sudden shift of economic trends there started, however, a succession of changes in the disputes and wage stabilization programs and in the War Labor board itself. In his statement of Aug. 16 the president announced a relaxation of wage controls consistent with a loosening of the labour market and also a program to terminate the War Labor board as a disputes-settling agency "as soon after conclusion of the forthcoming industry-labour conference as the orderly disposition of the work of the board, and the provision of the War Labor Disputes act permit; and after facilities have been provided to take care of the wage stabilization functions under the act of Oct. 2, 1942."

Two days later, on Aug. 18, the broad plans announced by the president were more carefully defined in executive order 9599 directing the War Labor board to continue wage controls with such modifications as were necessary to prevent either inflation or deflation, and to move as rapidly as possible toward the removal of controls and toward the restoration of collective bargaining. In the field of wage stabilization, the board acted promptly with adoption of general order 40, which—for the first time from Oct. 1942—permitted employers to make wage increases not affecting prices without prior approval of the board. An exception was made in the case of the building and construction industry, in which controls were continued on the former footing. In the field of industrial relations, the board urged the parties in some 3,000 pending disputes to renew collective bargaining and to settle the issues without further recourse to the government. New dispute cases were accepted by the board and its agencies only upon joint agreement of the parties.

On Sept. 19, executive order 9617 was issued transferring the War Labor board, and certain other war agencies, to the department of labour. This, however, did not tangibly alter the character of the board inasmuch as the agency was preserved as an entity within the department of labour, with autonomy over its powers, personnel, funds and other administrative operations.

In November, as requested by the president, the board moved toward providing facilities for continuance of the wage stabilization program by setting up within the framework of the board a six-member wage stabilization division of tripartite composition to rule upon voluntary wage applications involving "price relief," to rule upon all wage decrease cases (all wage decreases continued to require prior approval of the board) and to deal with other phases of the program.

The final step in the liquidation of the board came on Dec. 31, 1945, when executive order 9672 terminated the agency and created a National Wage Stabilization board to carry on the wage control functions. Physically, the members and staff of the new board were drawn from those of the previously-operating wage stabilization division and the expired War Labor board. W. Willard Wirtz, chairman of the division, was named



chairman of the NWSB. (See also LAW; NATIONAL LABOR RELATIONS BOARD; STRIKES AND LOCK-OUTS.) (J. R. St.)

**War Manpower Commission.** April 18, 1945, marked the completion of the War Manpower commission's third year of service in recruiting manpower for the U.S. World War II effort. The commission's activities in 1945 were directed toward a more effective use of the national pattern of labour controls than had been established in 1944. The principal programs maintained were employment stabilization, priority referral, employment ceilings and the 48-hour week.

The United States Employment service functioned as the main operating arm of the WMC. During the three-year period April 1942 to April 1945, the USES made a total of 29,400,000 nonagricultural placements. For the year beginning July 1, 1944, when a nation-wide priority referral system was instituted as a basis for placements, the USES made 12,000,000 nonagricultural placements, more than 5,000,000 of which were in top-priority jobs. Although the over-all labour demand had been satisfied at the beginning of 1945, a lack of skilled labour in certain vital industries throughout the country caused a lag in the production of some critical items. Interregional recruitment played an important part in supplying labour for these "spot" shortages particularly since the over-all labour supply was still tight and relatively inflexible. There were 300,000 workers recruited by the USES for the vital atomic bomb projects alone. Of these, 179,000 were brought in through interregional recruitment from nearly every state in the U.S. From January through June, more than 221,800 placements were made in top-priority jobs through interregional recruitment.

Within the USES, and through its Veterans' Employment service, the program of job counselling and placement of veterans expanded as the number of returning service men and women increased. Functions of the Veterans' Employment service are carried out by a veterans' representative who is himself a veteran, qualified to handle veterans' problems. A Veterans' Employment representative is located in each of the 1,725 permanent USES offices. After Jan. 1945, USES representatives were also located in each of the army separation centres throughout the country to provide occupational and employment information. Special tools developed to expedite the proper placement of veterans in jobs include "Special Aids for Placing Military Personnel in Civilian Jobs" and "Special Aids for Placing Navy Personnel in Civilian Jobs." As of July 1945, 1,400,000 veterans of World War II had sought employment or job counselling at USES offices. There were 600,000 World War II veterans placed as of June 1945. A total of 2,000,000 placements for veterans of World Wars I and II were made by the USES in the period Jan. 1, 1942 to Jan. 1, 1945.

The handicapped worker received special assistance through the USES by means of a selective placement technique through which the physical demands of each job are carefully matched against the physical abilities of each applicant. There were 220,500 handicapped placements made in 1945 through July. Selective placement techniques are explained in the manual "Selective Placement for the Handicapped."

Training programs for workers and supervisors in war plants were developed by the constituent training agencies of the commission, the apprentice training service and the training-within-industry service. The apprentice training program, which in January operated in 32,000 establishments throughout the country, also had its responsibility for the development of new programs greatly increased by the enactment of the Servicemen's Readjustment act of 1944.

With the coming of V-E day, areas of labour stringency de-

creased rapidly. From V-E day to Aug. 1, Group I (acute shortage) areas dropped from 74 to 46. Intensive recruiting was still necessary, however, for industries which were vital to the Pacific campaign.

Immediately following the surrender of Japan, the WMC instituted the following seven-point reconversion program: (1) all manpower controls lifted; (2) number of unemployed in each community to be determined in co-operation with local management labour groups and action taken by WMC and local USES offices to speed re-employment; (3) labour channelled by voluntary methods into civilian industry, especially where reconversion bottlenecks threatened to develop; (4) full facilities of the USES made available to all employers; (5) veterans' services expanded; (6) increased emphasis placed on job counselling and other personalized services; (7) displaced war workers, including migrants, assisted in locating work in communities expanding civilian production.

All War Manpower commission functions, with the exception of the Procurement and Assignment service, were transferred to the department of labour on Sept. 19, 1945, by executive order No. 9617. (See also BUSINESS REVIEW; SELECTIVE SERVICE, U.S.; WAR PRODUCTION, U.S.) (P. V. M.)

**War Medicine:** see MEDICINE; NURSING, WAR; PSYCHIATRY; SURGERY.

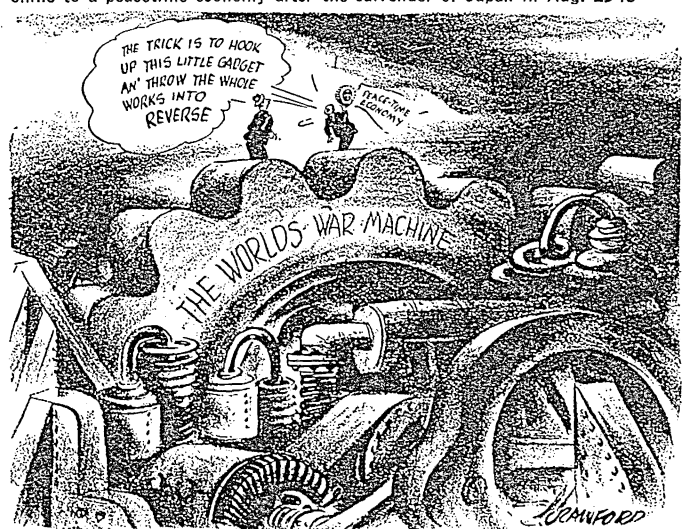
## War Mobilization and Reconversion, Office of.

The United States Office of War Mobilization and Reconversion was established by an act of congress approved Oct. 3, 1944, to provide a national program for war mobilization and reconversion.

By the terms of public law 458, 78th congress, which set up the agency, the OWMR became responsible for: (1) developing unified programs and establishing policies to adjust the natural and industrial resources and manpower of the United States to war needs; and (2) co-ordinating government planning for reconversion of the same resources and manpower to peace.

During 1945 the agency was directed by: James F. Byrnes, former associate justice of the United States supreme court, who was succeeded April 7, 1945, by Fred M. Vinson, former federal loan administrator and director of the Office of Economic Stabilization. He was succeeded July 23, 1945, by John W. Snyder, former federal loan administrator and vice-president

"IS THERE A SCREWDRIVER IN THE HOUSE?" Crawford of the *Newark Evening News* illustrated the problem of gearing the world's industrial machine to a peacetime economy after the surrender of Japan in Aug. 1945





of Defense Plants corporation, of the Reconstruction Finance corporation.

The OWMR included the following agencies which exercised their functions under the supervision of the director:

(1) Office of Contract Settlement, created by the Contract Settlement act of 1944,

(2) the Surplus Property administration, successor (Sept. 18, 1945) to the three-man Surplus Property board, which under the Surplus Property act of 1944 succeeded the Surplus War Property administration, created by executive order 9425, in Feb. 1944.

The functions of the Office of Economic Stabilization, established Oct. 3, 1942, by executive order 9250, were transferred to OWMR Sept. 20, 1945, by executive order 9620.

The Retraining and Reemployment Administration, established by Title III of the act creating the OWMR, functioned within the OWMR until Sept. 19, 1945, when it was transferred to the department of labour by executive order 9617.

To represent the public interest and the general public the act establishing OWMR also created an advisory board comprised of three public members, three experienced in business management, three in agriculture and three in matters relating to labour. Members of the board in 1945 were: (public) O. Max Gardner, chairman, Mrs. Anna M. Rosenberg, Chester C. Davis; (agriculture) Albert F. Goss, Edward A. O'Neal, James G. Patton; (labour) T. C. Cashen, William L. Green, Philip Murray; (business) Nathaniel Dyke, Jr., Eric A. Johnston and George H. Mead.

During 1945, the OWMR co-ordinated the efforts of the U.S. to produce war requirements and to bring critical war programs into increased production; and supervised the work of government agencies so as to develop uniform and orderly procedures for handling the cancellation of war contracts, prompt settlement of terminated war contracts and the disposal of surplus property. With the capitulation of Japan, the agency became increasingly responsible for government planning for reconversion, including:

- (1) the issuance of orders and regulations necessary to obtain the full co-ordination of federal agencies,
- (2) the recommendation of appropriate legislation to congress,
- (3) the promotion and development of demobilization plans and procedures,
- (4) the settlement of controversies between federal agencies in the development of plans and procedures for transition from war to peace,
- (5) the simplification, consolidation or elimination of war agencies as the need for these agencies disappeared,
- (6) the determination of the possibilities of relaxing emergency war controls,
- (7) the consultation and co-operation with state and local governments, industry, labour, agricultural and other groups concerning problems of transition from war to peace, and
- (8) the submission of quarterly reports to the president, senate and house of representatives covering the progress of these activities.

Publications of the office during 1945 included:

*First Report*, "Problems of Mobilization and Reconversion" (Jan. 1); *Second Report*, "War Production and VE-Day" (April 1), "The War: Phase Two" (May 10); *Third Report*, "The Road to Tokyo and Beyond" (July 1), "From War to Peace, A Challenge" (Aug. 14), "The Transition, Phase One" (Sept. 4); *Fourth Report*, "Three Keys to Reconversion—Production, Jobs, Markets" (Oct. 1); *Fifth Report*, "Battle for Production" (Jan. 1, 1946). (See also STABILIZATION ADMINISTRATOR, OFFICE OF.) (Jo. W. S.)

**War Prisoners:** see PRISONERS OF WAR AND DISPLACED PERSONS.

**War Production, U.S.** Following the break-through of "battle of the Bulge," the first months of 1945 found but little elasticity left for expanding U.S. war production. Four key indicators of the nation's capacity to expand, namely: goods and services, industrial production, steel ingot production, and the civilian labour force, had either reached a plateau or started down.

Despite drawbacks the war production agencies had shown gains from the preceding September in important items, which

ranged from 12% for trucks to 130% for aeroplanes and 200% for mortars. Restrictive measures had been applied to save manpower, coal, electric power, transportation and other services. Critical reviews of the military programs resulted during January in reducing less important war procurement programs thereby affording manpower and materials for the more urgent war needs.

The construction of military facilities was brought under review, with considerable reductions. A proposed program for construction of 142 additional Liberty ships was abandoned. Measures were taken to reduce deliveries of munitions for shipment to the Pacific in view of ultimate victory in Europe, and anticipated post-V-E-day filling of Pacific pipelines with war material from the European front.

Anticipation of V-E day and attendant cancellations of munitions contracts led to close integration during the first quarter between the procurement agencies and the WPB, in order to place contract cutbacks in such a way as to ease the impact upon employment. Through an inter-agency Production Readjustment committee an improved cutback system was established, acquainting personnel of the WPB, War Manpower commission, army, navy and other agencies of problems as they arose.

By V-E day, May 8, the military commenced a vast transfer of men and supplies half way around the world, involving the movement out of Europe of 3,000,000 troops, together with the necessary matériel. This program included the building of new airfields, fuel depots, road and rail lines; the clearing and building of harbours; construction of power plants and power lines; provision of barracks, and a prodigious building and equipping of hospital facilities.

The army service force and the army air forces demanded for the Japanese campaign heavier ammunition and bomb supplies than had been used in the war in Europe, with concentration of enormous firepower. This called for munitions production schedules for total output of \$61,000,000,000 in 1945, about equal to the 1944 program. But a series of progressive cuts, which began shortly before V-E day, reduced the 1945 program to about \$50,000,000,000. It was found that total procurement of aircraft and related equipment for the army and navy in 1945 could be reduced at least one-sixth below the plans that had been based on a two-front war.

In six years, the U.S. navy had been multiplied by 32 times, to a total of 46,130 ships, excluding smaller craft. In July and prior to V-J day, it was planned to terminate the merchant shipbuilding program by mid-1946, after delivery of 55,000,000 deadweight tons of ships in the six-year period. The schedules for munitions production were then being planned a year ahead at a rate of nearly \$40,000,000,000 a year, or twice the estimated production of Germany at its peak.

Because of the Japanese suicide planes, and because U.S. ships were operating close to the Japanese mainland, ship maintenance and repair rose rapidly. The urgency for military orders incidental to the general decline in volume of military procurement still occasioned shortages of materials and component parts, labour shortages, and production difficulties accompanying new production and design changes in old products. Lack of shipyard labour was delaying the return of battle-damaged ships to action. Munitions schedules remained one-quarter above those of 1942.

The coming of V-E day had little immediate effect in reducing U.S. production. But once European stocks began to move in large volume to the Japanese front, the draft on U.S. factories declined rapidly. From July on, the drop in munitions schedules was rapid. In the three months following March, peak month of the year, production fell by only 10%; but for

the second quarter it was down to \$4,200,000,000 from the March level of \$4,900,000,000; as calculated in July, by the end of the year it would be down about one-third, as compared with March. As a result, productive capacity—materials and manpower—was being rapidly released in the durable goods industries throughout the list of basic raw materials and component parts.

In the interim, between V-E day and V-J day, occupations such as farming, transportation, public utility work, printing and publishing, retail trade, mining, government employment (except in the war agencies) were not directly affected by physical reconversion. But for the sudden ending of the war in the Pacific in mid-August, the full productive resources of the country might have been utilized during the retooling process, by a steady shift to civilian output, without danger of serious unemployment.

The facts seemed to support this view. The jobs not directly affected by physical reconversion embraced 44,600,000 of the 51,200,000 workers. Those most likely to be affected by military cutbacks were in aircraft production, shipbuilding, ordnance and signal equipment, war chemicals, and the federal war agencies—only 6,600,000 in all.

But the unexpected arrival of V-J day, with sudden termination of the major portion of war contracts, involved an immediate and rather large dislocation of the economy. The U.S. had to undergo the shock of considerable—albeit temporary—unemployment.

The policy laid down by congress was opposed to cushioning the shock by continued manufacture of useless armaments. It was paramount policy not to keep the soldiers and sailors in uniform longer than was necessary, and the industries bent to the task of achieving plant reconversion with all speed.

In all more than \$186,000,000,000 worth of planes, ships, guns and other matériel had been produced in the U.S. during the war against the axis powers. The production total for aircraft amounted to \$44,442,000,000; for ships, both naval and maritime, \$44,694,000,000; for guns and fire control, \$10,801,000,000; ammunition \$19,734,000,000; combat and motor vehicles, \$21,529,000,000; communication and electronic equipment, \$10,659,000,000; the atomic bomb, more than \$2,000,000,000; and other equipment and supplies, \$38,148,000,000.

The rate at which war production climbed from the prewar level is of interest. During the last half of 1940, the munitions output totalled only \$2,000,000,000. This rate was more than doubled in 1941, still in the defense period, when production totalled more than \$8,320,000,000. With the attack on Pearl Harbor, on Dec. 7, 1941, production soared. During the first half of 1942 more munitions were produced than during the preceding year and a half. In December, a year after Pearl Harbor, output for that month alone about equalled half of the 1941 production, or double that of the last half of 1940. Maximum monthly output was reached in late 1943, in excess of the entire half-year's production prior to the Japanese attack. In that period U.S. civilian economy was receiving commodities and services at a greater rate than during the "good" peacetime years 1937 and 1939. But by that time the factories of the nation were also sending against the enemy an air fleet of 297,000 military planes, including 97,000 bombers, and 71,060 warships that outnumbered all other navies of the world combined.

Included in the total of U.S. munitions, besides the 297,000 aeroplanes, were 86,338 tanks; 5,400 cargo ships and transports; 64,000 landing vessels; 6,500 other navy ships; 17,400,000 rifles, carbines and other sidearms; 315,000 pieces of field artillery and mortars; 4,200,000 tons of artillery shells; and 41,400,000,000 rounds of small arms ammunition.

**Reconversion.**—It was impossible to turn around overnight from production for war to peacetime production. During the war, businessmen and farmers of the U.S. had had but one customer for some 40% of the nation's output. The government not only constituted the market, but specified exactly what kind, shape and size its share of the output should be. Now that peace had come, the U.S. citizens as individual customers were to determine what businessmen and farmers were to produce.

Many governmental controls suitable for war were not suitable for the transition. The goal was to be one of expanded civilian production. Wherever removal of controls might help achieve this goal they were to be removed. At the same time, wherever removal of controls would bring a chaotic condition or cause "bottlenecks," or produce a disruptive scramble for goods, the controls were retained. It was understood that as production increased the remaining controls were to be as promptly abolished.

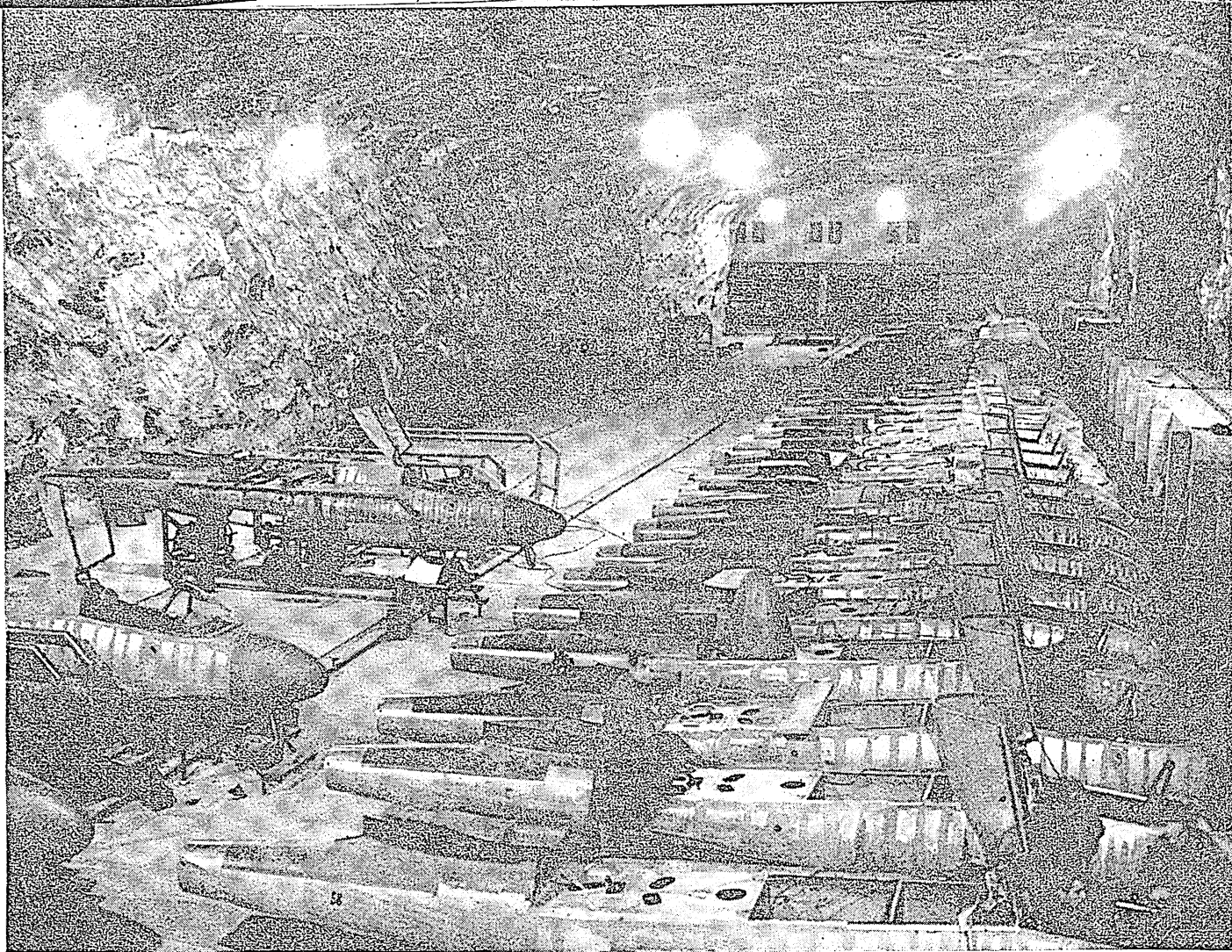
Settlement of terminated contracts had been hastened. Plants were being cleared of wartime equipment. Businessmen summarily readied their plans for peacetime expansion. In the three months following the victory in Europe, U.S. industry had gone a long way toward shifting its resources to peacetime purposes. Some peacetime manufacture had recommenced following release of plants from war contracts. The nation was thus in some measure prepared when faced with situations that involved making millions of sudden job shifts, cutting off thousands of millions of dollars in war contracts and radically changing the character of the national output.

Manufacture of many articles underway for the military such as bulldozers and other construction machinery, lumber, drainage pipe and plumbing and heating equipment, etc., was continued for peacetime. Mining, smelting and processing of raw materials—iron and steel, copper, aluminum—needed no reconversion. Many industries, such as commercial refrigeration and air conditioning and textiles, largely used by the military, had continued to produce some peacetime products, and readily

PROPELLER BLADE for a Liberty ship nearing completion in 1945. The propeller was made of manganese-bronze which was extracted from reclaimed shell cases







GERMAN HEINKEL-162 fuselages for jet planes, in the assembly room of an underground plant discovered near Egelu by troops of the U.S. 9th army on April 15, 1945. Operating in a salt mine 950 ft. deep, the plant's output was estimated at up to four fuselages per day

expanded peacetime production. Plant reconversion, it was estimated, could be accomplished before the end of 1945, although 12 to 18 months would be required to reach the expanded peacetime economy needed for full employment. The construction industry required an even longer time in order to organize manpower, planning, equipment and supplies, and to reach the anticipated \$15,000,000,000 level needed annually for a prosperous economy.

The necessity of a sudden switchover from war to peace was urgent. In four years the war economy had been built up to a high pitch of production and employment. Now the task was to reconstruct a large part of it for peacetime use, and in a much shorter period. It seemed barely possible to expand output rapidly to 40% or 50% above former peacetime levels.

Despite all difficulties the goals and strategy were clear and simple; they were: a rapid expansion of peacetime production, jobs for those willing and able to work, and stable markets for business and agriculture.

Cash, bank deposits and government bonds in the hands of individuals were estimated at more than \$140,000,000,000, or three times the highest prewar figure. Statistics indicated that, in 1944, had goods been available, the people of the U.S. could have spent \$120,000,000,000, but they had actually spent \$98,000,000,000. Back in 1943 and 1942, consumers similarly had been unable to use their incomes in normal measure. It was known that foreign countries would be in the market for U.S. goods of all kinds—food, clothing, industrial equipment and raw materials. The stifled wartime demand was huge, with great need for housing, automobiles, washing machines, refrigerators and all the "consumer durable" goods that had not been

available for several years. Industry needed to put millions of dollars into new plants and deferred maintenance, and had the funds for these purposes.

But savings were not evenly distributed and many families had spent their income during the war with little or no savings. The steady market needed by business and agriculture had to come in large part from current wages and salaries.

In the face of substantial unemployment, occasioned by the sudden ending of the war, the task of sustaining mass purchasing power was undertaken through rapid absorption into peacetime industry of workers and returned veterans looking for work. The president appealed to congress to provide necessary legislation, looking to extended unemployment pay. The executive branch set about fixing policies and programs to solve the peacetime problems and besought management and labour to consult their long-run interest in more production, more sales and more jobs.

Durable goods had been largely removed from civilian markets during the war, and rationing of gasoline and oil, footwear and foodstuffs was continued during most of 1945, as in preceding years, to eke out scarce supplies of consumer goods. Annoyance, but little real hardship, was suffered by the people of the U.S. during this last part of the war. In 1939, one-tenth of total consumer expenditures had been for durable goods; by 1944, war restrictions on durable goods production had cut this expenditure by only one-third, largely because production of repair and maintenance parts and of health and safety supplies was at record levels. Meanwhile the increase in nondurable goods had more than compensated for the drop in production of hard goods. The textile "squeeze" did not seriously affect U.S. consumers until 1945, and its duration was brief. There was a normal supply of food, though not of the preferred kinds, and as large a volume of services and miscel-



laneous goods as before the war. Moreover, because the supply of durable goods at the start in large degree outlasted the war, the deprivation was less serious than it appeared. Automobiles developed rattles, but most of them remained on the road. Furniture became shabby, but continued to serve its purpose.

During the war U.S. citizens never had to submit to regimentation in the measure endured by their enemies and by their allies. But to an extent unprecedented in U.S. history, even in previous wars, the national economy had been guided by Washington. Every industrial plant built in the U.S. during the war years had been by government authorization, and two out of three dollars of the cost was provided by the national treasury. Hardly a ton of steel or copper or aluminum could be fabricated without government approval. Prices, wages and labour had been controlled by the government. Enforcement of government controls would have been impossible without cheerful compliance by the majority of the people who co-operated wholeheartedly to make the system work, in order to recover as soon as possible their traditional liberty of action.

Under this regime several new industries had been built, virtually from scratch, not the least of them being the \$2,000,000,000 of atomic energy, with its incalculable influence upon future correlations of industrial power. Before the war the U.S. had no synthetic rubber or aviation gasoline plants of any size, no development of radar, and its manufactures of explosives, guns and ammunition, aircraft and ships were pygmies when measured against modern wartime needs. In other industries, however, expansions took place, as in aluminum, magnesium and certain plastics and plasticizers.

Some \$25,000,000,000 had been added to the nation's facilities during the five years from 1939 through 1944. There had been all-time peaks in production of raw materials. During the five years industrial production in the U.S. more than doubled, rising at the rate of more than 15% a year. Even in the recovery from the deep depression of the 1930s, previously the most rapid on record, the gain was only 12% a year. That was merely recovering lost ground, while this war effort pushed forward to successive new highs.

From the end of the Civil War in 1865 until 1939 when Hitler's army marched into Poland, the average rate of industrial expansion in the U.S. had been only 4% a year, and the rise during World War I had been only 7% annually. Had the country's industries maintained the long-term average rate of increase, its production in 1944 for both war and civilian uses would have been only 60% of what was actually achieved.

Manufacturing employment in the U.S. had increased from 10,151,000 in 1939 to 16,558,000 in 1944, and it had expanded its share of the labour force from 19% to 26%. Its manufacturing industries as a group had provided almost one-third of all civilians gainfully employed in 1944, compared with less than one-fourth in 1939. A good part of the increase was achieved by inducing more women to take factory jobs. The number of female factory workers had almost doubled between 1939 and 1944, while the number of male workers was increasing by only 35%. As a result the proportion of women on U.S. factory payrolls had increased from one-fourth in 1939 to one-third in 1944.

These comparisons are by industry rather than by product, and it is difficult to segregate employment directly related to the war effort from that contributing to the support of the civilian economy. The best estimates indicate that about 57% of manufacturing employment in 1944 was in war work, compared with 1% or 2% in 1939. That means that the number of factory workers producing for civilians declined by something like 30% in the five years of war and preparation for war.

A better picture of the diversion of U.S. effort to the war is

indicated by the fact that in 1939, the year following Munich, the nation devoted less than 2% of its total national output to war, and about 70% to satisfying immediate civilian orders; the remaining 28% went to civilian government expenditures, capital formation and exports. But by 1944 war outlays had mounted to 40%, and the civilian share—though just as large in physical quantity as in 1939—represented only one-half of U.S. total output.

A study by the War Production board of 1,222 selected end-product industries of the U.S. of their production solely for civilian uses during Aug. 1945, indicated that they had by that time reached 51% of their production as of the average month of 1939.

This study included a civilian production estimate of 60% of the 1939 rate for Sept. 1945; and forecasts of 153% for Dec. 1945, and 238% for June 1946. The estimates represented what the responsible heads of these industries felt they should be able to do in peacetime production within the year following V-J day. The estimates could not take into account many possible complications which might be involved in postwar price and wage settlements. These could retard accomplishment of the production levels as indicated. (See also *AUTOMOBILE INDUSTRY IN RECONVERSION*; *BUDGET, NATIONAL*; *BUSINESS REVIEW*; *CONTRACT TERMINATIONS*; *INCOME AND PRODUCT, U.S.*; *PRICE ADMINISTRATION, OFFICE OF*; *PRIORITIES AND ALLOCATIONS*; *UNITED STATES*; *WAR LABOR BOARD, NATIONAL*; *WAR MANPOWER COMMISSION*; *WAR PRODUCTION BOARD*; *WORLD WAR II.*) (J. A. K.)

**War Production Board.** Recession in the activities of the U.S. War Production board commenced shortly after munitions production achieved high 1945 levels in March. Following V-E day, May 8, and V-J day, Aug. 14, the board in its committees and staff personnel began to dwindle as the controls for war production gave place to private initiative in active reconversion of industry to peacetime production.

During 1945, Clinton P. Anderson, secretary of agriculture, succeeded Claude R. Wickard as member of the board. Jesse H. Jones, outgoing secretary of commerce, gave place on the board to Fred M. Vinson, federal loan administrator; Vinson, in turn, on being transferred to the secretaryship of the treasury, was succeeded by John W. Snyder, who served as federal loan administrator until his appointment as director of the Office of War Mobilization and Reconversion, guiding the policies of all the emergency agencies. Charles B. Henderson, acting federal loan administrator, succeeded Snyder as board member.

Upon the resignation of Henry L. Stimson as secretary of war, Robert P. Patterson, who succeeded him, became board member in his stead. Resigning from the board during 1945 were Harry L. Hopkins, who retired from his post as special assistant to the president; Marvin Jones, war food administrator, and Leo T. Crowley, federal economic administrator. The other members of the board during 1945 were Paul V. McNutt, director of the War Manpower commission; James Forrestal, secretary of the navy; Colonel J. M. Johnson, director of the Office of Defense Transportation; Harold L. Ickes, petroleum administrator for war; Chester Bowles, director of the Office of Price Administration; Lewis Schwellenbach, secretary of labour, and Robert H. Hinckley, director of contract settlement.

The War Production board was terminated on Nov. 3, 1945, by order of the president, on his acceptance of the resignation of J. A. Krug, its chairman. Several international boards had until then served under William L. Batt, vice-chairman (international supply) by decision of the president and the prime ministers of Canada and the United Kingdom, in order that critical supply

questions might be resolved following the surrender of the axis.

Following the order of the president on Oct. 4, creating the Civilian Production administration as successor to the WPB, John D. Small became chairman of the new body. Small had served successively as chairman of the Production Readjustment committee of the WPB and as its chief of staff. John H. Martin followed Small as chairman of the Production Readjustment committee, resigning in Sept. During the year Henry P. Nelson was appointed director of the aircraft division, and John L. Collyer became special director of rubber programs. Robert Wilson succeeded Collyer when he resigned. Philip D. Wilson was succeeded by William C. Keeley as vice-chairman for metals and minerals. Lincoln Gordon became program vice-chairman, succeeding Samuel W. Anderson, and Laurence M. Lombard succeeded Frederick M. Eaton as general counsel. Hiland G. Batcheller, chief of operations, resigned during the summer of 1945.

The following divisions were terminated at the close of World War II: The war production drive, which had functioned with labour-management committees; and the conservation and salvage and the management consultant divisions.

On V-J day the salaried employees of the WPB numbered 10,800, of whom 6,200 were in Washington and 4,600 in the field offices. In September, the rolls fell below 8,000, and a yet smaller group was thereafter transferred to the Civilian Production administration.

Among those named by J. D. Small, administrator of CPA, to assist him in handling the transition problems concerned with shifting the United States economy from war to peacetime production were the following: U.S. member of the combined boards, William L. Batt; chairman of smaller war plants, Maury Maverick; deputy administrator, Philip Maguire; general counsel, Laurence M. Lombard; Office of Labor Requirements, Ralph Hetzel; review and analysis division, Robert Johnson; director of information, Maxey Morrison; and the directors of the five operating bureaus of CPA.

The five operating bureaus of CPA and their directors were: bureau of reconversion operations, director, Fred Glover; bureau of reconversion priorities, director, Lincoln Gordon; bureau of international supply, director, Robert Turner; bureau of field operations, director, Clarence A. Woodruff; bureau of demobilization, director, G. Lyle Belsley. (See also BUSINESS REVIEW; HOUSING; PRIORITIES AND ALLOCATIONS.) (J. A. K.)

**War Relief, U.S.** The president's War Relief Control board was established by executive order No. 9205 July 25, 1942, to further, for the duration of World War II and six months thereafter, the productive use of voluntary contributions for the relief of war sufferers in foreign countries, or for the welfare of the personnel of the armed forces and the merchant marine of the United States.

The solicitation and collection of public contributions were controlled by the registration or licensing of agencies authorized to administer foreign war relief and national military welfare programs approved by the board. Approval was based upon these major considerations: the necessity for the specific relief or welfare; whether the purpose to be served was adequately fulfilled or could be adequately fulfilled by existing programs and organizations; whether it could be carried out under existing political, economic and military limitations; the estimated costs and the relationship to accepted budgets; the appropriateness of the suggested means of financing; considerations of foreign policy, including export of commodities and transfer of funds; character and scope of the relief and welfare programs of the U.N.R.R.A., the Allied military authorities and the American Red Cross, as well as lend-lease supply programs; avail-

ability of supplies and shipping; and the protection of normal home charities.

Violation of conditions and regulations, or undue costs of administration, were made grounds for the suspension or revocation of the licence to operate.

The major voluntary agencies registered with the board came together in 1943 as a federation of war philanthropies financed through community war chests. The federation, known as the National War fund, was organized with the co-operation of the President's War Relief Control board. The programs of the member agencies were co-ordinated, after budget hearings, to permit one annual country-wide appeal for funds to support war charities other than those of the American Red Cross.

Registered organizations numbered 115 by June 1945 of which 90 were for foreign war relief activities. During the year June 1944-June 1945 there was contributed to registered agencies for foreign war relief a total of \$90,423,119.57 in cash, and \$182,798,080.62 as the value of goods in kind. Of the cash received, \$79,197,431.27 was transmitted abroad and goods in kind valued at \$145,677,752.39 were shipped. The chief beneficiaries were the people of the liberated areas, including those in exile. It should be understood that the totals do not include the value of shipments of food, medicines and clothing provided through the operations of lend-lease, the American Red Cross and the U.N.R.R.A.

In addition to the 90 agencies registered with the board for foreign war relief, there were 25 registered agencies engaged in domestic welfare on behalf of the armed forces and the merchant marine. Their total contributions were not available, but approximately \$66,000,000 was included in the National War fund budgets of 1945 for these services. (See also PRISONERS OF WAR AND DISPLACED PERSONS; RED CROSS; RELIEF.)

(J. E. Ds.)

**War Relocation Authority.** The U.S. War Relocation authority announced that it would close its eight relocation centres within a year of Jan. 2, 1945, the date on which the army lifted its three-year wartime exclusion of persons of Japanese ancestry from the west coast.

Only 35,000 of the 111,000 originally evacuated had resettled throughout the country in the two years before the west coast

A JAPANESE-AMERICAN family leaving the relocation centre at Poston, Ariz., in Jan. 1945 after being evacuated from the Pacific coast for 2½ years. Restrictions on the return of the Japanese had been lifted on their home area in Santa Ana, Calif.



ban was revoked. By Nov. 30, 1945, WRA had relocated twice that number from the eight barracks camps and was on its way to liquidating the agency by June 30, 1946, when final disposition was scheduled for property and records.

About 45,000 evacuees returned to the west coast from the far-western barracks camps. Others joined evacuees who had settled in the east and midwest before the coast was reopened to Japanese Americans. Of those who relocated eastward earlier, at least 5,000 went back to former coast homes during 1945.

Opposition to the return of evacuees to coast states came from a small but frequently vehement minority. Hostility took the form of terrorism in May and June 1945 when substantial numbers of evacuees started returning. Shootings, arson, property damage and threats brought nation-wide condemnation. Aroused public opinion eventually helped curb this lawlessness.

Federal public housing projects accommodated some Nisei servicemen's families on the Pacific coast. But by the end of the year several hundred other returnees were still housed in temporary shelters such as private, nonprofit hostels, Federal Public Housing authority wartime trailer camps and converted army barracks. To secure more permanent housing, WRA gave the problem top priority in the last months of 1945, and extended closing dates for field offices in crowded localities to June 1, 1946.

WRA named a late winter deadline in 1946 for the relocation of all eligible evacuees from the Tule Lake, Newell, Calif., segregation centre. Meanwhile the department of justice continued processing Tule Lake aliens and citizens who had requested transfer to Japan.

No final decision had been reached by the close of 1945 regarding which of 1,000 refugees could be returned to their homelands from the emergency refugee shelter in Fort Ontario, Oswego, N.Y., which WRA also administered during the year. (See also ALIENS.) (D. S. MR.)

**War Risk Insurance:** see INSURANCE.

**War Savings Stamps:** see POST OFFICE.

**War Shipping Administration.** The War Shipping administration, created by executive order in Feb. 1942, was given broad powers over ocean shipping of the United States. Its authority covered the requisitioning of existing vessels and the strategic control of all ocean shipping except that under jurisdiction of the armed services.

The chairman of the Maritime commission was also made War Shipping administrator and was the U.S. member of the Combined Shipping Adjustment board, which controlled Allied shipping during World War II.

Actual operation of U.S. vessels was by private shipping companies, acting as agents of the WSA. More than 100 shipping companies were WSA agents in 1944, some of them operating as many as 80 vessels.

Not all the vessels built by the Maritime commission were under WSA control. In addition to those transferred to military jurisdiction, many were transferred temporarily to other Allied nations. Losses of U.S. shipping were 1,567 vessels to the time of Japan's surrender.

The personnel of the U.S. merchant marine on Nov. 1, 1945, was 240,000 officers and men. Until the Normandy invasion, losses of merchant marine personnel exceeded in proportion the losses of the armed services. To Nov. 1, 1945, the losses were 807 dead, 4,830 missing and 112 prisoners of war, making a total of 5,749.

Of the 83,000,000 long tons of cargo that left the U.S. in 1945, three-quarters was carried in WSA ships.

At the beginning of Nov. 1945, there were 4,442 ships under control of the WSA. They constituted three-fifths of all the vessels available to the United Nations and the U.S. merchant marine had more tonnage than the rest of the world combined.

The principal concern of the U.S. merchant fleet in the fall of 1945 was the return of armed forces to the United States. It was estimated that 6,000,000 men would be returned to the U.S. by April 1946. (E. S. L.)

**Washington.** A state in the extreme northwest United States, popularly known as the "Evergreen state," admitted to the union Nov. 11, 1889. Total area, 68,192 sq.mi. of which 66,977 sq.mi. are land; pop. (1940) 1,736,191; native 1,525,812; foreign born 210,379. On Nov. 1, 1943, the bureau of the census estimated the civilian population of the state at 1,905,239. Capital, Olympia (13,254). According to 1945 estimates the three largest cities had grown perceptibly after 1940; Seattle from 368,302 to 470,000 (est.); Spokane from 122,001 to 144,000 (est.); Tacoma from 109,308 to 139,000 (est.). The urban population in 1940 was 921,969 or 53.1%; in 1945 it was 1,370,134 (est.) or 67.4%.

**History.**—The 29th legislature of the state of Washington was in session from Jan. 8 to March 8, 1945. Breaking paths for new state policies were measures regulating aeronautics, authorizing the establishment of public hospital districts, declaring the ground waters of the state to be public ground waters, and appropriating state funds for public libraries. Other significant enactments included a uniform food and drug act, a measure creating a contingent receipts fund and an appropriation of \$100,000 for the conduct of a survey of the entire public educational system of the state. Dr. George D. Strayer, of Columbia university teachers college, was employed to make the survey during 1946. The state supreme court refused to recognize the emergency clauses in three acts of this legislature and ordered the secretary of state to file referendum petitions submitted against them, thereby delaying their promulgation. One act provided for primary elections for candidates for municipal officers of cities having a population of 100,000 to 150,000; another created a timber resources board, and the other made game commissioners subject to appointment and removal by the governor. The court, furthermore, declared an act liberalizing for veterans the admission to the bar unconstitutional on the score that admission to the practice of law was a judicial function. It sustained a law which permitted county officers who served on employment statistics commissions to receive compensation in addition to their regular salaries.

During August it was revealed that atomic bombs had been manufactured at the mysterious war project at Hanford on the Columbia river. Recognition that the state's school system ranked first in educational efficiency came from the National Educational association. Landowners in the Columbia basin voted overwhelmingly to share with the federal government the cost of placing the Columbia Basin Irrigation project into operation. On Sept. 23 the northwest loggers and timber workers went on strike and stayed out until Dec. 3-4. A walkout of the typographical workers of the three largest Seattle newspapers on Nov. 17 closed their plants for the rest of the year.

State officers for 1946: governor, Mon C. Wallgren; lieutenant governor, Victor A. Meyers; secretary of state, Belle Reeves; treasurer, Russell M. Fluent; attorney general, Smith Troy; state superintendent of public instruction, Pearl A. Wanamaker (elected on nonpartisan basis); chief justice of the state supreme court, Samuel M. Driver.

**Education.**—During the school year 1944-45, average daily attendance in elementary and secondary schools was 288,112; the number of teachers was 12,666. Total expenditures were



\$45,869,857 and the cost per pupil in attendance was \$121. Salaries of teachers, including superintendents, averaged \$2,265.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—During the period of Oct. 1944 to Sept. 1945 inclusive, the total amount spent for public assistance in the state, including federal direct expenditures and state aid, was \$48,764,800. An average of 23,989 persons per month received a total of \$5,954,426 for general assistance. An average number of 60,657 old persons received a total of \$35,394,944. An average number of 14,564 children received a total of \$4,357,555. An average number of 597 blind persons received a total of \$322,769. In 1945 there were 11 state charitable institutions, with a total population of 10,500 (est.) and four state correctional institutions, with a population of 2,400.

**Communication.**—In 1944 there were 50,337 mi. of highways (state and county) in the state and 5,215 mi. of railroad.

**Banking and Finance.**—The total assessed valuation of all real and personal property subject to tax for the year 1945 was \$1,204,469,845; the bonded indebtedness was \$7,019,000, easily covered by various bond retirement funds. The state cash balance (gross) on Nov. 30, 1945, was \$120,296,742. Total revenue receipts during 1944 amounted to \$214,138,045, and total disbursements were \$186,512,220. One hundred and twenty-six banks in the state reported a total capital of \$35,447,000; capital surpluses and undivided profits of \$65,932,000; deposits of \$2,041,543,000 and assets of \$2,133,850,000.

**Agriculture.**—Total farm income in 1944 was \$490,900,000; from crops \$292,676,000; from livestock \$157,225,000; from governmental payments \$13,655,000.

Table I.—Leading Agricultural Products of Washington, 1945 and 1944

Crop	1945 (est.)	1944
Wheat, bu. . . . .	68,427,000	64,030,000
Apples, bu. . . . .	25,840,000	31,100,000
Hay (tame), tons . . . . .	2,073,000	1,916,000
Pears, bu. . . . .	7,922,000	8,665,000
Potatoes, bu. . . . .	12,255,000	10,340,000
Hops, lb. . . . .	21,060,000	16,975,000
Peas (100-lb. bags) . . . . .	2,726,000	4,699,000
Cherries, tons . . . . .	34,500	29,000
Barley, bu. . . . .	7,175,000	8,550,000
Oats, bu. . . . .	7,200,000	7,728,000

**Manufacturing.**—In 1939, the latest year for which figures were available in 1945, the total value of products was \$636,649,809; 101,136 salaried persons and wage earners received a total of \$143,412,064. During every year after 1940, including 1945, the building of steel ships and aeroplanes together exceeded in amount the annual totals of all manufactures of the period prior to World War II. In 1944 the six basic industries were general manufacturing, food products manufacturing, logging, mining and construction. There were 869,200 salaried workers and wage earners; all industry employed labour for 1,003,431,670 man-hours; and the pay roll for all industry was \$1,270,266,000. In 1945 a record haul of 55,000,000 lb. of halibut represented the largest catch from 1931, the year preceding the promulgation of regulation by the Canadian-American International Fisheries commission.

Table II.—Principal Industries of Washington, 1939 and 1937

Industry	Value of products	
	1939	1937
(Sawmill and sawmill products . . . . .	\$123,604,988	\$186,201,508
Lumber and timber (not classified elsewhere) . . . . .		
Pulp mills . . . . .	37,288,183	48,411,890
Pulp (wood and other fibre). . . . .		37,048,031
Paper . . . . .	33,961,163	
Logging (not classified elsewhere) . . . . .	28,215,604	
Meat packing (wholesale) . . . . .	26,124,641	28,175,069
Flour and other grain mill products . . . . .	25,108,207	31,774,606
(Canned and dried fruits . . . . .	19,700,116	
(Canned and dried fruits (etc.) . . . . .		24,667,198
Plywoods . . . . .	17,907,465	
Planing mill products . . . . .	17,332,812	19,507,717

**Mineral Production.**—Mineral production in 1943 amounted to \$37,593,000. Increases in metals after 1940 were offset by decreases in non-metals. At the order of the War Production board, magnesium production at the Mead plant (near Spokane) was stopped, and in 1945 aluminum production was appreciably curtailed throughout the state. Revival of the light metals industry awaited the disposition of government-owned plants.

(H. J. DE.)

**Washington,** DISTRICT OF COLUMBIA, national capital of the U.S.A. and 11th largest of U.S. cities; pop. (1940) 663,091. On June 30, 1945, the population had increased to 926,260. Appropriations for the fiscal year 1945-46, up to Dec. 31, 1945, totalled \$66,385,984, of which \$6,000,000 was contributed by the federal government, an amount which did not meet an equitable proportion of the entire budget, as measured by area of land or value of land and improvements owned by the federal government in the District of Columbia. The district government has no bonded indebtedness. During the period of World War II it accumulated about \$10,000,000

reserve which was to be expended in the estimated \$80,000,000 budget for 1946-47. This would make possible the acquisition of sites, the erection of school buildings and libraries, highways and other needed improvements, all neglected during the war years. The 1946-47 budget was approved by the bureau of the budget in 1945, and then had to be included in appropriation bills of congress, as, under the constitution, congress has exclusive legislative control over the District of Columbia. The bureau of the budget continued to study in 1945 the provisions which should be included in a bill to reorganize the National Capital Park and Planning commission, in accordance with recommendations contained in a report by the bureau in 1944.

Washington was congested throughout 1945. There were very few vacant houses and surveys revealed deplorable overcrowding in a good many occupied dwellings. The number of federal employees in June 1945 was 257,000, a decline from the peak reached in 1943. Of these some 156,000 worked in permanent office buildings owned by the federal government, 110,000 within the district and 46,000 outside its boundaries. More than 100,000 federal employees worked in temporary buildings and leased quarters. At the end of 1945 a bill was pending in congress to authorize a nation-wide federal building program. This would permit a start on much needed federal buildings in the district, with the objective of housing all federal employees in permanent public buildings located according to the master plan.

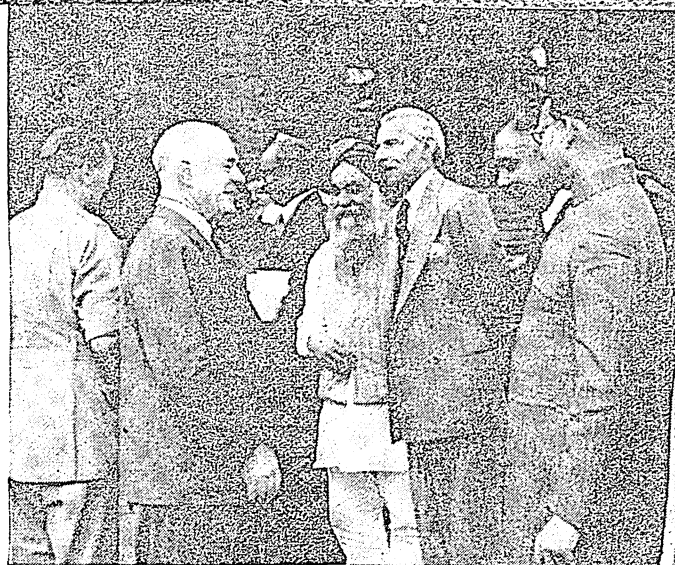
The McCarran-Capper-Burton bill for urban redevelopment and housing in the District of Columbia passed the senate and was pending in the house on Dec. 31, 1945. The National Capital Housing authority on June 30, 1945, was operating 8,178 dwellings. Of these 2,707 were provided as low-rent housing, 800 as permanent war housing and 3,819 as temporary war housing. It was expected that temporary housing units, as well as temporary office units, would be removed as soon as sufficient permanent accommodations could be provided.

In April 1945 the board of engineers for rivers and harbours announced an adverse report on the proposed power development on the Potomac, in line with the prevailing public opinion of the residents of Washington and those living in the Potomac basin. This left the way clear to resume work on the George Washington Memorial parkway along the banks of the river to Great falls.

(H. Js.)

**Water Supply:** see PUBLIC HEALTH ENGINEERING.

**Wavell, Archibald Percival,** VISCOUNT (1883- ), British soldier, born in May, was the son of Maj. Gen. A. G. Wavell. Following his father's career, he enlisted in the Black Watch in 1901 after studying at the Royal Military college and the staff college and saw action in the Boer War, in India and in World War I. In 1938 he was promoted to lieutenant general. From 1937 to 1938 he commanded the British troops in Palestine and Trans-Jordan, and in 1940 he became commander in chief of the British forces in the middle east. His small force of empire soldiers swept the Italians out of Cyrenaica in Libya, and he supervised the operations in East Africa which recaptured British Somaliland and took Italian Somaliland, Eritrea and Ethiopia from the Italians. He suffered serious reverses at the hands of the Germans, however, in Libya, Greece and Crete, and on July 1, 1941, he was succeeded as middle east commander by Gen. Sir Claude Auchinleck, whose post as commander of the British forces in India Wavell thereupon took over. On Jan 3, 1942, Sir Archibald was named supreme commander of Allied armies in the far east, but in March of the same year, he was returned to command of his former post, the India-Burma area. On June 19,



VISCOUNT WAVELL (second from left) chatting with Mahomed Ali Jinnah (third from right) and other leaders of the All-India Muslim League who attended the conference at Simla during June 1945

1943, he was appointed viceroy of India and on July 1, was elevated to the peerage as Viscount Wavell. At the Simla conference at which further proposals for Indian independence were discussed, Wavell appealed (June 25, 1945) to the Indians for assistance in advancing India "toward prosperity, political freedom and greatness." The conferees came to no agreement and Wavell accepted responsibility for failure of the conference, July 14. Following Prime Minister Clement Attlee's pledge of self-rule for India, Wavell declared Sept. 19, that he had been authorized to confer with the provincial assemblies on whether the original Cripps plan, or some alternative proposal was acceptable as a basis of discussion. (See also INDIA.)

**WAVES:** see WOMEN'S RESERVE OF THE NAVY.

## Wealth and Income, U. S. Distribution of.

The term, distribution of income, is usually taken to designate the apportionment of income among individuals or families according to size of income, thereby showing the number of individuals or families in the various income brackets. While interest in this subject had been growing in the U.S., due to the many practical applications of such statistical information in government and business policy formulation, no regular program for collecting data on the size distribution of income had been developed up to 1945.

The most complete body of data made available up to 1945 was that issued by the National Resources committee, providing statistics on both the distribution of income and the distribution of consumers' expenditures by income class for the year 1935-36. These data were contained in the reports entitled *Consumers' Income in the United States*, *Consumers' Expenditures in the United States* and *Family Expenditures in the United States*. Information covering the year 1941 and the early part of 1942 was issued by the bureaus of labour statistics and home economics on the basis of small field studies made by those organizations. Summary tables on the size distribution of income and expenditures from these reports were published in the 1944 *Britannica Book of the Year*. No additional information on this subject became available in 1945.

**State Distribution of Income Payments.**—Estimates of income payments to individuals by states are summarized for the years 1939, 1943 and 1944 in the accompanying table.

State income payments increased 7% between 1943 and 1944, the smallest year-to-year gain from 1939. The large majority of the states shared in the rise of income payments to the record amount of \$148,090,000,000 for the continental U.S., but a few

states experienced declines for the first time in six years.

In general, the 1943-44 changes in state income payments exhibited a tendency toward uniformity, as contrasted with the wide disparities in other war years. Thus, the former trend of income redistribution in favour of the south and west, accelerated by the country's economic mobilization for war, was retarded, if not completely arrested, in 1944. This development stemmed from the general stability of the economy as war production levelled off at the peak rates established the previous year.

The states that scored the largest percentage gains in total income payments from 1939 to 1944 were concentrated in the southeast, southwest, far west and northwest. Income received by residents of these four regions in 1944 was from 128% to 164% above prewar levels. In contrast, income payments in the New England and middle eastern areas rose by little more than 80%. The slightly more-than-doubling of income payments in the central states from 1939 to 1944 closely paralleled the experience of the country as a whole. The largest wartime relative shifts were, therefore, from New England and the middle east to the south and west.

The major aspects of this striking pattern of change were in accord with 1929-39 trends, so that war-period developments should not be dismissed as distortions. The easy assumption of a return to the 1939 geographic income pattern in the postwar years discounts persistent, underlying trends that prevailed over the 16-year period 1929-44 embracing prosperity and depres-

Distribution of Income Payments by States

Region and State	Aggregates (\$000,000)		Percentage increase in total income payments 1939-1943-1944		Per capita income payments (\$)	
	1939	1943	1944	1944	1939	1944
United States . . . . .	70,601	138,854	148,090	110	7	539
New England . . . . .	5,729	10,154	10,634	86	5	680
Connecticut . . . . .	1,301	2,632	2,682	106	2	764
Maine . . . . .	400	849	841	110	—	474
Massachusetts . . . . .	3,106	5,098	5,407	74	6	719
New Hampshire . . . . .	268	373	403	50	8	548
Rhode Island . . . . .	480	915	996	108	9	678
Vermont . . . . .	174	287	305	75	6	483
Middle East . . . . .	22,783	38,427	41,602	83	8	711
Delaware . . . . .	203	372	399	97	7	771
District of Columbia . . . . .	813	1,458	1,518	87	4	1,031
Maryland . . . . .	1,074	2,382	2,466	130	4	634
New Jersey . . . . .	2,859	5,321	5,688	99	7	746
New York . . . . .	11,301	17,544	19,345	71	10	825
Pennsylvania . . . . .	5,819	10,125	10,830	86	7	589
West Virginia . . . . .	714	1,225	1,356	90	11	378
Southeast . . . . .	8,414	19,089	20,822	147	9	300
Alabama . . . . .	681	1,738	1,847	171	6	242
Arkansas . . . . .	478	964	1,068	123	11	246
Florida . . . . .	819	2,067	2,198	168	6	442
Georgia . . . . .	901	2,101	2,301	155	10	290
Kentucky . . . . .	839	1,669	1,795	114	8	297
Louisiana . . . . .	828	1,835	1,946	135	6	354
Mississippi . . . . .	436	1,072	1,148	163	7	201
North Carolina . . . . .	1,090	2,209	2,435	123	10	308
South Carolina . . . . .	493	1,115	1,219	147	9	261
Tennessee . . . . .	853	1,946	2,193	157	13	295
Virginia . . . . .	996	2,373	2,672	168	13	402
Southwest . . . . .	3,756	8,331	8,770	133	5	386
Arizona . . . . .	227	580	548	141	—	461
New Mexico . . . . .	179	363	394	120	9	341
Oklahoma . . . . .	796	1,569	1,748	120	11	340
Texas . . . . .	2,554	5,819	6,080	138	5	401
Central . . . . .	20,090	39,282	41,446	106	6	565
Illinois . . . . .	5,285	9,334	10,121	92	8	671
Indiana . . . . .	1,688	3,730	3,911	132	5	495
Iowa . . . . .	1,185	2,336	2,260	91	—	468
Michigan . . . . .	3,054	6,830	7,098	132	4	591
Minnesota . . . . .	1,378	2,355	2,395	74	2	497
Missouri . . . . .	1,832	3,383	3,559	94	5	486
Ohio . . . . .	4,154	8,306	8,877	114	7	603
Wisconsin . . . . .	1,514	3,008	3,225	113	7	485
Northwest . . . . .	3,099	7,009	7,052	128	1	418
Colorado . . . . .	563	1,126	1,101	96	—	505
Idaho . . . . .	213	473	525	146	11	411
Kansas . . . . .	692	1,809	1,867	170	3	383
Montana . . . . .	288	498	514	78	3	515
Nebraska . . . . .	523	1,203	1,208	131	0	397
North Dakota . . . . .	209	504	501	140	—	325
South Dakota . . . . .	227	500	475	109	—	351
Utah . . . . .	243	654	606	149	—	443
Wyoming . . . . .	141	242	255	81	5	567
Far West . . . . .	6,730	16,562	17,764	164	7	692
California . . . . .	5,047	12,036	12,948	157	8	741
Nevada . . . . .	84	203	196	133	—	767
Oregon . . . . .	587	1,534	1,572	168	3	544
Washington . . . . .	1,012	2,789	3,048	201	9	588

Source: United States Department of Commerce.

sion, peace and war. Although analysis of geographic differences in the sources of war-period income expansion indicated that the far west's, southeast's and southwest's 1944 shares of the country's income payments were boosted by war spending and might be readjusted at somewhat lower levels in the immediate post-war period, war spending did not explain all of the relative gains by the south and west; marketing analysts very probably could continue to look to these areas for the country's most rapidly expanding markets. The long-term relative growth in total income payments in these areas was the result of more rapid population growth, as well as of larger increases in per capita income. Over the period 1929-44, it may be noted, the total population of the southeast, southwest and far west expanded 21%, in contrast to the 3% rise in the other four regions.

Despite a tendency toward reduction of inequality among the states in per capita income—accelerated by war developments—broad differentials still existed, as shown by the table. In 1944, states in which per capita income was less than that of the country as a whole had a composite average two-fifths below the comparable average of states where per capita income exceeded the nation-wide average.

Underlying the differentials in per capita income were significant geographic differences in industrial structure. In general, states with per capita income above the national average showed relatively large proportions of the labour force employed in manufacturing, mining, construction, and the distributive and service industries; relatively small proportions were in agriculture and domestic service. Characteristics of the low-income states were exhibited in marked degree by the southeastern states, where average incomes were the lowest in the country. The southeast placed heavy dependence upon agriculture and domestic service as sources of income. On the other hand, it had relatively fewer workers in the manufacturing and distributive and service industries, where average earnings were considerably higher than in agriculture and domestic service. This "unprofitable" distribution of the southeast's working population explained in large measure the lowness of the region's per capita income. Furthermore, the level of farm income in this region was substantially lower than elsewhere. (See also BUDGET, NATIONAL; CENSUS DATA, 1945; INCOME AND PRODUCT, U.S.)

(M. Gr.)

**Weather:** see METEOROLOGY.

**Wedemeyer, Albert Coady** (1897- ), U.S. army officer, was born at Omaha, Neb., July 9. He was commissioned a second lieutenant in the United States army on Nov. 1, 1918, and advanced through the grades to the rank of major general in Sept. 1943. He was graduated from the Command and General Staff school in 1936, and attended Krieg's academy in Berlin during the succeeding two years. He was on the war department general staff from 1941 to 1943.

In Oct. 1943 he was appointed deputy chief of staff of Admiral Lord Mountbatten, United Nations commander in the southeast Asia theatre.

When Gen. Stilwell was summarily relieved of his command and duties in the far east on Oct. 27, 1944, Maj. Gen. Wedemeyer was placed in command of the U.S. forces in China and was named chief of staff of the China theatre. Wedemeyer, who was promoted to the temporary rank of lieutenant general (Jan. 25, 1945), stated Sept. 13 that U.S. troops would be brought into the coastal areas of China to help the Chinese maintain order. He disclosed Dec. 1 that the Chungking government was continuing to receive U.S. arms and munitions under the extension of lend-lease.

**Wellesley College.** A four-year liberal arts college for women, founded in 1870 by Henry Fowle Durant and located in Wellesley, Mass. Wellesley college had in 1945 an enrolment of approximately 1,500 students with 200 faculty members. Pre-eminently for candidates for the B.A. degree, Wellesley offers also the degrees of M.A., M.A. in education, M.S. and a certificate in hygiene and physical education. At the opening of the academic year 1945-46, President Mildred McAfee Horton, maintaining her position as director of the women's reserve of the United States naval reserve, on extended leave, again took up full-time residence at the college. The college calendar year, which had been adjusted to meet special war-time needs, returned to the regular schedule from September to June.

Committee groups of trustees, faculty, students and alumnae had under advisement plans for the college, both for the immediate future and the later postwar years. Preliminary reports of these committees included a consideration of curriculum changes and plans for the physical growth of the college.

Under the auspices of the Mayling Soong foundation, an institute on Japan was held at the college, in order that undergraduates might better understand the problems facing the United Nations in the far east. Economic, social and political phases of present day Japan were studied.

(For statistics of enrolment, endowment, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (M. M. H.)

**Werfel, Franz** (1890-1945), German-Czech writer, was born Sept. 10 in Prague. He was educated at the Universities of Prague and Leipzig. He published, while in his early 20s, his first book of poems, *The World Friend*. More works in verse followed and before long he became leader of Germany's young literary iconoclasts. Werfel served with the Austrian army in Russia during World War I, and following that war went to Vienna where he made his home. After the advent of Hitler, Werfel was expelled from the Prussian Academy of Art in 1933 and his books were banned. He moved to Paris, from there to the Mediterranean coast and thence to Lourdes. At Lourdes he received the inspiration to write one of his most successful novels, *The Song of Bernadette* (1942), which was produced in motion pictures. He was the author of *Verdi* (1925), which was filmed in Italy, and he rewrote Verdi's opera *Simon Boccanegra*, which was successfully produced in Vienna in 1930. Werfel also wrote *The Forty Days of Musa Dagh* (1934), a best seller in the United States, and *The Eternal Road*, a pageant produced by Max Reinhardt in New York in 1935. Other of his works published in the United States include *Class Reunion* (1929), *The Pure in Heart* (1931), *Twilight of a World* (1937), *Harken Unto the Voice* (1938) and *Embezzled Heaven* (1940). Werfel's plays include *The Mirror Man*, *Schweiger*, *Paul Among the Jews*, *The Kingdom of God in Bohemia*, *In One Night*, *The Trojan Women*, *The Goat Song*, *Juarez and Maximilian* and in collaboration with S. N. Behrman, *Jacobowsky and the Colonel*. He died in Hollywood, Calif., Aug. 26. (See *Encyclopædia Britannica*.)

**West Africa, British:** see BRITISH WEST AFRICA.

**Western Australia.** A state of the Australian commonwealth; area 975,920 sq.mi.; pop. (est. Dec. 31, 1943) 485,407. Chief city: Perth (pop. Dec. 31, 1943) 263,000. Governor: (vacant in 1945); lieutenant governor in 1945: Sir James Mitchell.

**History.**—In Aug. 1945 Frank Joseph Scott Wise, minister for lands and agriculture in the Western Australia government, was elected by the state Labour party to be premier in succes-



sion to John Willcock, who had resigned because of ill-health. There was a further decline in gold production during 1945, but agricultural returns were again satisfactory, Western Australia having been fortunate to escape the almost continent-wide drought conditions. The government planned to overcome the water shortage in many rural areas in a bold postwar scheme to raise the height of the Mundaring and Wellington weirs and by laying reticulation pipes to service 11,000,000 ac. and some 35 country towns. The estimated cost was \$27,500,000.

**Education.**—In 1943: state primary schools 748; average attendance 48,337. State secondary schools 6; average attendance 1,770.

**Finance.**—Revenue (1943-44) \$43,500,000; expenditure (1943-44) \$43,400,000; debt outstanding (June 30, 1944) \$308,730,000. (Conversion rate: £1=\$3.22 U.S.)

**Communication.**—Roads (1940) 29,722 mi.; railways (1942-43) government 4,381 mi. Motor vehicles licensed (Sept. 30, 1944): cars 29,596; commercial vehicles 22,177; cycles 3,771. Wireless receiving set licences (Nov. 1943) 98,220.

**Agriculture and Manufacturing.**—Production (in short tons): wheat (1944-45) 412,500; wool (1943-44) 50,000; gold (1943) 546,576 fine oz. Industry and labour (1942-43): factories 1,799; employees 25,813; gross value of output \$85,560,000; unemployment (trade union returns) (Feb. 1945) 1.0%. (W. D. MA.)

**West Indies.** An archipelago between Florida and the South American coast opposite the mouth of the Orinoco river. The West Indies include the Greater Antilles (in order of size, Cuba, Haiti, Jamaica and Puerto Rico), the Lesser Antilles between Puerto Rico and the Venezuelan coast, the Bahama group northeast of Cuba, and certain more distant islands, including Curaçao and Aruba near the mouth of Lake Maracaibo in Venezuela. The land area is approximately 92,000 sq.mi. Population, estimated in 1944 at about 13,000,000, is approximately 75% white and 25% Negro and mulatto in Cuba and Puerto Rico, and from 80% to 100% Negro and mulatto elsewhere, except that in Trinidad about 40% are of East Indian origin. Religion: predominantly Roman Catholic. Languages: Spanish, English, French and Dutch in addition to various African dialects. Politically, the West Indies include the three independent republics of Cuba, Haiti and the Dominican Republic, two United States territories, and six British, two French and one Dutch colonies. In addition to prewar bases, the West Indies are the location of five U.S. naval bases the sites for which were obtained from Great Britain in 1940.

**History.**—The principal general problem of the West Indies in 1945 was readjustment after World War II. Economic dislocation was general and considerable and on many of the islands unemployment was serious, due either to the cessation of work on U.S. naval base construction or to the return of persons previously employed in the U.S. Consequences of the disastrous hurricane of Aug. 20, 1944, said to have been the worst in 40 years in some parts of the Caribbean, were still being felt in the early months of 1945. The British West Indies were granted a liberalized franchise and increased autonomy on a provisional five-year basis as an experiment beginning in 1945. The project of West Indian federation was still being considered, but with opposition in some quarters.

**Trade and Production.**—West Indian islands are predominantly agricultural, with sugar, raised primarily for export, as the principal crop. Oil refining in Curaçao and Aruba and petroleum and asphalt production in Trinidad are the only important exceptions to the chiefly agricultural economy. Sugar production in most West Indian areas declined notably in the 1944-45 season; that in Martinique, for example, was only 3,000 metric tons as against a 1939 production of 65,000 metric tons. Other agricultural production suffered materially in 1945. Parts of the area were adversely affected by a drought early in 1945 although rains were more abundant later. Most trade relations are with the U.S. and Canada and, on the part of the respective European colonies, with the various mother countries. Trade showed im-

provement because of easier shipping conditions. The single unit of Cuba outranked all other Latin American countries in the early part of 1945 as a supplier to the U.S.; trade by other parts of the West Indies with the U.S. improved notably at the same time. Serious discussion of a British West Indies customs union continued from 1944 into 1945 but no specific action was taken.

**Communications.**—Principal developments in 1945 were in aviation. British West Indies airways at the beginning of the year opened a new passenger express service from Port of Spain, Trinidad, to Kingston, Jamaica. Both K.L.M. (Royal Netherlands air line) and T.A.C.A. (Transportes Aéreos de Centro América) took steps in 1945 to expand their West Indian services. The principal network of air lines continued to be operated by Pan American World airways. Cuba maintains the largest mileage both in highways and railroads of any of the West Indian units. Highway mileage at the beginning of 1945 was 2,140 mi. of paved and 255 mi. of improved road. Railroad mileage was 4,880 mi. in main lines. The chief West Indian cable services are furnished by Western Union Telegraph company, West Indies Cable and Wireless, Ltd., and All America Cables. (See also BAHAMAS; CUBA; CURAÇAO; DOMINICAN REPUBLIC; FRENCH COLONIAL EMPIRE; HAITI; PUERTO RICO; VIRGIN ISLANDS; WEST INDIES, BRITISH.)

**BIBLIOGRAPHY.**—*West Indies Year Book*, 1944; *Foreign Commerce Weekly* (Washington, D.C.); *Crown Colonist* (London, monthly); *Canada-West Indies Magazine* (Montreal, monthly).

**FILMS.**—*West Indies* (Encyclopædia Britannica Films Inc.).

(R. H. FN.)

**West Indies, British.** Single islands and groups in the Caribbean sea, which include six political units: Bahama Islands (*q.v.*), Barbados, Jamaica and dependencies, the Leeward Islands, Trinidad and Tobago and the Windward Islands. Jamaica is the third in size of the four islands comprising the Major Antilles. The Leeward Islands and the Windward Islands (and Barbados) form a large part of the Lesser Antilles. Trinidad is a single island just north of the Orinoco river delta. (Areas and populations are given in the table.) The total area, excluding the Bahamas, is approximately 8,065 sq.mi. and the total estimated population 2,366,949. No census had been taken, except in 1943 in Jamaica and dependencies, after 1931 (in some cases earlier); the British government late in 1945 was completing plans to take early censuses in the remaining units. The racial composition of the population is from three-fourths to almost 100% Negro, although the population of Trinidad is estimated to include 180,509 East Indians.

Area and Population Estimates, British West Indies, 1945

Colony	Area (sq. mi.)	Pop. (latest est.)	Capital (with est. pop.)
Barbados	166	202,588	Bridgetown (14,000)
Jamaica and dependencies	4,677	1,250,209*	
Jamaica	4,470	1,237,391*	Kingston (109,056*)
Cayman Islands	93	6,670*	Georgetown (1,400)
Turks and Caicos	202	6,148*	Grand Turk (1,668)
Leeward Islands	422	100,497	
Antigua (including Barbuda, 62 sq. mi., and Redonda)	170½	41,024	St. John's (10,000)
Montserrat	32½	14,522	Plymouth (1,893)
St. Kitts-Nevis (St. Christopher, 68 sq. mi., pop. 17,895; Nevis, 50 sq. mi., pop. 14,817; Anguilla, 34 sq. mi., pop. 5,034)	152	37,746	Basseterre (19,895*)
Virgin Islands	67	7,205	Road Town (900)
Trinidad and Tobago (Tobago, 116 sq. mi., pop. 31,100)	1,980	535,499	Port of Spain (103,155)
Windward Islands	820	278,156	
Dominica	304	53,899	Roseau (9,000)
Grenada (including Carriacou, 13 sq. mi., pop. 9,358, and lesser islands)	133	90,085	St. George's (6,500)
St. Lucia	233	73,770	Castries (9,000)
St. Vincent (including 5 of the Lesser Grenadines)	150	60,402	Kingstown (4,269*)

\*1943 census; all other population figures are estimates.

The political organization of the various islands reflected no uniformity and various anomalies. Each of the colonies had

a royally appointed governor. (For names, see BRITISH EMPIRE.) Barbados additionally had an executive council, an executive committee, an appointive legislative council and a house of assembly. Jamaica was governed under a new constitution (in force Nov. 20, 1944) providing for an elective house of representatives, a legislative council (the upper house) and an executive council. The Leeward Islands possessed a royally appointed executive council and a legislative council; Trinidad and Tobago had similar bodies. The Windward Islands had a common governor but otherwise each island had its own political institutions; there was no joint legislature.

English was the principal language used.

**History.**—The chief concerns of the British West Indies in 1945 were the restoration of a peacetime economy and steps toward possible federation and toward greater self-government. The important Economic Policy committee rendered its report (the "Benham Report") for Jamaica early in 1945, proposing a comprehensive plan for the economic rehabilitation of the island. The incorporated chambers of commerce of the British Caribbean area met at Barbados early in 1945 to consider economic problems in view of the imminent end of World War II. Discussion continued throughout 1945 (centring in Jamaica) of the possibility of a West Indian federation with interisland free trade. A Caribbean Labour conference met at Barbados in September with representatives of various labour groups and progressive political parties present. The Anglo-American Caribbean commission held an important series of meetings in Washington at the end of July to consider political and economic problems of the area as conditioned by the cessation of the war in Europe. Consideration was subsequently given to the holding of a second West Indian conference, the first such conference having been held at Bridgetown, Barbados, in March 1944. Considerable numbers of Barbadians and some from other islands were recruited for work in the United States, especially in the second quarter of 1945, although other island residents were at the same time returning after periods of employment in the United States. Remittances from those in the United States formed an important item in the total income of some of the islands. Officials in Trinidad announced preliminary plans for a comprehensive scheme of land allocation for purposes of conserving land and the water supply.

**Education and Religion.**—Partial education statistics showed 1,320 elementary schools with an enrolment of 241,073 (Trinidad and some of the Windward Islands omitted). Higher education was provided by Codrington college in Barbados (affiliated with Durham university in England) and Queen's Royal college, St. Mary's college and the Imperial College of Tropical Agriculture, all in Trinidad. Agitation continued throughout 1945 for the establishment of a general university for the British West Indies.

No established church existed in the islands. The principal churches were the Anglican, Baptist, Methodist, Presbyterian, Roman Catholic and Moravian. Many of the churches operated schools and a substantial portion of the whole number of elementary schools was denominational.

**Finance.**—The pound sterling was standard except in Trinidad where the West Indian or Trinidad dollar was the unit; the latter was equivalent to 4s. 2d. and exchanged in 1945 at approximately 83 cents U.S. British subsidiary coinage circulated widely. A serious effort was being made in 1945 to make the various colonies financially self-supporting; the British government indicated, for example, that it would gradually cease extending subsidies to Jamaica over a five to ten year period. The islands consequently sought new sources of revenue. Jamaica, the largest of the islands, proposed a 1945-46 budget of £7,120,700 (1944-45: £6,277,842). Jamaica's debt on April 1, 1945, was £7,901,265. The Barbados budget for 1945-46 estimated revenue at £1,007,000 and expenditures at £1,170,000. Several of the islands late in 1945 gave consideration to inclusive public works programs to tide over the period of readjustment from World War II; Trinidad, for example, planned a five-year program, stressing water supply and antimalarial control, to cost \$12,000,000.

**Communication.**—Wartime disruption of normal steamship service to various British West Indian ports continued through 1945 and air service gained relatively in consequence. Plane service was furnished by British West Indian Airways, Pan American World Airways and K.I.M. (Royal Dutch Airways). The British government in 1945 refused to authorize service by two local air lines which wanted to begin operations, thus emphasizing a policy of favouring a monopoly (for British air service) by British West Indian Airways. Interisland communications, chiefly by motorboat, continued to be inadequate in 1945. The most extensive highway sys-

tems were in Jamaica, Trinidad and Barbados, which had respectively 2,525, 1,067 and 545 mi. Trinidad had a 1945 road budget of \$2,000,000. The longest railway mileage was found in Jamaica and Trinidad, 299 and 123 mi., respectively. Antigua and St. Kitts had narrow-gauge sugar-company railways. The largest numbers of post offices were in Jamaica (308) and Trinidad (132).

**Trade.**—The year 1945 was characterized by some relaxation of wartime shipping restrictions and amelioration of the disruptions of the previous few years. One of the most cheering signs was the resumption on Dec. 15, 1945, of Jamaican banana shipments to Great Britain. Statistics for foreign trade for 1943 were not completely tabulated in 1945; imports and exports for Barbados for 1943 were £2,888,349 and £2,338,539, respectively; for the Leeward Islands in 1943 they were £1,009,649 and £1,005,978, respectively; for Trinidad in the same year they were \$59,788,779 and \$42,030,774, respectively. Great Britain's position as chief prewar purchaser was inevitably lost during World War II because of lack of shipping, especially for bulk products. Only toward the end of 1945 was Great Britain beginning to gain relatively in purchases. Jamaican imports and exports for the first half of 1945 were respectively £4,233,971 and £2,417,593. Imports and exports of Barbados for the same period were respectively £1,186,589 and £1,344,173. Banana shipments from Jamaica, the chief West Indian producer, in the first ten months of 1945 totalled 1,227,229 stems compared with 971,759 in the same period in 1944.

**Agriculture.**—Agricultural production was by far the most important type in all of the islands with the partial exception of Trinidad. Sugar production assumed added importance during World War II. Great Britain in 1945 offered Trinidad a subsidy of \$20 an acre (although the amount was double that in 1944). The British food ministry was committed to buy the entire Jamaican exportable surpluses of sugar for 1945 and 1946. Sugar production in Jamaica in 1945 was 152,226 long tons compared with 151,882 tons in 1944. Sugar production in Trinidad had declined, chiefly because of a labour shortage. Sugar production in Barbados for 1944 was 104,501 long tons; it was estimated that the 1945 production would reach 130,000 tons. The Barbadian legislature in 1945 appropriated £172,000 for agricultural development, much of it earmarked for the sugar industry. The annual Jamaican production of rum, one of the most important sugar derivatives, was about 2,000,000 imperial liquid gallons, about 30% of which was consumed locally. The important Jamaican banana industry was still affected in 1945 by the disastrous hurricane of Aug. 1944, which destroyed a considerable fraction of the trees. The citrus fruit crop in Jamaica was expected to register about a 15% increase more than the 800,000 boxes produced in 1944. Coconut and vegetable production declined either relatively or absolutely in most of the islands in 1945. Rubber production in Trinidad continued to increase under the encouragement of the United States Rubber Development corporation, which contracted for the entire output; production for 1945 was estimated at 600,000 lb. compared with 450,000 lb. in 1944 and 300,000 lb. in 1943. The greater part of the copra production was in the southern islands; annual averages included: Trinidad, 14,000 long tons; St. Lucia, 1,800 tons; St. Vincent, 1,600 tons; Dominica, 540 tons; Grenada, 300 tons. Jamaica in 1945 began a program of experimentation and research on soybeans. A livestock census in Jamaica June 30, 1945, showed 172,922 cattle in that island.

**Minerals.**—The only important British West Indian mineral resources are the petroleum and asphalt deposits in Trinidad. Wartime security regulations precluded release of production figures but the oil industry continued on a high level in 1945. Relatively little asphalt was produced or shipped, however, and the world-famous asphalt lake was of much less economic importance than it was earlier.

**BIBLIOGRAPHY.**—*West Indies Year Book* (1944); *South American Handbook* (1945); *Canada-West Indies Magazine* (Montreal, monthly); *Foreign Commerce Weekly* (Washington); *Crown Colonist* (London, monthly). (R. H. FN.)

**West Virginia.** A state in the Appalachian mountain region in the eastern part of the United States. West Virginia was formed from Virginia during the Civil War and admitted to the union June 20, 1863. Area, 24,282 sq.mi. (including 150 sq.mi. of water); population (1940) 1,901,974, of which 1,742,320 were white (41,782 foreign born). Its total urban population was 534,292. On July 1, 1944, the bureau of census estimated the civilian population of the state at 1,715,984. Its capital is Charleston (pop. 67,914). Its other chief cities are Huntington (78,836) and Wheeling (61,099).

**History.**—In 1945, the chief state officers were: governor, Clarence W. Meadows; secretary of state, William S. O'Brien; treasurer, R. E. Talbott; auditor, Edgar B. Sims; attorney-general, Ira J. Parthlow; state superintendent of schools, W. W. Trent. All except Meadows and Parthlow had been re-elected in 1944.

**Education.**—The pupil enrolment (net) in the 4,308 state elementary schools for 1944-45 was 279,205. In the 385 state high schools it was (net) 126,366. The number of teachers was 10,059 in the elementary schools and 4,994 in the high schools. The total state appropriation for elementary and secondary education in 1944-45 was \$18,963,158. The state supports seven teacher-training colleges which in 1944-45 had a total student enrolment of 3,437 and a total instructional membership of 290. It also supports West Virginia university, Morgantown, W.Va.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—For the year ending July 1, 1945, the total expenditure for old-age assistance was \$4,004,968; for the blind, \$216,769; for dependent children, \$2,698,840. Including the cost of administration, the total cost of public assistance was \$7,388,521. The total general relief fund was \$1,158,463. The state supported eight correctional institutions with 532 inmates at a cost of \$122,500.

**Communications.**—In 1944-45, the state had about 3,229 mi. of steam railway (about 6,135 mi. including second main track and all sidings), 120 mi. of electric railway and an extensive system of improved highways (approximately 17,090 mi., of which more than 15,479 mi. were hard-surfaced). The total mileage of air lines in the state was 239. The total number of telephones was 211,091 (Bell 183,790 and connecting lines 27,300) excluding 2,960 of local unconnected lines.

**Banking and Finance.**—On June 30, 1945, the total deposits of the 102 state banks and trust companies were \$357,010,963. The total deposits of the 76 national banks in the state were \$445,278,203.

**Resources of 22 federal savings and loan associations** were \$24,125,531. **Resources of 36 state building and loan associations** were \$9,487,767. **Resources of 18 industrial savings and loan associations**, \$8,608,037.

**State receipts for 1944-45** were \$146,159,366; **disbursements**, \$142,139,691; **balance, June 30, 1945**, \$30,065,958. On July 1, 1945, the total state funded indebtedness was \$64,754,000. Total state debt, gross, \$64,754,000 (net \$59,578,622).

**Agriculture.**—Total cash income from farm crops and livestock in 1944 was \$84,621,000; income from government payments was \$4,417,000. The number of farms by the census of 1945 was 101,234 (acreage 8,949,701), valued at \$269,827,285.

#### Principal Agricultural Products of West Virginia, 1944

	Yield, 1944	Value, 1944
Corn, bu. . . . .	10,426,000	\$16,994,000
Wheat, bu. . . . .	1,680,000	2,587,000
Oats, bu. . . . .	1,430,000	1,344,000
Buckwheat, bu. . . . .	185,000	240,000
Hay (Tame), tons. . . . .	805,000	20,019,000
Apples, bu. . . . .	4,356,000	6,830,000
Potatoes (Irish), bu. . . . .	2,040,000	4,080,000
Barley, bu. . . . .	225,000	288,000

**Manufacturing.**—In 1940 the state had 3,188 reporting industrial establishments, which employed 230,726 persons and paid \$396,884,878.99 in wages. These plants had a total production of about \$898,722,285.80. The chief industries were steel, glass, chemicals, petroleum refining, stone, potteries and porcelain, cement, lumbering, woodworking and flour. In 1941-42 the monthly average of persons employed was 456,721 and the total amount of pay roll was \$727,592,000. Later figures were not available in 1945.

**Mineral Production.**—In 1944 oil production was 3,070,000 bbl.; natural gas production was 200,000,000 cu.ft.; coal production was 163,845,000 short tons. Total coke production (both beehive and by-product) was estimated at 3,016,548 short tons in 1944. Total value of mineral production (est.) was more than \$600,000,000.

**BIBLIOGRAPHY.**—*West Virginia Bluebook* and various official departmental reports. (J. M. Ca.)

**Whaling:** see FISHERIES.

**Wheat.** Another record wheat crop was harvested in the United States during 1945, exceeding the record crop of 1944 by 7% or 71,000,000 bu. The acreage was increased almost 10% which more than offset the lower yields. The goal for 1945 was set at 67,700,000 ac. and 64,961,000 ac. was harvested. Weather was generally very favourable for harvesting and an unusually high percentage of the crop was saved in good condition.

The total wheat crop of all types in 1945 was 1,149,825,000 bu. compared with 1,078,647,000 bu. in 1944 and an average of 789,080,000 bu. 1934-43. The total acreage 64,961,000 ac. compared with 59,309,000 ac. harvested in 1944 and an average of 53,829,000 ac. 1934-43. The average yield of all wheat was 17.7 bu. per acre in 1945, 18.2 bu. in 1944 and 14.7 bu. during the ten-year period 1934-43.

The winter wheat crop was 836,969,000 bu. in 1945, 767,073,000 bu. in 1944 compared with an average of 585,994,000 bu. in 1934-43. Winter wheat yields were 18 bu. per ac. compared with 18.8 bu. in 1944 and 15.3 bu. average 1934-43. The acreage of winter wheat produced all of the increase in the total crop for the year, since it amounted to more than 6,000,000 ac. Total winter wheat acreage was 46,434,000 ac. in 1945 compared with 40,714,000 ac. in 1944, an increase of 14%.

The spring wheat crop in 1945 was estimated at 312,856,000 bu., slightly less than the 314,574,000 bu. harvested in 1944 but twice the prewar average of 203,085,000 bu. 1934-43. Spring wheat yields in 1945 were 16.9 bu. per ac., exactly the same as

Table I.—U.S. Production of Wheat by States, 1945 and 1944

State	1945 bu.	1944 bu.	State	1945 bu.	1944 bu.
Kansas . . . . .	207,961,000	191,669,000	Maryland . . . . .	6,864,000	8,906,000
North Dakota . . . . .	161,888,000	161,630,000	Utah . . . . .	6,858,000	7,361,000
Nebraska . . . . .	85,212,000	35,944,000	North Carolina . . . . .	6,216,000	8,560,000
Oklahoma . . . . .	70,917,000	85,914,000	Tennessee . . . . .	5,325,000	6,714,000
Washington . . . . .	63,213,000	63,262,000	Kentucky . . . . .	5,278,000	7,902,000
Ohio . . . . .	60,993,000	46,805,000	Wyoming . . . . .	4,215,000	2,496,000
Montana . . . . .	57,726,000	74,764,000	South Carolina . . . . .	2,912,000	3,588,000
South Dakota . . . . .	52,572,000	38,847,000	Iowa . . . . .	2,745,000	1,852,000
Texas . . . . .	41,778,000	71,558,000	Georgia . . . . .	2,613,000	2,964,000
Indiana . . . . .	35,896,000	26,488,000	New Mexico . . . . .	2,328,000	3,186,000
Colorado . . . . .	34,627,000	18,759,000	West Virginia . . . . .	1,763,000	1,680,000
Idaho . . . . .	30,696,000	30,309,000	Wisconsin . . . . .	1,500,000	1,423,000
Michigan . . . . .	27,688,000	23,670,000	New Jersey . . . . .	1,323,000	1,380,000
Illinois . . . . .	25,656,000	24,340,000	Delaware . . . . .	1,306,000	1,280,000
Missouri . . . . .	22,518,000	21,998,000	Arizona . . . . .	504,000	528,000
Minnesota . . . . .	21,508,000	20,689,000	Arkansas . . . . .	441,000	588,000
Oregon . . . . .	20,889,000	23,105,000	Nevada . . . . .	388,000	440,000
Pennsylvania . . . . .	20,194,000	20,298,000	Mississippi . . . . .	378,000	432,000
California . . . . .	10,416,000	10,393,000	Alabama . . . . .	240,000	218,000
New York . . . . .	9,365,000	8,932,000	Maine . . . . .	36,000	40,000
Virginia . . . . .	8,192,000	11,275,000			

in 1944 but well above the average of 13.2 bu. per ac. in 1934-43.

The durum wheat crop was 35,020,000 bu. in 1945, above the 31,933,000 bu. produced in 1944, and the average of 29,330,000 bu. 1934-43. The acreage of durum wheat was 10% less in 1945 than in 1944 but the yield was high, 17.4 bu. per ac. compared with 15.1 bu. in 1944 and an average of 12.1 bu. per ac. Other spring wheat was grown on about the same acreage in 1945 as in 1944 with yields of 17.2 bu. per ac. compared with an average of 13.3 bu. The higher yields of durum than other spring wheats in the Dakotas by 1½ bu. per ac. was an unusual development. In Minnesota, the other important durum-producing state, the yield of durum was 2½ bu. less than other spring wheat.

Production of wheat by classes in 1945 was: hard red winter 524,000,000 bu.; soft red winter 243,065,000 bu.; hard red spring 243,397,000 bu.; durum 35,020,000 bu.; and white wheat 106,579,000 bu. The supply of wheat for the 1945-46 year was exceeded only by supplies in 1942 and 1943. The carry-over of old wheat on July 1, 1945, was 281,000,000 bu. compared with 319,000,000 bu. in 1944; 622,000,000 bu. in 1943 and 632,000,000 bu. in 1942.

Farm stocks on Oct. 1, 1945, were 539,217,000 bu. compared with 532,270,000 bu. a year earlier. This total for 1945 was larger than any year other than 1942 but was low as percentage of production. The movement of wheat from farms was the highest on record for the first quarter of the marketing year, August-September, indicating a favourable transportation and storage situation.

The distribution of the 1944 wheat supply of 1,438,000,000 bu. (carry-over plus production and imports) was 1,017,000,000 bu. for domestic use, 140,000,000 bu. exports, and 281,000,000 bu. carry-over on July 1, 1945. For the 1945 crop the total supply was expected to be 1,427,000,000 bu. Very small imports were anticipated and exports were expected to increase, while domestic use would be about 800,000,000 bu. Large quantities of wheat were used for animal feed and in industrial alcohol which reduced the large carry-over of 1942 and 1943, and even with the large crops of 1944 and 1945 left no burdensome surplus. With the recovery of wheat production in other countries, however, export surpluses were expected to reappear as soon as the relief demand ended.

The price of wheat continued to advance through 1945 to the end of World War II. A general advance had taken place after 1938. The government price-supporting loans were increased each year after 1941 and prices ranged above the loan rates most of the time. The price of No. 2 hard winter wheat at Kansas City advanced from \$1.63 per bu. in Jan. 1945 to \$1.68 per bu. in June, while the loan rate stood at \$1.50. Strong industrial and export demand were the principal market-supporting factors. The domestic price after harvest in September was about



28 cents per bushel above the export price of U.S. wheat, supported by a subsidy paid by the government. In order to permit the price of wheat to reach parity and at the same time not to raise the price of bread, millers were given a differential payment. About \$86,000,000 was paid out during 1944. The average price of wheat received by growers was \$1.41 per bu. for the year 1944 and had advanced to \$1.53 per bu. by the end of the year 1945. Heavy buying for export for postwar relief was the supporting factor. While farm stocks were high the amount placed under loan was relatively small.

**World Wheat Production.**—The total world wheat production, excluding U.S.S.R., China and Manchuria, in 1945 was estimated by the U.S. department of agriculture at about 3,780,000,000 bu. compared with 4,040,000,000 bu. in 1944 and an average of 4,010,000,000 bu. 1935-39. Decreased production in Europe, Canada and North Africa about offset the increases in the United States, India and southern hemisphere countries.

The Canadian wheat crop of 321,000,000 bu. in 1945 was much below the 436,000,000 bu. crop of 1944 but was above the average of 312,000,000 bu. 1935-39. The acreage in 1945 was about the same as in 1944 but the yields were much lower than a year earlier. The Mexican crop was about 14,000,000 bu., 1,000,000 bu. less than a year earlier. In Europe, excluding Russia, wheat production was below the small crop of 1944 and much below the average. Reduced acreage in northern and western Europe, lack of fertilizers and difficulties at harvest time reduced the wheat output to the smallest in many years.

Table II.—World Wheat Production, Estimates, Average 1935-39, 1941-45  
(In million bushels)

	Average 1935-39	1941	1942	1943	1944	1945
United States . . . . .	759	943	974	841	1,079	1,150
Canada . . . . .	312	315	557	284	436	321
Mexico . . . . .	14	16	18	13	15	14
Europe . . . . .	1,562	1,323	1,193	1,354	1,327	999
Britain . . . . .	70	92	115	146	138	101
North Africa . . . . .	119	134	110	108	86	68
Asia . . . . .	529	522	498	583	500	501
Argentina . . . . .	222	238	235	250	150	200
Australia . . . . .	170	167	156	110	53	135
Union South Africa . . . . .	16	14	20	18	14	15
Total (45 countries) . . . . .	3,773	3,764	3,876	3,707	3,798	3,504
World total, excluding U.S.S.R., China and Manchuria . . . . .	4,010	3,950	4,106	3,930	4,040	3,780

In Italy, Spain and North Africa a severe general drought reduced the crop to the smallest in years. In the Danube basin the crop was barely sufficient for local consumption and the usual surplus from this area was lacking. In Denmark and Sweden the crop was about normal. Altogether the wheat crop of Europe was estimated at 999,000,000 bu. compared with 1,327,000,000 bu. in 1944 and a prewar average of 1,562,000,000 bu. in 1935-39.

The Indian crop was estimated at 392,000,000 bu. or 8% above 1944. The prospects in Argentina indicated an average crop of about 225,000,000 bu. Conditions in Australia were better than in 1944 and the crop was estimated at 135,000,000 bu. compared with the small crop of 53,000,000 bu. in 1944 and the prewar average of 170,000,000 bu. 1935-39.

World trade in wheat began to expand toward prewar proportions with the larger crops of 1944 and 1945. United States wheat exports in the 1944-45 year ending July 1 amounted to 97,000,000 bu., the largest in four years. In the calendar year 1945 exports reached 300,000,000 bu. Canada had about 325,000,000 bu. available for export. In the first half of 1945 Argentina exported about 60,000,000 bu. of wheat and had a considerable amount of the old crop still available for export. Australia also had a small surplus of about 25,000,000 bu.

The import requirements of the United Kingdom were estimated at 175,000,000 bu. of wheat and Europe as a whole needed at least 500,000,000 bu. to maintain a minimum consumption. With a total exportable supply of about 700,000,000

bu. world wheat trade was the largest in 15 years. Delays in transportation due to the end of World War II and the use of ships to return the armies retarded the movement of grain toward the end of the year.

The Combined Food board continued to manage the distribution of grain through 1945 and the World Wheat agreement did not come into full operation. The pool of 100,000,000 bu. of relief wheat was moved into foreign countries under the direction of the International Wheat council. (See also FLOUR AND FLOUR MILLING.)

FILMS.—*Wheat Farmer* (Encyclopædia Britannica Films Inc.).  
(J. C. Ms.)

**Wholesale Trade:** see BUSINESS REVIEW.

**Wickard, Claude Raymond** (1893- ), U.S. secretary of agriculture, was born near Delphi, Ind., on Feb. 28. After his graduation from Purdue university in 1915 he took over management of a farm near his birthplace. In 1933 he was appointed to the staff of the Agricultural Adjustment administration as assistant chief of the corn-hog division. On Feb. 1, 1940, he was appointed undersecretary of agriculture, and on Aug. 19, after the resignation of Henry A. Wallace, President Roosevelt nominated him secretary of agriculture. On Dec. 6, 1942, President Roosevelt made Wickard war food administrator. On March 25, 1943, however, the president named Chester C. Davis to the position, stipulating that he report to Wickard. The arrangement was not satisfactory, and Davis resigned three months later. In Oct. 1943, Wickard was named "neutral chairman" of the United Nations' war food board. On May 23, 1945, President Truman replaced Wickard with Clinton P. Anderson as secretary of agriculture. Later, July 2, Wickard was sworn into office as head of the Rural Electrification administration.

**Wildlife Conservation.** Activities in Wildlife Conservation in the United States reached the low point in World War II in the early part of 1945 but by the end of the year were increasing. For the first time the annual North American Wildlife conference (scheduled for New York Feb. 26-28) failed to meet because of a government ban on all conventions. Yet before the year's end committees were at work in preparation for the 1946 convention. The American Wildlife institute, sponsor of these conferences, did, however, publish as *Transactions of the Tenth North American Wildlife Conference* the major portions of the papers that had been planned for the conference.

The "most serious effect of the war on the conservation of United States animal resources," according to the Fish and Wildlife service annual report, "has been the loss of trained personnel to federal and state agencies."

During the fiscal year ended June 30, 1945, six areas totalling in size more than 1,000,000 ac. (in Wash., Mo., Calif., Fla., N.D. and Ky.) were established as national wildlife refuges, bringing the total to 285, with between 18,500,000 and 19,000,000 ac. in all.

The service during the year took custody of about 1,000,000 ac. of land and water in the Florida Everglades, administering the area as a refuge as "a step toward the possible creation of a national park."

The program under the Federal Aid to Wildlife Restoration act of 1937, as in the preceding war years, was carried on by the states under federal guidance on a reduced scale because of shortages in personnel, equipment and materials. The total federal grant for the year ended June 30, 1945, was only \$900,000. In accordance with the law, the revenue from the federal tax on firearms, shells and cartridges was set aside as the

Federal Aid to Wildlife Restoration fund for this program, and there thus had developed a considerable accumulation for post-war programs. By June 30, 1945, this accumulation was almost \$11,000,000, and it was expected that with an anticipated 30% increase in hunting licence sales the accumulation would continue. The International Association of Game, Fish and Conservation commissioners recommended at a meeting in June that the accumulated funds be appropriated over a period of five years.

Available statistics confirmed other indications that hunting had not greatly declined during the war but had perhaps increased following an early war-years' recession. The sale of federal migratory bird hunting stamps (required of all waterfowl shooters over 16) showed by Sept. 30, 1945, a considerable increase over a record 1944 sale, though the 1943-44 sales had declined. During the 1943-44 season, the latest year for which comparable data on hunting and fishing were available, hunters in the states and territories spent \$13,547,152 for 7,505,258 hunting licences—a decrease of \$51,271 and 585,929 licences as compared with the preceding year—and fresh-water anglers paid \$9,857,299 for 7,846,168 fishing licences—a decrease of \$167,100 and 182,506 licences. These tabulated totals included some duplications, notably the inclusion of 1,555,356 sales of combined hunting and fishing licences. During this 1943-44 season the federal migratory bird-hunting stamp sales totalled 1,164,191—a decrease from the preceding year of 215,901. This so-called "duck stamp," selling for \$1, was required of all waterfowl hunters over 16, in addition to the state licence.

In the number of hunting licences issued for 1943-44, Michigan led all other states with a total of 732,479, followed by New York with 589,864, Pennsylvania with 582,242, Ohio with 490,533, Indiana with 341,818, Minnesota with 332,476, Wisconsin with 291,832, California with 282,693, Washington with 278,544 and Illinois with 268,375. Michigan also led in the sale of fishing licences (701,310) with other leading states as follows: Ohio 587,429; Indiana 461,369; Illinois 452,301; California 446,568; Minnesota 419,341; New York 403,814; Wisconsin 352,223; Missouri 336,868 and Pennsylvania 331,336.

Migratory game birds—the only wildlife resource for which reliable estimates of the 1945 conditions were available—were not in as good condition as in 1944. In Sept. 1945, at the opening of the duck-hunting seasons (80 days as in the preceding year but without the former additional daily bag of five mallards, pintails or widgeons) the Fish and Wildlife service described a prospect of "fewer birds on the southward flight than last year." In January of 1945 the annual waterfowl inventory conducted by the service indicated a drop of 20,000,000 birds from the preceding year. Reports from 327 strategically stationed observers during the northward spring migrations in almost every case confirmed the population figures obtained during this winter inventory, and results of the breeding season were also indicative of decreases. There were floods and high waters noted during the summer breeding time in New Brunswick and Nova Scotia, affecting the black ducks especially, and drought in the prairie provinces of Canada, affecting the mallards and pintails especially—species that account for the largest takes by hunters.

Highly valuable information regarding big game animals became available during the year, although the most recent year to which the data related was 1943. *Big-Game Resources of the United States, 1937-1942* by Hartley H. T. Jackson of the biological survey's unit in the Fish and Wildlife service, issued as Research Report 8, not only summarized the results of big game inventories during these years but also discussed the big game conditions of the country. Early in 1946 the later tabulation of the 1943 reports was made available. This latest inventory of 15 groups and races of big game animals led to an estimate of 7,148,422 for the entire United States.

Intensive investigations of DDT (dichloro-diphenyl-trichloroethane), sensational new insecticide, led during the year to a Fish and Wildlife service warning that the chemical is "capable of considerable damage" to wildlife and beneficial insects. There is evidence, said the service, that a single concentrated application is destructive to birds and even dilute applications are dangerous to fishes. In experimental sprayings on tracts near Scranton, Pa., and at the Patuxent research refuge near Bowie, Md., applications were made by aeroplane late in May and early in June at the rates of one, two and five pounds per acre on different units, each area receiving a single dosage. In these tests no immediate detrimental effects on bird life were noted with the lighter treatments of one and two pounds per acre, but definite effects on birds were found at the five-pound rate. Within two days after the heavy dosage treatment, dead and dying birds were found. For a month thereafter a very low population indicated that most of the adult birds had either been killed or had left the area. Furthermore, even at the two-pound rate considerable mortality occurred among fishes.

The results of repeated sprayings were still being investigated, and pending further fact finding the Fish and Wildlife service was following the bureau of entomology and plant quarantine in recommending that in forest areas DDT spray be applied in concentrations of one pound per acre or less.

A remarkable new rodenticide was also developed—sodium fluoroacetate, known as "1,080" because it was the 1,080th chemical tested in a two-year search for an effective rat killer to replace red squill and strychnine during war shortages. Strict governmental control of its distribution was recommended by the Fish and Wildlife service because of its destructive possibilities.

**BIBLIOGRAPHY.**—Among the significant publications of 1945 were *Extinct and Vanishing Mammals of the Old World* by Francis Harper, an 850-page authoritative and systematic work published by the American Committee for International Wildlife Protection as a companion volume to the 1942, 600-page *Extinct and Vanishing Mammals of the Western Hemisphere* by Glover M. Allen; *The Nature of the Beast: A Popular*

*Account of Animal Psychology from the Point of View of a Naturalist* by Ruth Crosby Noble; *Son of the Wilderness: The Life of John Muir* by Linnie Marsh Wolfe; *Behold Our Green Mansions: A Book About Forests* by Richard H. D. Boerker (University of North Carolina press); "Hearings Before the Select Committee on Conservation of Wildlife Resources, House of Representatives, 78th Congress, Second Session, November 17, 27, 28, and 29, 1944" (Government Printing Office), a 500-page document with statements not only from federal agencies but from the states as well; *Modern Bird Study* by Ludlow Griscom (Harvard University Press); *Cooking Wild Game* by Frank G. Ashbrook and Edna N. Sater (Orange Judd Publishing Co.); "Fishery Resources of the United States," a report on a survey by the Fish and Wildlife service (Government Printing Office); and *The Ring-Necked Pheasant and Its Management in North America* by 17 specialists under the editorship of W. L. McAtee (American Wildlife Institute).

Best source of information regarding publications on wildlife management continued to be the Fish and Wildlife service's mimeographed periodical *Wildlife Review* prepared by W. L. McAtee as a listing and critical annotation of books, articles in journals and other publications.

The principal source for other information on wildlife in the United States was the Fish and Wildlife service (both a research and an administrative agency) Merchandise Mart, Chicago, Ill., which had available lists of Federal publications and compilations including a list of national, international and state officials and organizations concerned with wildlife conservation. Among private organizations were the American Nature association, 1214 Sixteenth street, Washington, D.C., publisher of *Nature Magazine*; the American Wildlife institute, Investment bldg., Washington, D.C., sponsor of research projects, special investigations, the annual continental wildlife conferences and monographs; the Izaak Walton league, 31 North State St., Chicago 2, Ill., concerned with conservation in general but particularly active in promoting improved streams and waters; and the National Audubon society, 1006 Fifth Ave., New York, sponsor of nature education programs, publications, an annual Christmas bird census and sanctuaries. Scientific periodicals published included *The Journal of Wildlife Management*, *The Journal of Mammalogy* and *The Auk: A Quarterly Journal of Ornithology*, organs respectively of the Wildlife society, the American Society of Mammalogists and the American Ornithologists' Union. (H. Z.)

**Wilhelmina** (WILHELMINA HELENA PAULINE MARIA OF ORANGE-NASSAU) (1880— ), queen of the Netherlands, daughter of William III, king of the Netherlands, and Queen Emma, was born Aug. 31, 1880. She succeeded to the throne in 1890, under the regency of her mother, and was enthroned in 1898. She married Henry, duke of Mecklenburg-Schwerin (d. 1934), in 1901, and in 1909 Princess Juliana, heiress to the throne, was born. When the Netherlands was invaded on May 10, 1940, the royal family with members of the government sought refuge in London. On May 13, 1940, Queen Wilhelmina proclaimed that the seat of government of the Netherlands had been transferred to London, and the war was carried on from there, in co-operation with the Allies, until the liberation of the Netherlands. On March 13, 1945, Queen Wilhelmina set foot once more on Netherlands soil and paid a ten-days' visit to the liberated area. On April 27 it was announced that she had taken up residence in Holland, near Breda, and on June 21 she moved to Het Loo, the royal palace near Apeldoorn. On July 7 she returned to the royal palace at The Hague. After an inspection of the war-damaged areas of the Betuwe district she broadcast on June 28 to the Dutch people, calling upon them to work together for the reconstruction of their country. On July 19 it was made known that Queen Wilhelmina had for some days been suffering from an acute lung infection. Though there was no cause for anxiety it was thought advisable that she should rest for some time. The queen's birthday was made the occasion for special rejoicings throughout the Netherlands.

(G. J. R.)

**Wilkinson, Ellen C.** (1891— ), British member of parliament, was born in Manchester, England, the daughter of a millworker. She won a scholarship at the University of Manchester where she obtained her M.A. degree and after leaving college she became a trade union organizer. In 1912, Miss Wilkinson started to agitate for women's suffrage, and the following year she organized the National Union of Women's Suffrage. In 1924, she was elected Labour member for the industrial constituency of Middlesbrough, one of the few women ever to be elected to the British parliament. In 1935, Miss Wilkinson was returned to commons as labour

member for Jarrow. When that shipbuilding town sent a band of hunger marchers to London to request more effective relief, Miss Wilkinson headed the marchers on their 300-mi. trek to the capital. In May 1940, when Labour entered Winston Churchill's coalition government, Miss Wilkinson was made parliamentary secretary to the ministry of pensions. A few months later, she left this post to join the ministry of home security, aiding in the provision of food and shelter for bombed Londoners. Early in 1945 she was made a member of the privy council, and in April she attended the San Francisco conference of the United Nations as a member of the British delegation. After Prime Minister Attlee formed the Labour government (July 26), he appointed Miss Wilkinson to the post of minister of education.

## Wilson, Sir Henry Maitland

(1881- ), British army officer, was educated at Eton and commissioned in the rifle brigade in 1900. Before he was 20 he was on active service in south Africa. During World War I he fought in France and Belgium, serving both with his regiment and on the staff and winning the D.S.O. and the French war cross. After the war, he was an instructor at the Royal Military college, Sandhurst, and the Staff college, Camberley. In 1939 he was sent to command Britain's army of the Nile. After this campaign General Wilson was made G.O.C.-in-C. and military governor of Cyrenaica. In April 1941, he led the United Kingdom and empire troops under orders of General Papagos in Greece. After this, in June-July 1941, in a campaign lasting only five weeks, he led the Allied forces which took Damascus and Beirut and thwarted a projected nazi coup d'état in Syria. In Aug. 1942 he was appointed the first commander in chief, Persia-Iraq. In Feb. 1943 he succeeded General Alexander as commander in chief, middle east, and in December was appointed supreme Allied commander in the Mediterranean theatre. On Nov. 26, 1944, he was appointed head of the British joint staff mission in Washington, British member of the Allied chiefs of staff committee and the prime minister's personal representative on military matters with President Roosevelt to succeed Field Marshal Sir John Dill, who had died on Nov. 4. General Wilson was promoted field marshal in Dec. 1944. He was one of the high military advisers who attended the decisive conferences of Allied war leaders held during 1945 at Yalta and Potsdam.

**Windward Islands:** see WEST INDIES, BRITISH.

## Wines.

France, the largest wine producing country of the world, reported vintages in the various districts of outstanding quality but of small quantity. In the Bordeaux region, for instance, the yield was just under 1,500,000 hectolitres (about 35,000,000 gal.) as against 4,600,000 hectolitres (110,000,000 gal.) in 1944, 3,250,000 hectolitres (77,000,000 gal.) in 1943 and more than 6,000,000 hectolitres (143,000,000 gal.) in 1939.

In the Cote d'Or, where Burgundy is produced, only a small half crop was obtained, and in the Champagne area the yield was also small with the result that the total stocks of wine in casks and in bottles on hand in the Champagne district at the end of the year, including both old and new wines, was equivalent to only 168,000,000 bottles as against more than 230,000,000 in 1939.

Taking France as a whole, the production fell in 1945 to about 28,000,000 hectolitres (666,000,000 gal.) as against 68,000,000 hectolitres (1,618,000,000 gal.) in 1939.

Formerly, Algeria could be counted on to supplement the wine crop of France. However, conditions in Algeria were, if

anything, worse than in France. The 1945 yield was about 12,000,000 hectolitres (285,000,000 gal.) against a normal crop of 500,000,000 gal. In the meantime, a huge amount of planting of more than 1,000,000 hectares (2,500,000 ac.) was reported in the Crimea and in the Caucasus in soviet Russia. Italy's vineyards too suffered tremendously so that the Italian crop was less than one-half of the production of normal prewar years.

In Spain, as in other European countries, the vintage was far below normal, the production being only about 60% of the average.

In Argentina, where the consumption of wine is more than 12 gal. per capita as against less than 1 gal. in the U.S., the production in 1945, because of early frost and mildew, brought about by excessive rain, was 20% below normal, approximately 191,000,000 gal. Since the consumption in Argentina was more than 232,000,000 gal., the reserve stocks fell from 353,000,000 gal. to 317,000,000 gal., which was less than the supply required for a year and a half. The quality was normal.

In Chile, where favourable conditions as to climate, sun, vinestocks and viticulture technique make the country one favoured by nature for the development of its wines, the 1945 vintage was just more than 100,000,000 gal. as against 127,000,000 gal. in 1944, a decline of more than 20%, although the 1944 production was the largest in Chile's history.

In California figures would indicate a grape crop of from 1,200,000 to 1,300,000 tons. This heavy increase in California's wine crop over 1944 is somewhat offset by the below-normal crop in other U.S. wine producing states, but since all of the other states put together only produce some 10,000,000 to 15,000,000 gal. annually, the total was expected to show approximately 125,000,000 gal., as against approximately 90,000,000 gal. in 1944. Unofficial figures for consumption in the U.S. in 1945 were 105,000,000 to 110,000,000 gal. (See also LIQUORS, ALCOHOLIC.) (O. J. W.)

## Wisconsin.

One of the north-central states, Wisconsin, popularly called the "Badger state," entered the union as the 30th state in 1848. Area, 56,154 sq.mi. of which 1,439 sq.mi. are water. The federal census of 1940 gave its population as 3,137,587, an increase of 6.8% over 1930. The urban population in 1940 was 1,679,144 and the rural 1,458,443. Only 24,835 were nonwhite. Foreign-born whites numbered 288,774. On July 1, 1944, the bureau of the census estimated the civilian population of the state at 2,975,910. Capital, Madison (pop. 1940, 67,447). Milwaukee is the largest city with a population of 587,472, and other large cities are Racine (67,195), Kenosha (48,765), Green Bay (46,235), La Crosse (42,707) and Sheboygan (40,638).

**History.**—The legislature met on Jan. 10, 1945, recessed on June 20 until Sept. 5, and adjourned on Sept. 6, having passed 590 acts. Though overwhelmingly Republican, it engaged in considerable controversy with the Republican governor. He presented the largest budget in state history and it was adopted in substantially the same form. He advocated a building program for state educational and welfare institutions calling for \$23,193,050 to be financed from the balance on hand and the high yield of existing taxes. But the advocates of highway construction passed a bill over the governor's veto segregating motor vehicle tax yields in a separate fund to be used for highway purposes only. The legislature then trimmed the building program to \$16,473,500 which included \$8,000,000 for the university, \$4,600,000 for the department of public welfare and \$3,150,000 for the teachers colleges.

The legislature approved a rather strict antigambling bill, strengthened laws against lobbying, but failed to pass over the



governor's veto a bill to prevent candidates changing parties readily.

The state elections in April witnessed an exciting race for justice of the supreme court between Elmer Barlow, the incumbent, and F. R. Zimmerman, secretary of state, who was not an attorney. Barlow won by more than 70,000 votes. John Callahan, 79, superintendent of public instruction from 1921, defeated Arthur Jorgensen by about 60,000.

The state officers in 1945 were all Republican: W. S. Goodland, governor; Oscar Rennebohm, lieutenant governor; F. R. Zimmerman, secretary of state; J. M. Smith, treasurer; J. E. Martin, attorney general, and John Callahan, superintendent of public instruction. The chief justice of the supreme court was M. B. Rosenberry.

**Education.**—There were 6,477 elementary schools, 460 secondary schools, 25 county normal schools and nine teachers colleges in 1943-44. The enrolment was 348,774 in elementary schools and 142,022 in secondary schools. There were 14,245 elementary school teachers and 6,162 secondary school teachers. The teachers colleges had faculties of 405 teaching 3,481 college and 2,125 training school students.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—The number of cases receiving public assistance as of June 1945 was as follows: general relief 5,235; old-age assistance 44,923; aid to dependent children 5,475; aid to blind 1,400—a total of 49,126 households. Expenditures for public assistance in the year ending June 30, 1945, were as follows: general relief \$2,598,812; old-age assistance \$16,537,915; aid to dependent children, \$4,196,102; aid to the blind \$539,661—a total of \$23,872,490. Unemployment benefit payments in 1944 were \$1,249,693 as against \$880,512 in 1943. The contributions for 1944 were \$42,081,693; for 1943, \$32,600,000.

Wisconsin's 20 charitable, penal and allied institutions were operated in the year ending June 30, 1945, at a cost of \$5,210,498. The average daily population for June 1945 was 8,113.

**Communications.**—The number of miles of highways as of Jan. 1, 1945, was 84,315 (towns), 2,372 (villages) and 5,952 (cities). The total was 92,639 mi. The expenditures on highways during July 1944-June 1945 was \$31,347,023. The total railway mileage on Jan. 1, 1945, was 6,479. The number of airports was 58. There were 664,037 telephones.

**Banking and Finance.**—At the end of 1944 there were 463 state and 96 national banks. The number of credit unions was 550. The deposits in state banks totalled \$1,106,779,055; the assets were \$1,182,076,145. National banks had deposits of \$1,262,942,000 and assets of \$1,334,614,000. The credit unions listed assets of \$16,869,030. There were 115 building and loan associations with assets of \$120,266,280.

The state receipts during the fiscal year ending June 30, 1945, were \$144,178,418. The disbursements were \$165,254,172, of which \$36,033,454 were taxes collected by the state and returned to local subdivisions, \$887,503 were agency collections returned to counties and \$49,803,640 were state aids. There was no state debt.

**Agriculture.**—The total acreage harvested in 1944 was 10,367,200. The gross farm income excluding government payments was estimated at \$774,153,000, consisting of \$101,108,000 from crops and \$673,045,000 from livestock and its products, including \$382,890,000 from milk. The total was an increase of 1.4% over 1943, which was the highest previous year, and 47% above the World War I peak. Physical production fell slightly, but a 2% rise in prices which were 201% of the 1910-14 average increased the gross income figure. The land used in producing cash crops was small compared with the land used for feed crops, a result of the state's great dairy industry.

Table I.—Leading Agricultural Products of Wisconsin, 1945 and 1944

Crop	1945 (est.)	1944	Value, 1945 (est.)
Corn (bu.)	109,839,000	116,536,000	\$124,118,000
Oats (bu.)	152,337,000	118,938,000	102,066,000
Canning peas (lb.)	336,420,000	243,200,000	13,474,000
All tame hay (ton)	7,564,000	6,549,000	93,037,000
All clover and timothy (ton)	5,101,000	4,473,000	...
Alfalfa (ton)	2,101,000	1,730,000	...

**Manufacturing.**—The total value of Wisconsin manufactured products in 1939 was \$1,604,507,356. The wages paid were \$251,946,993. The number of wage earners was 200,897. (average for the year). Wisconsin, with an extremely diversified industry, ranked first in the manufacture of cheese, milk products, malt and canned peas in 1939.

Between June 1940 and Sept. 1944, Wisconsin manufacturers received \$4,559,261,000 in major war supply and facility contracts. In 1944 the estimated average number of wage earners in Wisconsin manufacturing establishments was 364,700 and the estimated weekly pay rolls, \$17,233,000.

Table II.—Value of Mineral Products of Wisconsin, 1944 and 1943

Mineral	1944	1943
Stone	\$7,741,499	\$6,677,382
Iron ore	4,190,380	3,822,025
Zinc	3,545,172	3,107,592
Sand and gravel	4,128,434	2,595,531

**Mineral Production.**—The value of all mineral production in Wisconsin for 1943 was \$18,930,000 as compared with \$17,998,036 in 1942. (E. P. A.)

**Wisconsin, University of.** An institution of higher education at Madison, Wis. A total of 753 students received degrees at Wisconsin's fourth wartime commencement in May 1945, the 92nd in the university's 96-year history.

At the close of World War II in 1945, 12,500 students and alumni were serving in the U.S. armed forces, 429 had given their lives for their country, and the university had given special training to 20,000 men and women for the armed services. The university won the navy award, the army air forces award, and its medical school the navy award, for wartime work.

The close of the war also found the university rapidly on the road to reconversion for its faculty and students to peacetime pursuits in education, science research and public service. The 1945 fall-winter semester saw the civilian enrolment climb to 9,209, with a freshman class of 3,318, an all-time record high, and a faculty of 1,489 professors and teaching-research assistants.

Of the total fall-winter enrolment, 1,200 were war veterans returning to their educational pursuits, and faced with housing shortages, the university installed 91 trailer homes on the campus in the first emergency trailer city for veterans and their families in the U.S. As the year 1945 ended, another 100 trailer homes for veterans were being installed. The university was one of the first three rehabilitation centres established for veterans in the U.S.

The university's 12th president, Dr. Edwin Broun Fred, internationally known scholar and scientist, assumed office in Feb. 1945, and began the task of enlarging and improving the university's 2,500-ac. campus under an \$8,000,000 construction fund appropriated by Wisconsin's 1945 legislature. (For statistics of enrolment, faculty, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (R. Fs.)

**Withholding Tax:** see TAXATION.

**WLB:** see WAR LABOR BOARD, NATIONAL.

**Woman's Christian Temperance Union, National:** see SOCIETIES AND ASSOCIATIONS.

**Women's Army Corps.** The Women's Army corps (WAC) became part of the army of the United States when public law 110 was signed by the president on July 1, 1943. Originally it was created an auxiliary organization by an act of congress, which became law over the president's signature on May 15, 1942.

The purpose of the corps is to make available to the national defense when needed, the knowledge, skill and special training of the women of the United States.

Col. Oveta Culp Hobby, former Texas newspaperwoman, became first director of the corps and was succeeded on July 12, 1945, by Col. Westray Battle Boyce of Rocky Mount, N.C.

At its top strength, the WAC numbered 100,000, of which about 18,000 served overseas in 21 different countries. The WACs within the United States served at more than 400 installations; members were engaged in 239 noncombatant army jobs.

Enlistments in the WAC were closed on Aug. 29, 1945. The third WAC training centre at Fort Oglethorpe, Ga., was moved to Fort Des Moines first WAC training centre, Des Moines, Ia., in July 1945. Des Moines, in its turn, was named sixth WAC separation centre on Sept. 26, 1945, signalling the end of training.

Demobilization of the WAC was being carried out on a proportionate basis with that of the men of the army. As of Nov. 1, 1945, the discharge point score for enlisted women had been



OVERSEAS WACs parade down the Champs Élysées in Paris on the occasion of the third anniversary of the Women's Army corps, May 1945

reduced to 34; for officers, 37. The over-all plan was to reduce the corps to 30,000 or fewer by July 1, 1946. It also was expected that all members in overseas theatres would have been returned to the United States by April 1, 1946.

Under public law 110 WACs are entitled to the same rights and privileges as male soldiers, such as free postage, government insurance, allowance for dependents and provisions of the G.I. Bill of Rights and Veterans' administration assistance. They are entitled to wear medals, decorations and ribbons they have earned. Overseas veterans wear the same ribbons as the men, with battle stars for various campaigns. Members of the original auxiliary wear the WAAC service ribbon. Those who never served beyond the continental limits of the United States are entitled to wear the American theatre ribbon after one year of honourable service.

As of Sept. 1, 1945: Fourteen women had been awarded the Legion of Merit; 143, Bronze Star; 14, Purple Heart; 5, Soldier's Medal; 1, Air Medal; 1, Navy's Letter of Commendation; 2, French Legion of Honour; 1, French Croix de Guerre. Twenty-one units had been awarded the Meritorious Service Unit Plaque.

WACs were present at many of the historic moments of the war. Twenty-seven operated the switchboard at the Berlin conference; 432 worked on the atomic bomb project; others were present at meetings of the Big Three, at the surrender of Germany, at one of the Japanese surrender ceremonies.

The insignie of the corps is the head of Pallas Athena, goddess of wisdom and victory; members, however, wear the insignie of the branch of service to which they were permanently assigned after completion of basic training. (W. B. BE.)

**Women's Clubs, General Federation of:** see SOCIETIES AND ASSOCIATIONS.

## Women's Reserve of the Navy.

830

The women's reserve reached its

peak strength in 1945 with 86,000 women in the naval service at the time of its third anniversary, July 30, 1945. At that time approximately 8,000 officers and 70,000 enlisted women were on duty at 900 shore activities throughout the continental United States and in the territory of Hawaii. An additional 8,000 women were in training schools or awaiting call to duty. WAVES had released 50,500 men for duty afloat or overseas and had taken over 27,000 other jobs in the shore establishments.

WAVES were on duty in nearly every type of shore activity and they composed 18% of the total naval personnel assigned to the shore establishments in the continental United States. Almost 20,000 WAVES were serving in Washington, D.C., in the navy department and the Potomac river naval command.

WAVES had during 1945 been assigned in large numbers to duty overseas in Hawaii. By August there were approximately 4,000 WAVES on duty at air stations, hospitals, the navy yard and other activities in Hawaii. Legislation establishing the women's reserve permitted volunteers to serve outside the continental United States in the American area and in the territories of Hawaii and Alaska. Although WAVES had been on temporary duty to such places as the Aleutians and Bermuda, no women had been assigned to permanent duty overseas other than to Hawaii.

With the defeat of Japan, procurement for the women's reserve was discontinued and WAVES in training schools completed their training and were assigned to duty. No new classes were assigned to training schools and, with the graduation of a class of hospital corps WAVES in early Jan. 1946, the training program for WAVES which at its peak was carried on in more than 40 activities was to be closed.

WAVES were demobilized in accordance with the point system which determined their priority of release from the service. Critical scores lower than those for navy men were assigned to WAVE personnel because only a small number received benefit of dependency credit and the women's reserve had not been in existence long enough for WAVES to have been on active duty a length of time proportionate to male personnel. These lower scores were designed to permit the release of WAVES at the

same relative rate as the men. In late 1945, plans called for the completion of demobilization of naval reserve personnel including the women's reserve by Sept. 1, 1946.

In addition certain provisions were made for the discharge, upon their request, after one year of service of married WAVES. WAVES may be discharged upon their request if they are married to a veteran of World War II, a former member of the merchant marine who is disabled or a serviceman of World War II who has been medically surveyed for limited duty or who is hospitalized awaiting survey to limited duty or separation from the service.

All WAVES were released from the service at designated separation activities which placed them as close as possible to their homes before they were discharged. WAVES in Hawaii were being returned to the United States as they became eligible for discharge and as transportation was available. (M. M. H.)

**Women's Reserve of the United States Coast Guard Reserve:** *see* COAST GUARD, U.S.

**Women's Reserve of the U.S. Marine Corps Reserve:** *see* MARINE CORPS.

**Wool.** The quantity of wool shorn in the United States in 1945 was estimated at 322,621,000 lb. This quantity was 24,473,000 lb. or 7% smaller than shorn wool production in 1944 and 69,752,000 lb. or 18% below the record production in 1942. It was the smallest production after 1928. The reduction in shorn wool in 1945, compared with 1944, was a result of the number of sheep shorn, since the average weight per fleece was a little larger. The estimated number of sheep shorn was 40,670,000, a decrease of 3,654,000 or 8% from 1944 and 18% from 1942. The estimated weight per fleece in 1945 was 7.93 lb. compared with 7.83 lb. in 1944 and a ten-year average (1934-43) of 7.99 lb. Pulled wools were estimated at 65,000,000 lb.

The 1945 world production fell to about the prewar level. Decreased production, however, was more than offset by the wartime accumulation of stocks. Production in 1945 was estimated at 3,760,000,000 lb., a decrease of 5% compared with 1944 and about 12% less than the record output in 1941.

Wool production in the southern hemisphere in 1945 totalled 2,200,000,000 lb., or 65% of the world's output exclusive of the soviet union and Cuba. Southern hemisphere production was approximately 2,500,000,000 lb. annually during the four years 1940-43, an increase of 19% above the prewar average. Production decreased 7% in 1944 and a further 4% in 1945.

Production in the northern hemisphere, excluding the soviet union and China, in 1945 fell to 1,200,000,000 lb., 7% less than the prewar average. The decline in the northern hemisphere was chiefly the result of the sharp reduction in the United States from the high level reached in 1941-42 and of a more gradual reduction on continental Europe throughout the war period. Production in North Africa in 1944 was larger than the prewar average, but a decrease was reported in 1945. The trend in the important Asiatic carpet wool producing countries appeared to be upward as compared with the early war years.

Severe drought in southeast Australia caused a decline of approximately 15% to 20% in the 1945 wool clip as compared with 1944. The Australian News and Information bureau, basing its information on official estimates, indicated that the 1944 clip of 1,080,000,000 lb. would therefore be reduced to approximately 900,000,000 lb. in 1945. Final appraisal of the New Zealand clip showed an increase of 10% over the previous year.

The First National Bank of Boston reported that the Argen-

tinian wool clip approximated 518,000,000 lb. From Aug. 1945 the United States government resumed issuing import permits for liberal amounts of Argentine wools and exports became very active due to the improved shipping situation. Total shipments during the 1944-45 wool year amounted to 142,000 tons compared with 128,500 in the previous season. The United States took 70% of the tonnage and the balance went to France, Belgium, Switzerland, Sweden, the Netherlands and to some South American countries.

A conference of officials and experts from the United Kingdom, the commonwealth of Australia, the dominion of New Zealand and the Union of South Africa was held in London between April 16 and May 28, 1945. The purpose of the conference was to discuss matters arising out of the accumulation of wool purchased by the United Kingdom from the dominions under wartime arrangements, and the disposal of stocks concurrently with future clips of dominion wool. It was shown that as of June 30, 1945, there were approximately 3,315,000,000 lb. of United Kingdom owned wool on hand, of which 3,245,000,000 lb. were of dominions origin. Auction sales were recommended as the best medium of marketing this accumulation and it was expected the dominions would begin theirs soon after July 1, 1946, and in London, prior to that date. On Nov. 5 cable advice was received from the British Wool control, Bradford, England, of approximate reductions in price, namely Australian, 5% in merino and 10% in 50s and coarser; New Zealand, 5% in finer than 50s, 10% in 50s and coarser; South African, approximately unchanged.

The surplus stock of wool owned by the United States government at the end of 1945 amounted to approximately 425,000,000 lb. This accumulation was purchased by and sold only to the Commodity Credit corporation and consisted of the unsold portions of the 1943, '44 and '45 clips. These were purchased and resold at established ceiling prices. During the week beginning Nov. 26, a new price schedule took effect, lowering these prices 15 to 20 cents clean basis from the old schedule, with 1943 wools at 3 cents below these prices. It was believed that the new schedule of prices on domestic grown wools would then be able to compete with imported wools of similar grades. (*See also* SHEEP; TEXTILE INDUSTRY.)

(C. M. AN.)

**Woolsey, John Munro** (1877-1945), U.S. jurist, was born Jan. 3 in Aiken, S.C. He was graduated from Yale university, 1898, and from Columbia university's law school, 1901. He practised law in New York city and was an instructor in equity at Columbia, 1905-06. An authority on admiralty law, Judge Woolsey was an American associate editor (1920-29) of *La Revue de Droit Maritime Comparé*, a French maritime law publication. He was nominated to a federal judgeship by President Hoover and was sworn in as judge of the U.S. district court, Southern New York district, in 1929. Judge Woolsey won more fame for his rulings in cases relating to plagiarism and to obscenity in literature than in his primary field of maritime law. In 1933 he ruled that James Joyce's novel *Ulysses*, which had been banned by U.S. customs officials on grounds of potential "impurity," was not obscene in a legal sense; he further declared it a work of genuine literary merit. As a result of his decision, publication and sale of the work in the United States was permitted. Earlier (1931), he had ruled that Dr. Marie C. Stopes' book *Contraception*, a work on birth control, was neither obscene nor immoral and that it did not violate the U.S. customs laws. Judge Woolsey also arbitrated a suit brought by Miss Georges Lewis, who sought to collect \$2,000,000 damages from Eugene O'Neill and his publishers on the ground that the O'Neill play *Strange Inter-*



*lude* had been plagiarized from one of her works. He decided against Miss Lewis in this case. Judge Woolsey, who retired from the bench in 1943, died at his home in New York city, May 4.

**Words and Meanings, New.** The most certain characteristic of a living language is its tendency to change. New conditions of all kinds, new ideas, new inventions—all must be described by new words, by extensions of old words, or by new combinations of words. English thus adds some new words to its permanent vocabulary every year; these are but a small residue of the several hundred which are coined but die.

If a war is in progress, the new words are likely to be determined in large part by the new ideas and developments stemming from that war. Thus most of the words below are connected in some way with World War II, even though that war was concluded in Aug. 1945. A few represent inventions that came to light only with the cessation of hostilities; others give a glimpse of the postwar world.

These words became prominent or were seemingly used for the first time during the years 1944 and 1945. Dates indicate the first recorded use of the new word or new meaning. A preceding hyphen means that the word or meaning may be older than the date given. If no date is given, the first recorded use is 1945.

**A-bomb.** See *atomic bomb*.  
**abort.** To fail to complete a mission or flight; said of an aeroplane. (1944)  
**ABSD.** (Advance Base Sectional Dock.) A prefabricated dock where battleships can be repaired.  
**Abbie.** From the initials of the American Broadcasting Station in Europe, which operated from April 30, 1944, to July 4, 1945. (1944)  
**Admiral of the Fleet.** (U.S.) A five-star admiral. (1944; older in British usage.)  
**airbrasive method.** Drilling of teeth by an abrasive subjected to high pressure and pinpointed on the area to be drilled.  
**airedale.** One who handles a plane on an aircraft carrier; a "plane-pusher."  
**air-sea rescue.** Recovery of air crew after they have bailed out over water. Rescue is effected by a patrol plane which radios the position of the survivors to a station. The station, in turn, sends out a rescue boat. (1944)  
**Alsib.** Air route from Montana to Moscow so named because it passes over Alaska and Siberia.  
**Amvets.** The American Veterans of World War II. (1944)  
**Anti-G suit.** See *G-suit*.  
**ANTU.** A poison, harmless to human beings, so powerful that  $\frac{1}{8}$  lb. will destroy 100,000 rats.  
**Ascender.** An experimental fighter aeroplane (XP-55) with the propeller in the rear. Made by Curtiss-Wright Corp.  
**atobomb, atom bomb.** See *atomic bomb*.  
**atom bombing.** See *atomic bomb*.  
**Atomic(Age).** The new age dominated by atomic energy, ushered in with the dropping of the first atomic bomb, Aug. 6, 1945.  
**atomic bomb.** A bomb releasing atomic energy with explosive force estimated to exceed that produced by 20,000 tons of T.N.T. The first such bomb to be publicly used was dropped on Hiroshima, Japan, Aug. 6, 1945. Variants include *a-bomb, atobomb, atom bomb*, the last the verb form. The bomb was at least once described as a world-buster. *Atom-bombing, n.*  
**atomic bomber.** Bomber carrying an atomic bomb.  
**atomobile.** Future automobile driven by atomic energy.  
**Azon bomb.** Bomb regulated by radio waves which can be guided by the bombardier of plane. Developed by U.S. air forces.  
**baka bomb.** (Jap. "foolish.") Rocket plane driven by a Japanese suicide pilot.  
**bamboo telegraph, bamboo wireless.** Native grapevine.  
**banzai.** Desperate, fanatical, suicidal; usually applied to a frenzied attack of Japanese soldiers accompanied by shouts (*banzai*) and indifference to cost in life. (—1943)  
**B.A.R.** Browning automatic rifle. (—1943) **barman.** One who operates such a rifle.  
**belly tank.** Auxiliary gasoline tank under the belly or wing of a plane. It can be released if necessary to lighten the load. (—1945)  
**blow job.** *Aviation slang.* A jet-propelled plane.  
**BMB.** (Broadcast Measurement Bureau.) An organization composed of advertisers, advertising agencies and radio stations to discover a reliable index of broadcasting effectiveness.  
**bobby soxer.** A teen-aged girl addicted to adolescent fads and crazes. (1944)  
**bogey, bogie.** Aeroplane whose identity is unknown. (1944)  
**bomber's moon.** Moon favourable for bombing. (—1943)  
**bug bomb.** A spray employing aerosol. (1944)  
**butcherette.** Female butcher.  
**butterfly bomb.** A small anti-personnel bomb dropped from a plane. (1944)  
**carpet bombing, carpet raid.** A bombing attack which attempts to clear the way for advancing ground troops. Such attacks lay *bomb carpets*.  
**chosen instrument.** A government-authorized air line to represent a country in the international skyways. (—1945)  
**cloak and dagger.** Office of Strategic Services; pertaining to OSS.

**Conestoga.** A large cargo plane made by Edward G. Budd Mfg. Co. (1944)  
**dead end kid.** A hard, unyielding, driving individual with a suggestion of the original "Dead End Kids." (—1945)  
**De Gink Hotel.** Name given to the hotels built along the air transport command routes. (—1944)  
**dehumidification.** Method developed by U.S. navy bureau of ships for keeping materials from rusting. (1944)  
**de-nazification.** Eradication of nazi influence. *de-nazify, v.* (1944)  
**de-requisition.** Release from government occupation.  
**de-vacuee.** (*British.*) A returned evacuee.  
**disintegrator.** Secret weapon to oppose Kamikaze attacks.  
**displaced person (DP).** A slave-labourer brought into Germany from conquered countries to aid in the war effort. (1944)  
**doggy.** *Slang.* Infantryman.  
**downgrading.** Classifying of a job to a lower grade with less pay. (1944)  
**DP.** Displaced person.  
**dumbo.** Plane used in air-sea rescue (*q.v.*). (1944)  
**Electric Blanket.** Blanket made by General Electric Co. electrically heated and automatically controlled.  
**Electronic Rat Trap.** A trap made by Electronic Traps, Inc. After being entrapped, the rat electrocutes itself, following which a mechanism ejects the rat and resets itself for the next victim.  
**EMIC.** Emergency Maternity and Infant Care Program. (1944)  
**Ercoupe.** Trade name of a small passenger plane manufactured by Engineering and Research Corp. for civilian use. (1944)  
**F.A.S.** Federation of Atomic Scientists.  
**fibrin film.** A material made from blood plasma, promising to be effective in averting the convulsions following head wounds. (1944)  
**FIDO.** From the initial letters of Fog Investigating Dispersion Operation, used by the British to disperse fog long enough for planes to land safely.  
**fighter bomber.** A fighter plane equipped to carry a bomb, after the dropping of which the plane can operate as a fighter. (1942)  
**flash gear.** Outfit to protect the wearer from the flames thrown by the explosion of shells and bombs. (—1945)  
**Fleet Admiral.** Admiral of the fleet.  
**flight test.** To test a plane in flight.  
**flying boxcar bomb.** U.S. name for the 700-lb., 5-ft. long spigot mortar of the Japanese.  
**foo-fighter.** Strange fire ball of undetermined origin (possibly controlled by radio) which followed United Nations planes early in 1945.  
**formation stick.** An electronically operated control stick which makes manipulation of a plane much easier and thus decreases fatigue to pilots. A joint development of the air technical service command and the Minneapolis-Honeywell Regulator Co.  
**Fortisan.** A very strong yarn made by Celanese Corporation of America, especially for use in flare parachutes. Trade-mark. (—1944)  
**foxhole circuit.** A circuit comprising theatres at the various fighting fronts at which U.S. troupes entertain U.S. fighting forces. (1944)  
**Foxhole university.** The United States Armed Forces institute.  
**fraternize.** To deal socially with members of an enemy nation, especially with women; and, *specifically*, sexually. *fraternization, n.*  
**fringe wage.** Term used by the War Labor board to describe wages the raising of which does not appreciably increase the cost of production and would not, therefore, challenge the Little Steel formula.  
**Gammexane.** An insecticide (named from its being the gamma isomer of hexachlorene benzene) more powerful than DDT. Its discovery was made by scientists of the Imperial Chemical Industries.  
**General of the Army.** (U.S.) A five-star general, one rank above a full general. (1944)  
**genocide** (Gr. *genos*, "race" + *cide* "killing"). A coinage of Professor Raphael Lemkin, of Duke university, Durham, N.C., to describe "the extermination of racial and national groups."  
**G.I. Jill.** A WAC. (—1944)  
**Globester.** Name of plane used by army air transport command in test flights looking toward passenger service extending around the world.  
**Goop Bomb.** The M-76 incendiary bomb. (1944)  
**G-Suit** (*G* for gravity). A suit designed by the armed services to prevent an airman from blacking out when making quick turns or precipitous dives.  
**homing pigeon.** Button to identify discharged servicemen.  
**hubba, hubba.** Exclamation of enthusiastic approval. (From earlier *haba, haba*—1940)  
**Image Orthicon.** A camera tube made by Radio Corporation of America for use in television. It is so sensitive that it can take pictures by moonlight, by the light of a match.  
**inspectoscope.** An X-ray device used by the armed forces to discover illegal objects in packages sent home by servicemen.  
**island-hopping.** Going from one island to another; especially military advance by seizing one island after another as a base. Used in the Pacific area. (1944)  
**Jato.** From the initial letters of "jet-assisted take-off." (1944)  
**jet-.** Combining form for jet-propelled or relating to jet-propulsion, as *jet-booster, jet car, jet crew, jet engine.* (1944)  
**jungle rot.** *Slang.* Any of several tropical skin diseases.  
**Kamikaze** (Jap. "divine wind"). (Pron. *kámakazē*). A suicide attack by a Japanese plane. Sometimes applied to the plane and also to the pilot.  
**Kriegie** (Ger. *Kriegsgefangene*). Prisoner of war. (1944)  
**Lanaset.** Trade-mark of a resin put out by the American Cyanamid Co. to make material shrink-resistant.  
**liberee.** One liberated from a prisoner of war camp.  
**Lily.** The pontoon-floated airstrip developed by the British.  
**loafer.** A shoe for informal occasions. (—1944)  
**Loran.** A device employing radar which acts as a Long Range Aid to Navigation.  
**Manhattan Project.** The atomic bomb project.  
**May Day** (Fr. *M'aidez*, "help"). Call for help.  
**meateasy.** Place where black market meat can be bought.  
**Mickey Mouse money.** Valueless Japanese money in the Philippines.  
**Micky.** U.S. nickname for a radar bombsight which makes accurate bombing through the clouds possible. (1944)  
**Mixmaster.** Army bomber propelled by two rear counter-revolving propellers. Made by Douglas Aircraft Co., Inc.  
**Mulberry Harbour or Port.** Artificial harbour used on D-day. (1944)

**MVA.** Proposed Missouri Valley authority. (1944)  
**narco-synthesis.** A method of treating a neurosis by working with a patient while he is under the influence of an injection of sodium pentathol. (1943)  
**Neptunium** (after the planet Neptune. Cf. *Century Dictionary and Cyclo-pedia*, 1911, s.v. *neptunium*: "A supposed new element announced by Hermann in 1877 as present in columbite and ferro-illemite. Its existence has not been confirmed."). Element Number 93, produced when uranium 238 takes on a bombarding neutron. This absorption causes the uranium to emit an electron, the emission changing a neutron into a proton. The element is not found naturally.

**PCAU.** Philippine Civil Affairs Unit.  
**pedal pusher.** Knee-length trousers for girls. (1944)  
**Periston.** Ersatz blood plasma, developed by the Germans.  
**pinpoint.** To determine precisely; to give highly specialized training to, as, "to pinpoint the training of students." (Probably an extension of *pin-point*, as in "to pinpoint bombs.")

**PLUTO.** From the initial letters of Pipe Line under the Ocean, a gasoline line under the English channel.

**Plutonium** (after the planet Pluto). Element Number 94, which results when the radioactive neptunium breaks down with the emission of an electron which changes one of its neutrons into a proton. The element is not found naturally.

**pre-atomic.** Before Aug. 6, 1945, the date of the atomic bombing of Hiroshima.

**Precipitron.** Trade name of a machine made by Westinghouse Electric and Manufacturing companies for purifying air by the electronics principle. (1942)  
**PRECO.** United Nations Preparatory commission.

**PREWI.** Press Wireless, Inc. (1944)  
**Projected Books, Inc.** A nonprofit group formed to furnish books on films to veterans and patients unable to use their hands. (-1944)

**proximity fuse.** A radio-operated fuse built in the tip of a projectile which explodes the projectile at that distance from the target where its flying fragments will do most damage. Developed by the army and the navy.

**Red Ball Highway.** A system of highways set up in France to expedite the movement of war materials to the fighting fronts. (1944: *red-ball* is an old railroad term for a fast freight.)

**redeploy.** To move fighting men from one front to another, used to describe the shifting of U.S. troops from Europe to the Pacific. *Redeployment, n.*

**returnee.** One who has returned, as from a fighting front. (1944)  
**ruptured duck.** Identification button for discharged servicemen.

**Schnorkel** (also *Snort*). Device of the Germans which enabled them to keep their submarines under water for many weeks. An air pipe, when extended above the surface of the water, enabled the submarine to recharge its batteries and exhaust its fumes while remaining submerged. (1944)  
**selevision.** The selling of citrus fruits by telegraph.

**separate.** To discharge or release from active duty in the armed services. Construed with *from*. (-1944)

**separatee.** One who has been separated from the armed services. (1944)

**separation centre.** A centre where servicemen are sent for discharge or release from active duty. Sometimes separation is accomplished by sending only the individual's records to the centre. (1944)

**set-aside, n.** Materials, such as meat, canned goods and vegetables, set-aside by order of the government for its use.

**Shooting Star.** Trade-mark of the Lockheed P-80 jet plane. (1944)

**Silicones.** A new group of synthetic resins developed by Dow-Corning Corp., which resist water and high temperatures. (1944)

**sitting duck.** Something extremely easy; as easy to hit as a sitting duck. (-1944)

**Skycoupe.** A pusher-type monoplane for two occupants planned by Piper Aircraft Corp.

**Skycycle.** A monoplane for a single occupant planned by Piper Aircraft Corp.

**sky-hook.** Apparatus for dropping packages from planes by spinning them and thus controlling where they fall. (1944)

**skymarker bomb.** Bomb dropped to locate targets hard to find. It leaves a trail of coloured smoke which lasts five minutes and which can be seen by a plane five miles away. (1944)

**Skymaster.** A giant four-motored transport (C-54) made by Douglas Aircraft Co., Inc.

**Skysedan.** Plane for four occupants planned by Piper Aircraft Corp.

**squawk box.** Loud speaker on board a ship. (1944)

**Stateside.** Pertaining to the United States; in or toward the U.S. (1944)

**Stratocruiser.** Trade-mark of a four-motored plane built by Boeing Airplane Co., designed either for passengers or freight. It can cruise at 340 m.p.h. at a ceiling of 30,000 ft. It can carry 80 or more passengers or 35,000 lb. of freight. (1944)

**Strato-suit.** A suit, pressurized and heated by electricity, which makes it possible for flyers to be comfortable at altitudes as high as 80,000 ft. Oxygen is supplied through a special headpiece. Major John B. Kearby and the B. F. Goodrich Co. developed the suit.

**Stratovision.** Method worked out by Westinghouse Electric and Manufacturing Companies and Glenn Martin of using planes in the stratosphere to broadcast television.

**streptomycin.** A drug related to penicillin which is of great promise in the treatment of typhus, cholera, and perhaps tuberculosis. (1944)

**sub-sonic.** Speeds ranging from 0 to 550 m.p.h.

**suicider.** A suicide. (1943)

**super-dumbo.** A B-29 used in air-sea rescue work.

**superseniority.** Job seniority for veterans which supersedes all other seniority except that of another veteran in the same class. (1944)

**talking book.** A recording of a reading of a book; for use by the blind.

**TCP.** Trichlorophenoxyacetic acid; a weed killer.

**1080.** Sodium fluoroacetate, the 1,080th substance examined in a search for a new rat poison.

**terminal leave.** Accumulated leave given an officer in the services immediately prior to his release from active duty. During this period he may wear civilian clothes and engage in any legal gainful employment outside of the government.

**terror bombing.** Deliberate bombing for terror effects with hope of shortening a war.

**test-fly.** Make a test-flight of a plane. (-1944)

**top secret.** A security classification used by the armed forces and the

diplomatic corps to denote material of the utmost secrecy.

**trans-sonic.** Speeds ranging from 550 to 760 m.p.h.

**trusteeship plan.** A plan for handling the old mandated territories and those newly acquired territories which may need to be controlled internationally after World War II. A council composed of nations which formerly held mandates and a like number of those which did not, would exercise control over territories voluntarily submitted to trusteeship. (1939)

**TWI.** (Training within Industry.) A War Production board program. (1944)  
**2-4-D.** Laboratory designation of a synthetic hormone which destroys weeds without hurting the grass. Developed by the U.S. department of agriculture and others.

**UNCIO.** United Nations Conference for International Organization.

**under wraps.** Censored, secret.

**UNO.** United Nations Organization, formed at the San Francisco conference in April 1945.

**USAFI.** (United States Armed Forces Institute.) This institute supplies war department correspondence courses for service personnel, sending the courses even to remote areas. It also assists service men and women in getting extension courses from the college or university of their choice. (-1943)

**USFET.** United States Forces in the European Theatre, with headquarters at Frankfurt.

**USIBA.** United States International Book Association, set up to aid in the distribution of U.S. books abroad.

**V-E day.** *Specific.* May 8, 1945, the date of Germany's surrender.

**VIP** (also *Viper*). Very Important People. (1943)

**Viper.** A rocket-propelled plane designed by the Germans to break up formations of U.S. bombers. The pilot, after having directed the plane, would parachute to safety.

**Vista Dome.** A glass-enclosed section, slightly raised above the top of a railway coach to enable its occupants to see in any direction. It is a General Motors design.

**V-J day.** *Specific.* Aug. 14, 1945, date of Japan's surrender; also Sept. 2, 1945, the date of the formal surrender.

**volcano bomb.** An 11-ton bomb made and used by the British. Also called *town-buster*.

**Volkssturm** (Ger. *Volks*, "of the people" + *Sturm*, "troop"). Army made up from the people; home guard. (-1943)

**VT fuse.** *See* proximity fuse.

**war-weary.** A plane beyond repair; also, one whose great damage at the front requires it to be sent home for repairs.

**werewolf.** Member of a German underground organization opposing the Allies.

**wingman.** The second of two planes, to one side and behind the leader, to protect the latter's tail. (-1945)

**Zaibatsu** (Jap. *zai*, "wealth" + *batzu*, "clique"). The group which controls most of Japan's industry.

**zeroed in, to be.** To be under direct fire as a result of the range having been found. (1944; *to zero*, -1925)

(I. W. R.)

**Works Agency, Federal:** *see* FEDERAL WORKS AGENCY.

**World Bank:** *see* UNITED NATIONS MONETARY AND FINANCIAL PROGRAM.

**World Charter of the United Nations:** *see* UNITED NATIONS CONFERENCE ON INTERNATIONAL ORGANIZATION.

**World Commerce:** *see* INTERNATIONAL TRADE.

**World Council of Churches:** *see* CHRISTIAN UNITY.

**World Federation of Trade Unions.** In Feb. 1945 a world trade union conference was convened in London by the British Trades Union congress. It was attended by representatives of 46 countries and 15 international trade union organizations.

The conference adopted declarations on the furtherance of the Allied war effort, the trade union attitude to the peace settlement and on the establishment of a World Federation of Trade Unions. An administrative committee was appointed to draft a constitution for the world federation and this was accomplished at meetings in London, Paris, Washington and Oakland, California. The draft constitution was circulated to the bodies represented in the London conference, and with some amendment was ratified at a further conference in Paris in September. The first congress of the world federation was held immediately afterwards.

The constitution provided for a congress every two years, and for the election of a general council, an executive committee and an executive bureau. The general council embraced all national trade union centres on a scale which would balance the larger against the smaller and take account of their geographical distribution, and normally would meet once every year. The executive bureau, which would have responsibility for the detailed direction of affairs, would meet as often as required. This executive bureau appointed by the executive committee consisted of the president of the federation (Sir Walter Citrine) and seven

elected vice-presidents, namely, Sidney Hillman (U.S.A.); V. V. Kuznetsov (U.S.S.R.); L. Toledano (Latin America); E. Kuypers (the Netherlands); Chu Hseuh Fan (China); Léon Jouhaux (France); and G. di Vittorio (Italy). During the first two years plenary powers were to be vested in the general council and the executive committee, including the power to alter the constitution (without violation of its fundamental principles) to enable the organization to meet the needs of a changing world situation. Difficult problems of organization confronted the world federation, arising from the existence in some countries of more than one national centre: e.g., the American Federation of Labor and the Congress of Industrial Organizations. The American Federation of Labor declined any connection with the world federation.

Progress was made toward assimilating existing international trade union organizations such as the International Federation of Trade Unions and some of the international trade secretariats to the world federation. There are strong attachments between the trade unions in many countries and these bodies, and the leadership of the world federation found its first test in adjusting these relationships.

The headquarters of the world federation were established in Paris. Its secretary general in 1945 was Louis Saillant; assistant secretaries were: W. Schevenels, Michael Falin and John Brophy. (W. M. Cr.)

## World War II. This article is divided into the following sections:

	Page
Section I.—Introduction .....	834
Section II.—The War in Europe.....	834
1. The Western Front.....	834
2. The Italian Campaign.....	838
3. The Eastern Front.....	838
4. The Surrender of Germany.....	841
Section III.—The War in the Far East.....	842
1. Introduction .....	842
2. The Philippines Campaign.....	843
3. The Invasion of Iwo.....	843
4. The Okinawa Campaign.....	844
5. The Burma Campaign .....	844
6. Air War Over Japan.....	844
7. The Atomic Bombings.....	845
8. Russian Invasion of Manchuria.....	845
9. End of World War II.....	846
Section IV.—World War II Casualties.....	846
Section V.—Cost in Money of World War II.....	847

## I.—INTRODUCTION

In 1945, the most terrible war in the history of mankind came to an end with the axis powers decisively and crushingly defeated by the United Nations. While final judgment on the factors that enabled the United Nations to emerge victorious must be left to the historian of the future, one broad hypothesis advanced as to why the United Nations won seems to stand without too much fear of challenge. This is that the combination of superior industrial capacity, greater access to raw materials and larger populations of the United States, the soviet union and Great Britain and the close co-operation, military as well as political, of these three great powers in the critical phases of the war were the most vital factors in the defeat of the axis nations.

As an axiom, the theory of the "biggest battalions" stood the test in World War II; whether it would do so in future conflicts appeared to be questionable and proof of its validity hinged on the development of the atomic bomb. The destructive power of this weapon seemed to indicate that future wars might be waged between technicians 5,000 to 10,000 miles apart.

## II.—THE WAR IN EUROPE

### 1. The Western Front.—The Battle of the Bulge.—On Jan.

1, 1945, the Allied armies on the western front were engaged in a desperate struggle to contain the German counterblow in the Ardennes forest. This counterattack had been started over a 40-mi. front some two weeks earlier (Dec. 16, 1944) by Marshal Karl Gerd von Rundstedt, one of Germany's ablest strategists. The terrain selected for the blow was only lightly held by some four divisions (about 60,000 men) of the U.S. 1st army. Von Rundstedt in turn employed some 24 divisions, of which eight were panzer divisions. Launching diversionary attacks in other sectors to keep the Allies off balance, Von Rundstedt focused his drive north and south of St. Vith in Belgium. In the first 24 hours, the German armies, spearheaded by the panzer divisions, opened three gaps in the Allied line through which were poured the supporting wehrmacht infantrymen. In the first four days of their offensive, the Germans came within two and one-half miles of Liège where they were forced to halt because of lack of transport and fuel. This Allied communications centre was Von Rundstedt's immediate objective. He had expected that the impetus of his surprise blow would carry the wehrmacht to nearby Malmédy and Spa where he hoped to seize the large Allied munitions and gasoline dumps.

Meanwhile, Gen. Dwight D. Eisenhower threw all available reserves of the 12th army group against the German bulge. The U.S. 1st and 9th armies and the British 30th corps were deployed along the north flank under Field Marshal Sir Bernard Montgomery while the 3rd army and some additional divisions were brought up along the south flank. As Gen. George S. Patton's 3rd army attacked the enemy line, Gen. Jacob L. Dever's U.S. 6th army group shifted northward to cover the positions vacated by Patton.

During the first week of battle, the weather favoured the Germans. Then on Dec. 23, 1944, the skies cleared and for two days the Allied tactical air force, taking off in support of the ground troops, swarmed over the crowded wehrmacht's supply roads destroying tanks and trucks moving up to the front. On the first day, 4,500 Allied planes turned out to the attack; on the second, 11,000.

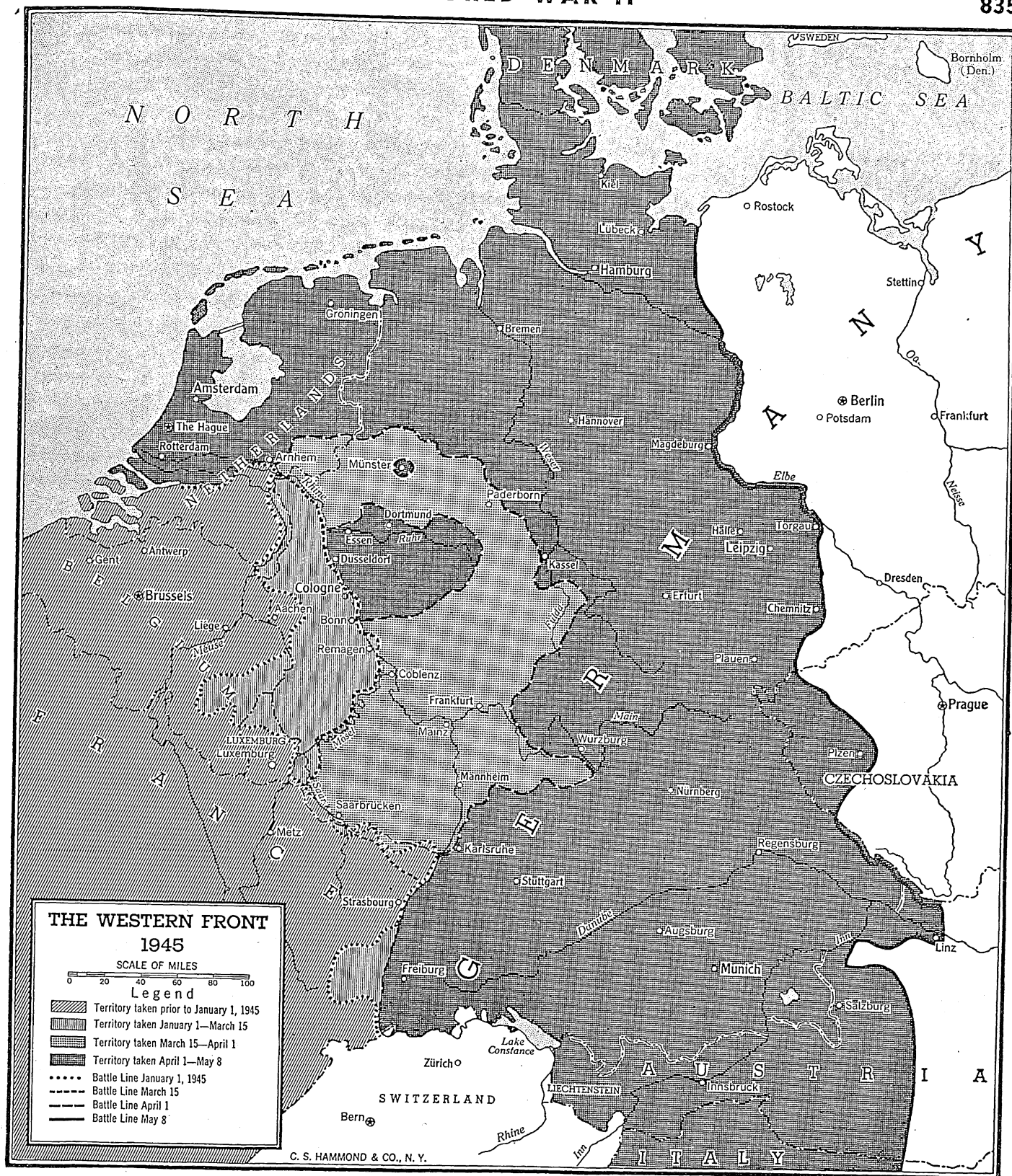
By Dec. 26, the Allied crisis had passed. The Germans who had gained more than 50 mi. at the point of deepest penetration and had laid siege to the U.S. units holding Bastogne were unable to proceed further. While units of the 3rd army had lifted the Bastogne siege, the Allied forces reorganized and, solidified with reserves, turned to the attack and started to hammer the walls of the German bulge.

The Germans had seized a network of interlocking roads in the bulge area; its main communication nerve was the LaRoche-Houffalize-St. Vith road. The U.S. 3rd army, based at recaptured Bastogne, started a drive up toward Houffalize, Jan. 1, 1945, and pinched the German line on the south while the U.S. 1st and British 2nd armies exerted pressure from the north. Wehrmacht pressure at the tip of the bulge was contained meanwhile by U.S. 1st army elements. The German gains were gradually whittled away and soon Von Rundstedt's armies found themselves crammed into a shrinking pocket with the only escape route along the Houffalize-St. Vith road. By Jan. 12, the Germans started a withdrawal from this "coffin corner." As they retreated down the Houffalize-St. Vith road, they were subjected to heavy bombardment from Allied guns lined up on both sides of the road.

The danger of entrapment was now critical and Von Rundstedt hastened the removal of his remaining armour and better infantry out of the impasse. But the process of extricating troops from the pocket resulted in heavy German casualties. On Jan. 15, U.S. 1st army troops drove into Houffalize. Eight days later (Jan. 23), St. Vith fell.

The German pocket was slowly ironed out and by Jan. 27,





the Battle of the Bulge was officially declared ended; at that date the 1st and 3rd armies were virtually in the same positions they had occupied 42 days earlier when the battle had started.

The completeness with which the Allied armies had been caught off guard by the German blow suggested that the Allies had become careless and overconfident and that they were inclined to weigh the enemy's power too lightly. The fact that the Germans were able to mass secretly 24 divisions without being spotted was regarded as a grave reflection on the Allied patrolling and intelligence services, although later it was said that a heavy fog which had blanketed the area enabled the

Germans to conceal their movements.

Gen. Omar N. Bradley's explanation that he had weakened his line, at the point where the Germans made their breakthrough, to take a "calculated risk"—that is to draw troops from one sector to concentrate forces at what he considered more vital areas—was harshly criticized in some quarters and defended in others. Generally, the Allied thesis was that the Battle of the Bulge turned out badly for Von Rundstedt in the end and helped shorten the war.

The German strategy seemed to be superior in so far as they massed their tanks for an all-out blow while Allied tank units

were spread out over the entire front. Moreover, front dispatches indicated that the German tanks excelled their Allied equivalents in all-around performance. Outweighing the wehrmacht advantage in tank equipment was Allied supremacy in the air. The concentrated aerial blitzkrieg on German rail and road systems was so intense that it prevented Von Rundstedt from continuing his war of movement. The German marshal later admitted, in an interview after his capture, that his ultimate defeat in the Ardennes battle was caused by the aerial attacks against his communications.

The Allied losses in the Ardennes battle were considerable. While complete figures were not available, the Allied casualties from Dec. 15 to Jan. 7 were put at nearly 40,000. German losses were put at 220,000, which included 110,000 prisoners. Some Allied sources were inclined to regard the German casualty figures (which were advanced by the Allies) as exaggerated.

*The Drive to the Rhine.*—After the German bulge was reduced, the Allied armies were drawn up on the western front in the following order, running from north to south: Gen. H. D. G. Crerar's Canadian 1st army was at the extreme upper tip facing the Meuse river in the Nijmegen sector of Holland. The British 2nd army, under Gen. Sir Miles Dempsey, was placed immediately below the Canadian 1st and the bulk of its forces was north of München-Gladbach. The U.S. 9th army, under Lt. Gen. William H. Simpson, was battling toward the Roer river below München-Gladbach. On the right flank of the 9th army was Gen. Courtney H. Hodges' U.S. 1st army whose main forces were pointed at the area between Düren and Schmidt. South of the 1st army came Gen. Patton's 3rd, deployed in the hilly terrain between Prüm and Trier. The U.S. 7th army, commanded by Lt. Gen. Alexander M. Patch, was to the right of Patton and was moving slowly into the Saar. The French 1st army, under Gen. Jean de Lattre de Tassigny, faced the Colmar pocket on the extreme southern end of the line.

Eisenhower again resumed his offensive to break through the German lines and reach the Rhine. After the U.S. 1st army captured the Erft and Schwammenauel dams on the Roer river, Feb. 10, the Canadian 1st army launched an attack on the German right flank in the Emmerich-Kleve-Calcar sector. British 2nd army troops joined the operation and soon the entire northern sector of the Nazi line between the Maas and the Rhine was overrun.

The stage was now set for the execution of the Allied drive to the Rhine. Facing the Allies was a German force, weak in reserves and air support. The Russian offensive on the east, which had been under way from Jan. 12, was gaining momentum and the wehrmacht command was compelled to divert a large force from the west, estimated at 20 divisions, to bolster its defenses in eastern Prussia and Silesia.

The big Allied blow from the west was preceded by an aerial attack (Feb. 22) of unparalleled strength. Carried out by both the strategic and tactical air forces, which flew almost 10,000 sorties the first day, this aerial assault disrupted the entire German rail system in and far behind the immediate battle area. The destruction of Reich communications was so complete that not only was the wehrmacht prevented from transferring troops from rear to front line areas, but they were also balked in their efforts to shuttle troops from one front to another.

The following day (Feb. 23), the U.S. 1st and 9th armies led the general assault and established bridgeheads across the Roer river. The Canadian 1st army joined the offensive Feb. 24. The three forces broke through the German lines with surprising ease and raced for the Rhine. Slicing through the German defenses, the 9th army was the first to reach the river at Neuss, opposite Duesseldorf, March 2. On March 6, the 1st army occupied the ruins of Cologne. The following day (March 7), sev-

eral units of the 1st army, finding a bridge intact at Remagen, immediately crossed, thus establishing the first Allied bridgehead on the east bank of the Rhine. This narrow rail span, strained by constant crossing of heavy equipment, collapsed shortly afterward, but not before other and more stable bridgeheads had been established over the river.

While Hodges expanded his bridgehead, the U.S. 3rd and 7th and the French 1st armies were filtering into the Saar pocket. Suddenly, three 3rd army tank divisions started a rapid thrust along the west bank of the Rhine in an operation designed to cut off all possible exits for German troops in the Saar. These bold armored drives created confusion among the defenders, and Allied forces, pouring through the thinned wehrmacht lines, surrounded the enemy on all sides.

Against this action, the once-powerful and once-flexible wehrmacht was helpless. Communications between German units were severed and lack of liaison rendered impossible the organization of a cohesive stand. As the German high command could not rescue the isolated units, it decided to withdraw to the east bank the few units which had eluded the Allied pocket. The remainder was left to be mopped up by the Allied armies. In a desperate effort to stave off defeat, the wehrmacht chiefs replaced Von Rundstedt, the hero of the Ardennes, with Marshal Albert Kesselring, noted for his skilful defensive operations in Italy.

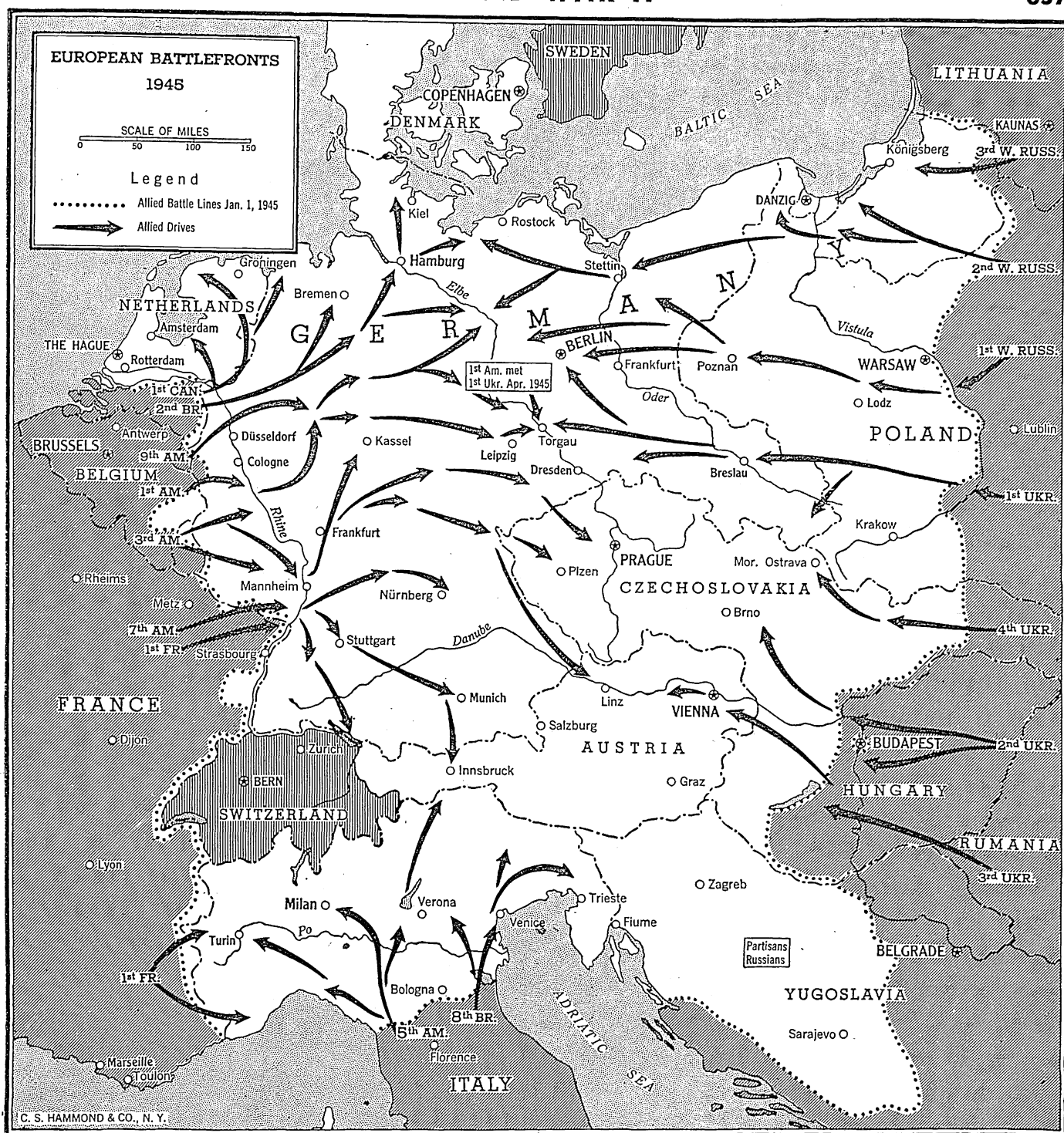
The Allies, having no intention of letting Kesselring gain time to throw up strong defensive positions, prepared to cross the Rhine en masse. The initial phase of the new crossing was carried out by advance units of Patton's 3rd army, which stormed the river, March 22. The next day (March 23), the Canadian 1st and British 2nd armies, covered by an extremely heavy barrage, hurdled the Rhine. They were followed March 24, by the U.S. 9th army. That same day two divisions of the Allied 1st airborne army were dropped behind the river by a large armada of troop-carrying aircraft and gliders.

The bridging of the Rhine, the last great defensive line of fortress Germany in western Europe, by five regular armies and airborne forces enabled Eisenhower to speed up the final campaign to crush organized German resistance in the west. With both of its flanks now protected, the U.S. 1st army was able to stage a "breakaway" drive from its Remagen bridgehead on March 26. One armored column streaked toward Limburg and raced down the superhighway toward Frankfurt on Main. Other armored units of the 1st, advancing as much as 40 mi. in a day, sped northward toward Kassel. Meanwhile, armored divisions of the 3rd army lunged toward Würzburg. On the extreme north, the British 2nd army, the Canadian 1st and the U.S. 9th were pressing harassed enemy forces in the German-held Netherlands and the Ruhr. To the extreme south, the U.S. 7th and the French 1st armies had made their crossings of the Rhine in the last week of March.

By April 1, all the Allied armies were not only on the east bank of the Rhine, but in many cases far beyond the shores of that river. The German army's main defensive line had been broken. The Nazi high command made several futile efforts to form a front, but the speed and liquid movement of the Allied armored forces prevented the Germans from fighting a hardened war of position and made them fight a war of movement in their own territory.

With open flat country before them, the Allied armored columns spilled through Germany with the force of a leaping torrent. The Canadian 1st army circled northward from Emmerich and Arnhem in the Netherlands, isolating a large force in the IJsselmeer (Zuider Zee) salient. The British 2nd army swept through Dülmen (March 30) and Osnabrück (April 4). The U.S. 9th fanned out in three directions. One section headed due





east toward Minden. Another turned off to the right below that city to form one blade of a pincers on Paderborn. (The other blade was formed by a unit of the U.S. 1st army coming in from the left. The blades came together at Paderborn, isolating a large body of German troops below them.) A third element of the 9th engaged in heavy fighting with reich forces guarding the Ruhr area about Duisburg.

The 1st and 9th armies spearheaded the Allied drive. After establishing contact at Paderborn, their advance units continued eastward toward the line of the Weser river. By April 5, the 9th crossed the Weser and captured Hannover (April 10). The armoured spearheads of the 1st army drove on Leipzig, which was taken April 19.

To the south, Patton's 3rd was engaged in a complex operation. After taking Frankfurt on Main (March 29), the 3rd swung northward and crossed the Fulda river. Then it veered

south, capturing Gotha (April 4) and Erfurt (April 12). Following this operation, the 3rd split into two wings, one heading for Asch, in Czechoslovakia, and the other toward Regensburg on the Danube. This advance was designed to establish solid contact with Red army forces in Austria and to prevent the enemy from retreating in order to the Bavarian mountains.

To the south of Patton's army was Gen. Patch's 7th army which had captured Mannheim (March 29), Heidelberg (March 30) and battled its way into Nuernberg, the city of the "nazi heroes," which fell after bitter fighting (April 20). The 7th then swung toward Munich, capturing that city by May 1. Below the U.S. 7th, the French 1st army took Stuttgart, April 22 and then skirted the German shore of Lake Bodan (Lake Constance).

By the end of April the British 2nd army was storming the approaches of Hamburg and Bremen. The U.S. 1st and 9th



armies had reached the line of the Elbe-Mulde rivers where they halted under a prearranged agreement with the Russians. The U.S. 1st army units and a contingent of Marshal Ivan S. Konev's 1st Ukrainian army formed a junction at Torgau (April 25), a village on the Elbe river, thus splitting the reich in two.

**2. The Italian Campaign.**—The great battles being fought on German soil in early 1945 diverted interest from the Italian front, where fighting was limited in extent, but not in intensity. In one respect the Italian campaign resembled the fighting on the western front during World War I—the gains made by the attacking forces were minimal in comparison with the effort expended. The Allies did most of the attacking and the Germans were content to hold the terrain, which heavily favoured the defense, as long as possible. Throughout the latter part of the Italian campaign, the Germans slowly retreated from one fortified belt to another strapped across the Italian peninsula. The Allied operations in Italy, ill-favoured by topography, were further obstructed by the fact that many veteran divisions of the 15th army group had been diverted to the western front.

During the winter months, ground operations were limited by the eccentric mountain weather in which snow and freezing cold alternated with driving rains. On April 1, when the weather began to improve, the Allies held a line starting below La Spezia on the west, and then weaving its way through valleys and hills eastward to a point above the Adriatic port of Ravenna. The U.S. 5th army held the western section of the line and the British 8th the eastern. Both forces were joined as the 15th army group under command of Gen. Mark W. Clark.

On April 9, the 15th army group launched its spring drive. Following a heavy air attack by tactical bombers in direct support of the ground troops, the British 8th, under Lt. Gen. Sir Richard L. McCreery, set off the offensive with a drive across the Senio river. A week later (April 16), the U.S. 5th army swung into the attack in a new effort to break out of the mountains southwest of Bologna, the Po valley city that had been converted into a major German citadel. As the U.S. 5th surged into the Po valley and marched up the Faenza-Bologna road, the 8th circled about the rear of Bologna. Applying steady pressure, the Allies threatened the escape routes of the German 10th and 14th armies. As their positions became untenable, the reich forces withdrew rapidly and Bologna fell to the Allied forces, April 21. The U.S. 5th army crossed the Po river (April 23); the British crossed the river in force two days later. Units of the U.S. 5th, north of Bologna, occupied Verona April 26. These forces then drove north into the foothills of the Alps toward Bolzano and the Brenner pass. The British 8th, meanwhile, circled eastward around the Italian arch to Venice and joined with the Yugoslav forces of Marshal Josip Brozovich (Tito) near Trieste (May 1).

Thenceforth, the disintegration of German resistance in northern Italy was rapid. The 5th took Genoa, April 27, the industrial city of Turin, April 30, and had entered Milan, April 29.

As German troops beat a retreat northward, they were harried on every side by Italian partisan units whose assistance to the Allied forces in the final days of the Italian campaign was invaluable.

**3. The Eastern Front.—Winter Campaign, 1945.**—At the beginning of 1945, Russian operations on the eastern front were localized to the Balkans and Hungary. The Russian objective was to clear this area of German troops, thus preventing possible counterattacks on their southern flank, when they opened the big drive into Germany. A vise had been clamped about Budapest by Marshal Fedor Tolbukhin's 3rd Ukrainian army while Marshal Rodion Y. Malinovsky's 2nd Ukrainian army

pressed a drive toward the Austro-Hungarian border, with Vienna as one of its major objectives.

While these operations were underway, the soviet high command marshalled five large armies for the offensive to break into fortress Germany from the east. Running from north to south these forces were: the 3rd White Russian army, commanded by Gen. Ivan D. Chernyakhovsky, which was massed on the frontiers of East Prussia; the 2nd White Russian army, led by Marshal Konstantin Rokossovsky, operated north of Warsaw; the 1st White Russian army commanded by Marshal Georgi K. Zhukov, was stationed south of Warsaw; the 1st Ukrainian army, under Marshal Ivan S. Konev, faced German forces in the Krakow sector; and the 4th Ukrainian army, under Marshal Ivan Y. Petrov, in southern Poland and Czechoslovakia.

For this blow, the Russians employed a vast number of men and an equally vast quantity of equipment. It was said that the five Red armies totalled 175 divisions (German over-all strength on the east was between 150 and 200 divisions). In addition, the Russians employed some 15 to 20 tank corps, thousands of rocket guns and a large force of tactical aircraft. In the van of the Russian attack were scores of the new Russian supertanks, the "Joseph Stalin," a heavily armoured, low-slung monster mounting a 122-mm. gun said to be superior to the German 88-mm. tank rifle.

The offensive began Jan. 12, 1945. The first of the Red armies to spring into action was Konev's 1st Ukrainian, which crossed the Vistula and sped toward the Silesian coal basin, and Chernyakhovsky's 3rd White Russian which battled into East Prussia. Two days later (Jan. 14), Rokossovsky's and Zhukov's armies opened a drive across the Vistula and joined behind Warsaw. The 4th Ukrainian under Petrov went on the offensive Jan. 15 into southern Poland; its aim was to ward off counterattacks on the Red army forces engaged in the main drive to the north.

The Russian blow was massive and powerful; it cracked the German Vistula river line—the best natural defense barrier outside of the reich to the east—in less than a week of fighting. The Red army seized Warsaw, Jan. 17, Lodz and Krakow fell Jan. 19. As the Russians entered the flat plains country, their heavy tanks scattered and rolled back the German armies.

On the north, the 3rd White Russian army's artillery battered holes in the German fortifications in East Prussia, through which long columns of tanks and infantrymen streamed. The 3rd White Russian army captured Tilsit, Jan. 20, and on the following day seized Tannenberg, the historic battleground where the czarist armies suffered their greatest defeat in World War I. As in the earlier war, the soviet strategy was to surround German forces in East Prussia. While it failed the first time, it succeeded the second. Soon two Red armies were driving into East Prussia. From the north, the 3rd White Russian army of Chernyakhovsky (who later died in battle and was replaced by Marshal Alexander M. Vasilevsky) was surging toward Koenigsberg, capital of the province. Cutting through the nazi defenses from the south was Rokossovsky's 2nd White Russian army. By Jan. 26, the latter force had reached the port of Elbing on the Baltic, thus completely isolating the northern "redoubt" that the Germans had hoped to convert into an impenetrable bastion.

Meanwhile, on the central front, Marshal Zhukov's 1st White Russian army was pacing the offensive. Plunging rapidly through the weakening German lines in western Poland, it reached the Oder river by Feb. 4, outflanking the town of Kuestrin some 34 mi. from Berlin. Below Zhukov's force was Konev's 1st Ukrainian army which advanced at great speed through southwestern Poland and reached Silesia. Konev's objective was to invest Silesia, Germany's richest industrial area, next to the



Ruhr and Rhineland. Petrov's 4th Ukrainian army, meanwhile, was filling the possible loopholes in the Carpathians from which the Germans might possibly spring a surprise counterblow.

By mid-February, both Zhukov's and Konev's armies were standing shoulder to shoulder on the east bank of the Oder. Except for a few isolated fortresses such as Kuestrin and Breslau, which were under siege, they controlled a considerable portion of the river bank running from a point across Schwedt on the north to Oppeln on the south. On Feb. 12, Konev's army

crossed the river and shooting out on a new offensive, plunged more than 35 mi. beyond, toward Dresden. This spectacular drive threatened to flank Berlin from the south. After nine days of incessant battle, the 1st Ukrainian army reached the confluence of the Oder and the Neisse rivers. There Konev slowed the advance of his army to consolidate his gains.

The drive into Germany reached its climactic point at Kuestrin, lying at the confluence of the Warthe and Oder rivers. Kuestrin, the principal guardian to the road to Berlin, had been

converted into a formidable fortress, protected by rows of stubby monolithic dragon's teeth built of concrete, deep anti-tank ditches, and numerous underground forts. Kuestrin and the surrounding area was manned by some ten German battalions as well as numerous artillery units.

The first Russian attacks on Kuestrin were bone-crushing. Soviet shelling cut wide swaths through the dragon's teeth and knocked out a number of the protective pillboxes in the first days of fighting. Russian shock troops then broke into the fortress, which fell March 12.

As the Red army drives on the central and southern sectors slackened, elements of Rokossovsky's 2nd White Russian army opened a drive through the middle of Pomerania. His intention was to slice the defending armies into isolated segments, reduce them one at a time, capture Stettin and reach the Baltic at the mouth of the Oder. Advancing up the Baltic coast, Rokossovsky's army captured Gdynia, March 28, and the former free port of Danzig, March 30. To the north, Koenigsberg, a Nazi stronghold, manned by Wehrmacht fanatics, resisted a long Russian siege but it was finally taken by Vasilevsky's 3rd White Russian army, April 9.

Meanwhile, Soviet armies in Hungary were meeting stiff German opposition. Budapest fell Feb. 13 to the Soviet forces but only after some 14 weeks of fierce street fighting. After the fall of Budapest, the armies of Tolbukhin and Malinovsky occupied the remainder of Hungary and, driving westward into Austria, captured Vienna, April 13. Occupation of the Austrian capital marked the close of the Soviet winter drive of 1945.

In the four months that elapsed after the beginning of the great offensive, the Russians had brought the war into the very heart of Germany. They had driven from the Vistula river line in Poland to within 34 mi. of Berlin. While the achievements were accomplished primarily by the enormous strength of the attacking forces, due credit must be given to the excellence of their strategy and the sturdiness of their equipment. Unable to mount a counteroffensive of sufficient strength to disrupt the Soviet attack, the Germans fought a persistent delaying action in order to protect their retiring forces. Substantial garrisons were left behind in Poznan and Breslau in the hope that these would compel the Soviets to divert some of their strength for the reduction of these bastions. But Soviet reserves in manpower were so ample that neither of these operations caused any appreciable delay in the Russian timetable. Poznan fell Feb. 23 and Breslau by May 7, after an 84-day siege. A factor militating against a successful German defense was the increasingly poor quality and sparse quantity of German reserve strength. The Volkssturm (home guard) units had been interlarded with veteran combat troops to make up for the deficiency of trained reserves but, comprising mostly over-age or physically infirm men, the Volkssturm proved a poor substitute for trained soldiers.

*The Drive on Berlin.*—After the fall of Kuestrin, Marshal Zhukov intensified preparations for the drive on Berlin. For this offensive, which proved to be the final blow of the war on the eastern front, Zhukov, who was field commander of the Soviet forces, employed four armies, totalling perhaps 2,000,000 men. These were deployed on a front running from Stettin bay on the Baltic to the Sudeten range in lower Saxony. Rokossovsky's 2nd White Russian army, reinforced by Vasilevsky's 3rd White Russian army held the sector extending from Stettin to Kuestrin. Below was Marshal Zhukov's 1st White Russian army holding a line from Kuestrin to Frankfurt on Oder. The lower wing was formed by Konev's 1st Ukrainian army which held the sector from the Neisse to the Czechoslovak border. Farther south, engaged in separate operations in central Europe and the Balkans were Tolbukhin's 3rd Ukrainian, Malinovsky's

2nd Ukrainian and the 4th Ukrainian given to Gen. Andrei I. Yeremenko who took over from Petrov.

The operation against Berlin was to be an enveloping drive by Zhukov's 1st White Russian and Konev's 1st Ukrainian armies. While expecting a manoeuvre of this sort, the Germans were surprised by its early execution. They apparently believed that Konev would first strike at Dresden to join with U.S. forces and then wheel toward Berlin. Instead, the 1st Ukrainian army veered northward toward Guben and Forst. Preceded by a heavy artillery barrage, Konev's attack opened April 14, according to German broadcasts, on the Neisse river front. The gains on the first two days were not large, but once the shell of resistance was broken, the 1st Ukrainian army moved forward in great strides, capturing Cottbus, April 23, and then wheeling toward the southern suburbs of Berlin. Soon afterward, the armies of Rokossovsky and Vasilevsky on the north opened powerful forward movements toward Stettin and the Baltic coast. Then came the principal blow—the attack on Berlin from the east by the 1st White Russian army.

The amount of technical equipment the Russians massed for this frontal assault on the German capital was enormous. Zhukov himself subsequently declared that for the decisive battle (opened on the night of April 15–16), some 22,000 guns and mortars, between 4,000 and 5,000 aircraft and more than 4,000 Red army tanks were employed.

Zhukov's strategy was to break through the German lines in the shortest possible time. The tanks, their paths illuminated by scores of powerful floodlights, opened the drive after the shelling and bombing had flattened the outer defenses of Berlin. The 1st White Russian army battled through the concentric defenses covering the western approaches to the city and by April 23, barely a week after the battle began, was in the streets of Berlin proper. Meanwhile, the main body of Konev's army to the south speared through Potsdam, and by April 25 the German capital was completely surrounded. The battle of Berlin had begun.

The fighting in Berlin was a Stalingrad in reverse but of shorter duration. To block the Red army drive, the Germans had erected improvised barricades of shattered masonry, overturned motor cars and wrecked streetcars. They converted dwellings and factories into fortresses and employed tanks and artillery from concealed positions. The Germans fought skilfully and with courage. The Wehrmacht commanders used the subways to transfer troops from point to point in the burning capital and the Red army had to burrow into the tubes to seal them off. Despite the stubborn German resistance, the Russians battled their way through the wreckage, seizing district after district. The climax of the battle was reached in the fighting for the ornate Reichstag building, taken by the Soviet troops only after exhausting close-quarter engagements. On May 2, the Germans, virtually bludgeoned into insensibility, surrendered and the battle for Berlin was over. Of the German garrison of 500,000 troops that defended the capital, Marshal Zhukov said 300,000 were captured and 150,000 killed. The remaining 50,000, he averred, "just ran away."

While German soldiery were dying by the thousands on the streets above, Adolf Hitler remained in the safety of his subterranean fortress under the Reich Chancellery. Convinced that he would get nothing but summary treatment if captured by the Red army, he apparently decided on suicide rather than submit to capture. On May 1, Grand Admiral Karl Doenitz announced that Hitler had died a "hero's death" in the defense of Berlin. This statement was greeted with skepticism, and subsequent evidence indicated that Hitler had taken his life. A few days earlier, his comrade-in-arms, Benito Mussolini, had been captured by Italian partisans and was executed after a drumhead





SCENE OF THE GERMAN SURRENDER at Reims, France, on May 7, 1945. Seated at the extreme left, and proceeding clockwise around the table, were: German representatives Maj. Gen. W. Oxenius, Col. Gen. A. Jodl, Gen. Adm. H. G. von Friedeburg; Allied officers Lieut. Gen. Sir F. E. Morgan, Maj. Gen. F. Sevez, Adm. Sir H. M. Burrough, Lieut. Gen. W. B. Smith, Lieut. Gen. I. Chermiaeff (at a distance from table), Maj. Gen. I. Susloparoff, Gen. C. A. Spaatz, Air Vice Marshal J. M. Robb, Maj. Gen. H. R. Bull and Senior Lieut. Col. Ivan Zenkovitch

trial, April 28.

**4. The Surrender of Germany.**—The death of Hitler, the fall of Berlin and the junction of the United States and soviet armies at Torgau were all factors that quickened the beginning of the end of the long German reign of terror on the continent. The armies of the western Allies and the soviet union were over-running the entire reich. German resistance was rapidly fading and failure of their military strategy to halt the invading armies led the nazi high command to lay greater stress on political tactics. Their hope was to divide the western Allies and the soviet union. Doenitz, who succeeded Hitler as fuehrer, said in a broadcast May 1 that as long as the western Allies obstructed achievement of his aim to save Germany from "bolshevik" destruction, his forces would carry on the "defensive" struggle against Britain and the United States as well as against the soviet union. This appeal was ignored by Churchill and Truman. They insisted on the full and unconditional surrender of the German armies to the soviet as well as the British and United States forces. Consequently the war dragged on.

But the defeat of Hitler's Germany was not far distant. In northern Germany, the British 2nd army captured Bremen (April 26), Luebeck (May 2) and Hamburg (May 3). Advancing toward a junction with the British, the 2nd White Russian army took Stettin (April 26) and Rostock and Warnemuende by May 2. The U.S. 1st and 9th armies were solidly joined

with the 1st Ukrainian army at the Elbe. One section of the U.S. 3rd army was moving into Czechoslovakia and a second had penetrated Austria. The 4th Ukrainian was also driving into Czechoslovakia, but from the east, while the 2nd and 3rd Ukrainian armies were cleaning up German remnants in central Europe. In south Germany, the U.S. 7th army had taken Munich (May 1) and the French 1st army had reached the Swiss frontier. The Allied armies in Italy were racing northward toward Bolzano and the Brenner pass.

The collapse of Germany came piecemeal. On May 2, the same day that Berlin fell, German and Italian fascist armies in northern Italy, estimated at about 1,000,000 men, surrendered to Gen. Mark W. Clark, commander of the Allied 15th army group. This surrender, secretly negotiated at Caserta on April 29, yielded some 20,000 sq.mi. of rugged territory to the Allies and opened the way for an unimpeded Allied march from the south to within 10 mi. of Berchtesgaden.

Two days later, May 4, another large force, also estimated to total 1,000,000 men, capitulated. This comprised the German armies in Denmark, Holland and northwestern Germany which surrendered to Field Marshal Montgomery. The following day (May 5), the wehrmacht commanders in eastern Austria ordered their troops to lay down their arms. These three major capitulations were made to the armies of the western Allies, while the bulk of the German armies facing the Russians continued fighting. Significantly, in the final months of the battle of Germany, most of the major fighting was carried on against the soviet forces. After the crossing of the Rhine, German resistance to the armies of the western Allies was relatively light.

With German resistance now virtually nonexistent, Doenitz

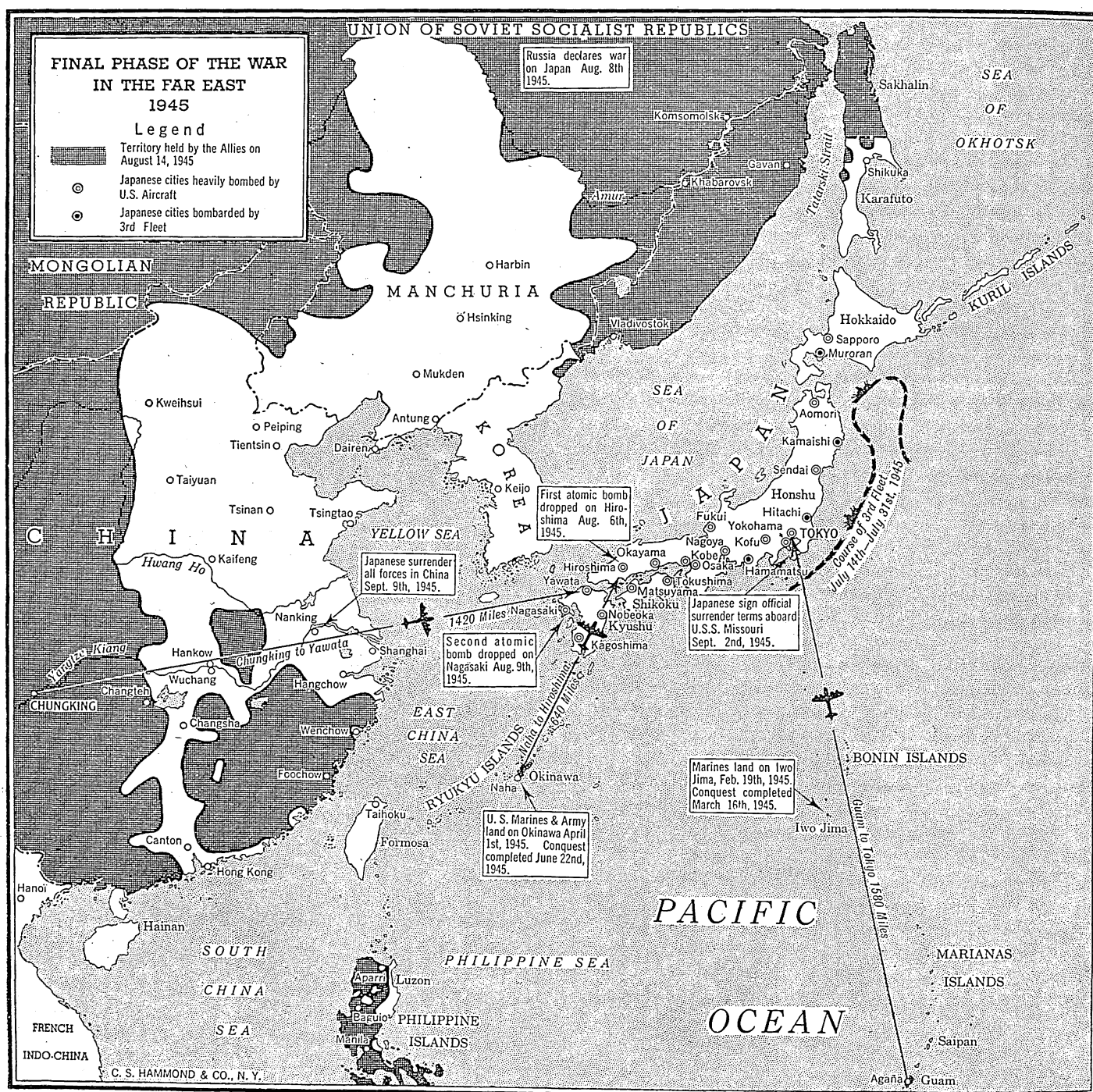
had no choice but to accept the Allied ultimatum that he surrender to all three forces—United States, British and Russian—simultaneously. He dispatched two emissaries, Gen. Adm. Hans Georg von Friedeburg and Col. Gen. Alfred Jodl, to Gen. Eisenhower's headquarters in Reims, France, where Jodl signed (May 7) the final surrender document. The following day (May 8), Friedeburg, Field Marshal Gen. Wilhelm Keitel, chief of staff of the German high command and Gen. Hans Jürgen Stumpff signed similar documents in Berlin in the presence of Marshal Zhukov. While the cease-fire order was given May 8, the actual signing of the Berlin document did not take place until shortly after midnight May 9.

Some fighting continued in Czechoslovakia after the prescribed surrender date but by May 12, all fighting in Europe had ended and peace was restored to the continent.

### III. THE WAR IN THE FAR EAST

I. Introduction.—At the start of 1945, there was little question that the defeat of Japan was merely a matter of time.

Its forces had been ejected from a score of strategic island bases in the central and southwestern Pacific, its fleet had been battered into virtual impotence and its air force, with the exception of the Kamikaze corps (which was to make its full-dress appearance later), was reduced to nuisance value only. Still, the task confronting the Allies—conquest of new stepping-stone islands and finally invasion of Japan itself—was not one which lent itself to facile solution. For most of the territory wrested from the Japanese the Allied armies had to pay a stiff cost in casualties. The Japanese had shown, by their sacrificial resistance in the Gilberts, Marianas and Palaus, that they were tough, determined soldiers, ready to die if necessary for "the glory of the emperor"; it could not be expected that their opposition would lessen if the homeland itself were invaded. However, Allied military leaders were convinced that an invasion of Japan proper, no matter how costly, was unavoidable if the war in the Pacific were to be brought to a victorious conclusion. Accordingly, Allied strategy was adjusted to this goal.





Resolved to complete the conquest of Japan as quickly as possible, the United States amassed large military, naval and air forces in its newly conquered Pacific bases and the flow of men and materials to the Pacific area was greatly accelerated after the collapse of Germany.

The U.S. Pacific fleet, one of the principal offensive instruments, had grown to huge size. By the summer of 1945, it comprised 23 battleships, 26 aircraft carriers, 64 escort carriers, 52 light and heavy cruisers and 323 destroyers, as well as hundreds of other small craft. In addition, it was equipped with nearly 15,000 combat aircraft and six excellently trained marine divisions. The U.S. army had some 20 divisions in the Pacific islands by the summer of 1945 as well as a very large air force, comprising tactical and strategic aircraft; the latter included the B-29 "super-bombers."

While the United States, because of geographical factors and superior industrial strength, carried the burden of the war in the Pacific, it received valuable assistance from the other Allied nations. The British had a force estimated at 1,000,000 men on the Asiatic mainland, two large fleets, one of which fought under the U.S. Pacific fleet, and a substantial air force. The Chinese army had some 300 divisions, but only a few of these were adequately equipped with arms and material and were, accordingly, not overly effective. During the Manchurian campaign, the Russians employed at least three large armies and an adequate air force. Although the Allies greatly outnumbered the Japanese in men and material, even the most sanguine optimists could not foresee the defeat of Japan before 1946. The general consensus was that the Pacific war would end perhaps before 1947.

**2. The Philippines Campaign.**—The invasion of Luzon highlighted the Philippines campaign in early 1945. Strategically, this operation was designed to strike at the heart of Japanese strength in the Philippines. Gen. Douglas MacArthur's goals were to reconquer the islands, sever Japanese communications to the Netherlands Indies and provide a sizable land mass for the invasion of Japan. The Luzon landings also made possible an invasion or neutralization of Taiwan (Formosa), a prime requisite for landings on the China coast, then under consideration by Allied strategists.

The invasion of Luzon was skillfully handled. While a large troop convoy escorted by the U.S. Pacific fleet wound its way through the heart of the Philippine archipelago, Allied air forces staged several feints over Batangas and Tayabas, farther south. Not knowing exactly where the blow would come, Lt. Gen. Tomoyuki Yamashita, commander of Japanese forces, shifted troops to those areas, thus dispersing his available forces. Then when the blow did fall, Yamashita was unable to gather together enough troops for counterattacks at the critical moment. The U.S. landings on Luzon were made Jan. 9, 1945, at the Lingayen gulf, the same site chosen by the Japanese for their invasion in Dec. 1941. By nightfall, some 68,000 troops had gone ashore. After the first 24 hours, the U.S. forces controlled a beachhead 3 mi. deep and 15 mi. wide. Exploiting the advantage gained by the scattering of the enemy forces, the U.S. 6th army under Gen. Walter Krueger, moved toward Manila, a little more than 100 mi. to the southeast. It met little opposition until it reached the vicinity of Clark field where it was brought to a halt by a strong Japanese line of defense. This temporary stalemate was broken by the landing, Jan. 29, of U.S. 8th army units at Subic bay. Two days later (Jan. 31), a U.S. airborne division made an amphibious landing at Nasugbu, south of Manila. These two operations flanked and isolated the Japanese in the Manila area who were now in a dangerous position. Meanwhile, the Japanese troops at Clark field fell back to the capital, where they fought stubbornly. The U.S. forces penetrated the Intramuros quarter of Manila and by Feb. 24 all organized resistance in that city had ended. Those Japanese forces outside of Manila, or those who had escaped entrapment in the city, fled to the Cagayan valley of north-eastern Luzon.

Auxiliary to the assault on Manila was the operation to reopen Manila bay to U.S. shipping which began Feb. 16, with the invasion of Corregidor by a combined force of paratroopers and ground troops. After a two-week battle, this force reconquered "the Rock," and U.S. naval and merchant ships were able to enter Manila bay by March 1945.

With the fall of the Philippines capital the 260,000 Japanese troops scattered throughout the islands were in an unenviable plight. Their water links with the main Japanese bases were cut off and they received supplies only in dribbles from vessels that succeeded in slipping through the U.S. naval blockade. MacArthur then proceeded to expand his holdings in the islands. In late Feb. 1945, U.S. forces invaded Palawan. The following month they landed on Mindanao (March 10). During March, landings were also made on Panay, Cebu and Negros, while reconnaissance groups to the south invaded Jolo, Tawitawi and other islands in the Sulu archipelago, bringing the U.S. forces to within 40 mi. of Borneo.

Then, on May 1, an amphibious force of Australian and Netherlands East Indies troops landed on the island of Tarakan, one of the richest sources of oil in the Indies. Tarakan, which lies off the northeast coast of Borneo, was taken by the Allies by the end of the month. The Tarakan operation was followed June 10 by an unopposed landing of Australian forces on Brunei bay in northwest Borneo. Three weeks later (July 1), the Australians effected a new landing, this time at Balikpapan in the southeastern part of the island. These Allied forces cleared the Japanese from Balikpapan harbour which was opened to Allied shipping by mid-July.

Meanwhile, the campaign in the Philippines was drawing to a close. In mid-April, units of Gen. Robert L. Eichelberger's U.S. 8th army launched a drive to clean up Mindanao. Davao City was captured May 4 and by the end of June little organized resistance was left on the island. On

Luzon, Gen. Krueger opened final operations against the Japanese entrenched in the Cagayan valley. Caught in a pincers drive from the north and south, Yamashita's forces were sliced into isolated pockets and by the end of June most of the Cagayan valley was under control of U.S. forces, thus terminating the Luzon campaign. On July 5, MacArthur announced that the Philippines campaign could be regarded as closed, but admitted some guerrilla forces still operated in many of the islands. At that time, Japanese casualties in the Philippines operation were put at 317,000 dead and 7,236 captured. The U.S. casualties were 60,268 killed, wounded and missing.

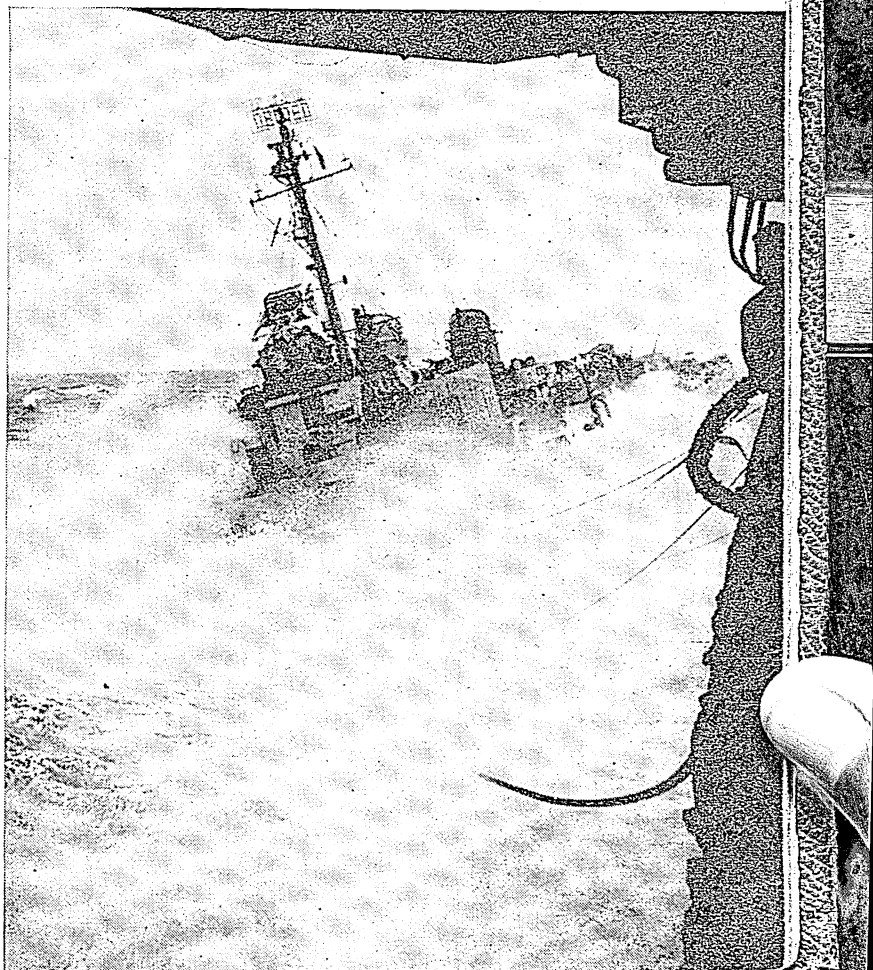
**3. The Invasion of Iwo.**—A position of prime importance in the Allied "stepping-stone" strategy was accorded Iwo, a small oyster-shaped island, some five miles in length, that lay midway between Tokyo and Saipan. Geographically, it was an unattractive, water-locked knob in the Pacific, sparsely vegetated and covered with volcanic ash. Nevertheless, it had strategic value and the Japanese had built an airbase on Iwo from which their aircraft made persistent attacks on B-29 bases in the Marianas. In U.S. hands Iwo could become an advanced airfield from which fighter planes could escort Superfortress missions and also provide tactical air support for ground troops in the scheduled invasion of Japan.

Iwo became a major target for almost daily Allied air attacks from December until the day it was invaded, Feb. 19, 1945. Several days before the invasion, a special naval task force, consisting of battleships and carriers, shelled and bombed Iwo and the Bonin Islands to the north. The attack on the Bonins was to prevent Japanese garrisons there from coming to the aid of their compatriots on Iwo, once the invasion was underway. Together with the attacks on the "doorstep" islands were heavy raids on Tokyo, Feb. 16-17, by an estimated 1,200 naval aircraft, also designed to block shipment of possible Japanese reinforcements to Iwo.

The purpose of the intensive air and sea bombardment of Iwo clearly was to soften the Japanese defenses on the island and facilitate the actual landings. The pre-invasion bombardment, however, failed to "soften" to any appreciable extent either the Japanese defenses or the garrison. This became evident when the first marine units landed on the island, Feb. 19. Their arrival drew from the defenders a combination of machine-gun, mortar and artillery fire, so murderous that the first wave of marines was nearly decimated before it reached the beach.

Obviously the pattern of battle set at Tarawa and Saipan—bloody, costly, no-quarter fighting—was to be repeated at Iwo. The men of the 4th and 5th marine divisions, who were in the initial landings, had no illusions that Iwo was to be plucked easily from the bough. That first terrible burst of gunfire indicated that they were in for an all-out fight with the Japanese garrison, which consisted of more than 20,000 picked troops. The Japanese defenses were excellent. The hilly, volcanic crags and steep 90-degree slopes, broken only by narrow and tortuous defiles, were employed as natural breastworks, behind which artillery, mortars and rockets were artfully concealed. The Japanese were committed to a suicide stand and intended to make the attackers pay as high a price as possible for possession of the forlorn isle. Their actions presumably were based on the assumption that exorbitant casualties might discourage and

A U.S. CARRIER slacks its oil lines to reduce tension on them while refuelling a wave-tossed destroyer during 1945 operations in the China sea





deter the United States from repeating the experiment in Japan proper.

The marines did suffer terrible casualties in the first hours as they waded from their landing boats to the beach; nevertheless, they continued onward and succeeded in establishing a beachhead on the island's south-east coast. Then the 4th marine division moved across the narrow southern tip of Iwo and cut back to the north. The 5th headed for Mt. Suribachi.

If the initial beachhead landings were extremely difficult, the ensuing land operations were even more hazardous. The advances were measured in yards. Marine casualties were so heavy that in the first 47 hours of fighting, they lost 3,650 men in dead, wounded and missing. As a result, the 3rd marine division, which had been held in reserve, was thrown into action by Feb. 22.

Meanwhile, the marines in their advance to Mt. Suribachi had to brave shelling from 115 heavy guns fitted into concrete emplacements on the slopes of the hill. After bitter fighting, the marines captured the mount itself by Feb. 23. By March 6, the marines had also taken the three major airfields. Thereafter, the Japanese gave ground slowly. The worse their plight, the more active they became and the more furiously they fought. When their counterattacks failed, they fell back on effective defensive tactics, planting mines and booby-traps in the path of the advancing forces. When torn loose from their ground positions, the foe holed up in caves, bored in the rock bluffs, from which they had to be blasted with dynamite.

This exhausting battle continued without any perceptible letup for almost 26 straight days. Finally, by March 16, the entire Japanese garrison of 21,000 troops had been exterminated almost to a man. Conquest of the island cost the marines 23,827 men, of whom 4,275 were killed.

At Iwo, the marines had won one of the most savage and sanguinary engagements in their history. Their valour and skill were never in doubt and as the heated passions of war subsided after the defeat of Japan, it was acknowledged that the defending force, too, fought well and courageously.

**4. The Okinawa Campaign.**—As the Iwo campaign was drawing to a close, the U.S. command had marshalled strong army, air and naval forces for an invasion of Okinawa. The largest island of the Ryukyu archipelago, Okinawa is about 65 mi. long and is not more than 15 mi. across at its widest point. The capital is Shuri, nearby is Naha (Nawa), the largest city. The distance from Naha to Nagasaki on Kyushu island is only 471 mi. Okinawa, many times larger than Iwo, would become in U.S. possession an important base of operations for the invasion of the Japanese homeland. For its defense, the Japanese had garrisoned on the island a force of 120,000 seasoned troops and employed for the first time, en masse, the Kamikaze corps.

The customary air and sea attacks preceded the ground assault on Okinawa and the beaches selected for landing sites were given a thorough "going-over" by Allied aircraft and warships. The land invasion itself got underway April 1, when a contingent of U.S. ground troops landed on the Hagushi beaches on the southern part of the island. Before night-fall, some 50,000 men of the U.S. 10th army, under command of Lt. Gen. Simon Bolivar Buckner, Jr., had gone ashore and had established a beachhead some five miles long.

Japanese resistance to the beach landings was deceptively weak and by April 4, U.S. regular army troops and marines had cut the island in two. One section of the 10th army drove cautiously to the north and conquered the entire northern two-thirds of the island by April 22. However, that part of the 10th army that drove southward toward Naha and Shuri encountered the strongest kind of resistance. As on Iwo, the Japanese fought with great tenacity and succeeded in making the 10th expend heavy casualties for small gains. The Japanese force defending the Naha-Shuri section numbered about 60,000. By May 1, these troops were locked up in an area of 90 sq.mi. at the island's southern tip. They had been forced to give ground, but only after making the U.S. troops pay for every yard gained.

The fighting was positional. Both sides used fixed lines and, as in the Italian campaign, the defenders had the advantage of prepared positions. In some respects, the Japanese defenses were an improvement over the German variety. The Japanese utilized nearly all of Okinawa's numerous caves, which afforded good shelter against heavy land and sea bombardments.

Tactically, the 10th army relied heavily on the superior quantity and quality of its equipment. Making frontal assaults on the enemy positions, the U.S. army and marine forces would advance in waves by day with heavy artillery support. Flame-throwing tanks led infantrymen against the Japanese-held caves, which had to be destroyed one by one. At night, ground activities were limited to patrolling operations and artillery bombardment. As the Japanese refused to take prisoners, the close-quarter fighting on Okinawa was savage and waged to the death.

Okinawa became another Iwo, many times magnified. The Japanese fought with suicidal frenzy. The intensity of the campaign was reflected in the battle for "Chocolate Drop Hill," a fortified Japanese mound guarding the approaches to Shuri. The U.S. forces fought their way around this 130-ft. mound three times in five days and were thrown back each time. In one six-hour period, land and naval guns smothered the hill with 30,000 shells while bombers blanketed it with additional tons of explosives. These long-range efforts to dislodge the defenders were futile and the ground troops had to exterminate each Japanese fortification singly. This operation was tedious, costly and dangerous. On one side of the hill alone the Japanese had some 500 entrances to their underground positions and dynamite charges were used to close these openings. The hill was finally taken by the U.S. forces by May 16.

The heavily fortified Japanese line, running through Naha on the western coast through Shuri and to Yonabaru on the eastern coast, repelled most of the attacks. But on May 12, U.S. forces broke into Naha's suburbs and then proceeded to enter the city, fighting from house to house. Even more intense was the battle for Shuri, keystone of the enemy fortifications. The most important of the Japanese citadels on southern Okinawa, Shuri fell June 1, and the important Naha airfield was in U.S. hands by June 6. Despite the breaking of its main fortified line, Japanese opposition did not weaken and the enemy gave ground grudgingly. However, Japanese manpower was being rapidly used up. By far the

largest part of the defending garrison had been killed in action and on June 21, the battle of Okinawa had ended.

The Japanese had lost Okinawa simply because they had run out of caves and boulders from which to fight and had also run out of men to do the fighting. The stiffness of their opposition is reflected in the following timetable: from April 4 to May 26, the U.S. forces on southern Okinawa had advanced only 4 mi. It took them from May 26 to June 21 to cover the remaining 10 mi. to the southern tip of the island.

To the Americans, Okinawa was regarded as the greatest U.S. victory of the Pacific campaign. For possession of this invaluable island base, the U.S. paid heavily. By the end of June, its total casualties were about 39,000 men; Japanese losses at that date were 109,629 killed and 7,871 taken prisoner.

At Okinawa, the Kamikaze aircraft, which had first appeared at Leyte in Oct. 1944, made their peak effort against U.S. warships and troop transports. Strategically, the Kamikaze plane was a zero-hour weapon which the Japanese hoped would at least cripple the Allied fleet and prevent the scheduled invasion of their homeland. Tactically, the Kamikaze aircraft was, for all general purposes, a human-guided bomb which was aimed directly at a target—generally a warship. The pilot knew that on hitting the target, he would meet inevitable death.

Pilots for the Kamikaze ("Divine Wind") aircraft were especially trained for their suicide missions. They were, moreover, indoctrinated for their task to go down in "glorious death" with their planes. The best equipped of the Kamikaze aircraft was the "Baka bomb," a small high-speed plane fitted with a ton of T.N.T. in its nose. When lacking Bakas, the Japanese would use any ancient aircraft that could be rigged with an explosive charge that would go off on contact.

At first many high U.S. naval officers minimized the effectiveness of the Kamikaze attacks. Adm. Marc A. Mitscher declared as late as June 5, that the attacks were not "too serious," and that only 1% reached their targets. This figure seemed to be an understatement. While other navy officials also belittled the effect of the Kamikaze attacks, they did admit that presence of this novel weapon would require some redesigning of equipment aboard ships. The Kamikaze, however, did cause extensive damage. By mid-June, at least 33 U.S. ships had been sunk and 45 damaged, principally by air attack. Naval personnel casualties caused by Kamikaze attacks were extremely heavy.

**5. The Burma Campaign.**—In 1945, the Burma campaign came into its own. Up to late 1944, Burma was virtually a "forgotten front." For example, a scheduled offensive early in 1944 was postponed because landing craft and other war material earmarked for the Southeast Asia command had been diverted to the European theatre for the invasion of France. Later that year, however, these critical materials began to arrive in sufficient quantity to enable the Allies to put into action their plan to expel the Japanese from Burma.

Having lost the strategic initiative during their disastrous campaign on the India-Burma frontier the previous year, the Japanese in 1945 were clearly on the defensive. In Arakan, they were fighting stubborn delaying actions and in northeast Burma, their intention was to block the reopening of Allied land communications with China. Their efforts met with little success in either sector. In Arakan, British amphibious forces invaded and captured Akyab, Jan. 3, 1945, and then established bridgeheads on the mainland. To the north, the Ledo road (later renamed the Stilwell road) was opened and the first Allied convoy crossed into China, Jan. 28.

Following the successful Akyab landings, the Allies prepared to launch a converging operation on Mandalay. Lt. Gen. Sir Oliver Leese, commander of Allied land forces in Burma, had three forces at his disposal. In the northeast, above Lashio, were four Chinese and one British division as well as the two brigades of the U.S. "Mars Task Force," under Lt. Gen. Daniel I. Sultan, U.S. army. In central Burma, above Mandalay, Gen. Sir William J. Slim commanded the British 14th army consisting of between 10 and 12 divisions. In southwest Burma, Gen. Sir Philip Christison commanded the 15th corps, consisting of three divisions of Indian and African troops. In mid-February of 1945, the drive on Mandalay, the main Japanese base and communications centre in central Burma, was underway. A strong armoured task force of the 14th army, based near Monywa, opened the attack. After a series of forced marches through the Chin hills, it captured Meiktila, headquarters of the Japanese 15th army, some 80 mi. below Mandalay, by March 3. This surprise manoeuvre severed the Japanese supply and escape routes in the Mandalay area. Then the main body of the British 14th army, whose strength was put at 250,000 men, bore down from their base of operations above Ye-u. At the same time, Gen. Sultan's units were moving toward Lashio and Mogok. The pressure of this three-way drive prevented the Japanese command from taking any effective counteraction for fear of dispersing its troops. Meanwhile, Gen. Slim's army broke into the northeastern outskirts of Mandalay and captured the ancient capital on March 20, after 12 days of battle.

Gen. Slim then set his sights on Rangoon, some 330 mi. to the south. In order to beat the monsoon, Slim set in motion a rapid drive powered by swift tank thrusts and by the end of April the 14th army was only 36 mi. from Rangoon. As Slim's forces descended on Rangoon from the north, a British amphibious force landed (May 2) on both banks of the Rangoon estuary, some 20 mi. south of the city. The Japanese in Rangoon pulled out rapidly to avoid the British net and the following day (May 3), the great Burmese port was taken by the Allied armies.

The capture of Rangoon virtually closed the Burma campaign, save for mopping-up operations of Japanese forces who had fled eastward toward Thailand (Siam). The British had recovered an area about as large as Germany and the Japanese casualties in the fighting between Feb. 1, 1944, and April 30, 1945, as estimated by the Southeast Asia command, were 347,000, of whom 97,000 were counted dead. During that period some three Japanese armies were said to have been wiped out.

**6. Air War Over Japan.**—In 1945, a U.S. aerial campaign was underway against the cities of Japan. The Allied goal was to destroy both Japan's industry and its air force. Up to March of 1945, the Superfortress raids on Japan were more exploratory and experimental than effective. The raids on Tokyo did not then compare in destructive effect with those on Berlin. However, the U.S. strategic air force in the Pacific

had not reached its full development. In the early part of the year, the B-29's based in the Marianas were staging attacks of limited effectiveness on Japanese targets, on the Asiatic mainland and on Pacific island bases.

The first raid of any real consequence on Japan occurred March 10, when a force of 300 Superfortresses struck Tokyo with a cargo of fire bombs and flattened central Tokyo's "Zone 1," an area so designated because of its high rating as a bombing objective. "Zone 1" included about 1,000,000 people and a number of military, industrial and business areas. This blow laid waste to an area of about 15 sq.mi. Maj. Gen. Curtis Le May, then head of the 21st bomber command, said the incendiary bombs destroyed eight identifiable industrial and urban targets.

This attack, hailed at the time as the single most devastating air raid of the Pacific war, was later dwarfed. The B-29 missions over Japan increased in frequency. City after city was systematically attacked. Destruction was widespread. Thousands of civilians were killed and tens of thousands injured. On May 14, upward of 500 Superfortresses, carrying more than 500,000 individual incendiary bombs, struck Nagoya. The bombs dropped in this raid, exceeding 3,000 tons, virtually destroyed that city.

After the end of the war in Europe, the heavy bombers of that theatre—now only of medium size in comparison with the B-29's—were transferred to the Pacific. The Allied strategy now focused on destruction of the remainder of Japan's air power and obliteration of Japanese aircraft factories. The Superfortress was the principal instrument used for achievement of this task. This giant bomber's design was improved so that it could carry larger bomb-loads, operate longer hours and return with fewer casualties. An advantage of Allied air operations in the far east was the lack of Japanese counterattacks. Over the reich, German ground and air defenses were exceedingly efficient; losses of 60 to 70 bombers in a single mission were not infrequent. In Japan, however, few enemy fighters challenged the big bombers and in proportion to the number of planes involved per mission, Superfortress losses were low.

In the summer of 1945, the U.S. air forces, undoubtedly impelled by the desire to spare civilians from the ravages of war, began to give the Japanese advance notice of the cities they intended to bomb. The first of these warnings occurred July 27, when the B-29 bombers showered some 60,000 leaflets on cities designated for attack. The leaflets instructed the populace to evacuate the cities or be burned out.

In July 1945, the 20th air force command, which directed the Superfortress attacks, was assisted in its mission of destroying Japanese industries by carrier-based aircraft attached to the U.S. Pacific fleet. Meanwhile, the U.S. 3rd fleet, later joined by the British Pacific fleet, bombarded targets on the Japanese mainland. While naval guns shelled steel mills and oil installations on northern Honshu and Hokkaido, large numbers of carrier-based aircraft struck the Tokyo area, the Inland sea (where remnants of the Japanese fleet were anchored) and other objectives causing heavy damage.

7. The Atomic Bombings.—The climactic point of the war in the Pacific was reached when the first atomic bomb was dropped on Japan. This terrible weapon, which had been developed secretly in the United States with the aid and co-operation of the British and Canadian governments, had

been given a preview testing at Los Alamos, N.Mex. It proved to be far more destructive than any known explosive. On Aug. 6, 1945, a lone Superfortress winging its way over Hiroshima unloosed an atomic bomb on that city without warning. The bomb, whose explosive force was estimated to equal 20,000 tons of T.N.T., wiped out an area of slightly more than four square miles or about 60% of the city. Three days later (Aug. 9) an atomic bomb was also dropped on Nagasaki, destroying about one-third of that city. The casualties were frightful. The Nagasaki toll (reported Dec. 30, 1945) was 23,753 dead, 40,464 wounded and 1,927 missing. At Hiroshima (reported at Supreme Allied headquarters in Tokyo, Feb. 3, 1946), 78,150 were killed, 37,425 were injured and 13,983 persons were listed as missing.

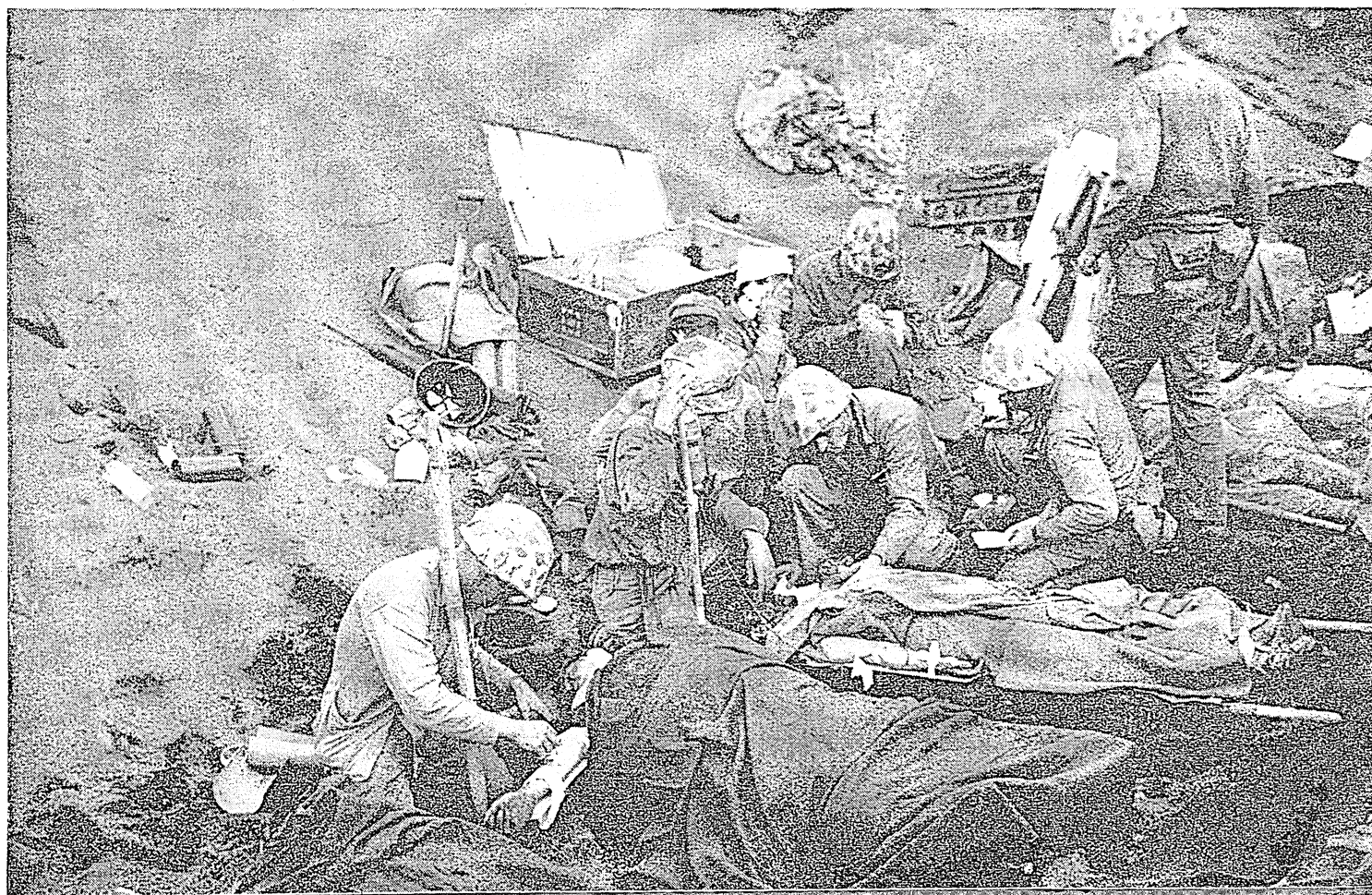
The first reaction in the United States to the use of the atomic weapon was elation. The popular impression was that it had brought the war that much nearer to its end. Subsequently, more sober appraisals lent strength to the view that the United States, in employing this dangerous explosive without warning, set a grave precedent fraught with risk in the event of future wars. It was pointed out that a future aggressor might justify use of atomic weapons against the United States, arguing that as the U.S. forces were the first to use it without advance notice, they were therefore deprived of the moral right to protest in the event it were turned against them under similar circumstances.

8. Russian Invasion of Manchuria.—The soviet union's failure to enter immediately the war against Japan evoked some criticism among the western Allies. The complaints were that while the Russians had received ample supplies from the United States and Britain to turn back the Germans in the critical days at Stalingrad, the Russians in turn refused to help the Allies with their difficult task of defeating Japan. Russian leaders, however, answered with the argument that the Red army had its hands full with the Germans and until this foe was decisively beaten, the soviet union could not enter the war against Japan. Both Roosevelt and Churchill concurred with this concept of global strategy.

At Yalta in Feb. 1945, the leaders of the Big Three recognized that Germany's defeat was a matter of months. When the question of eventual soviet participation in the Pacific war was brought up, Premier Stalin was said to have replied that his troops would be ready to move into Manchuria within three months after the defeat of Germany. In order to implement the strength of the soviet far eastern armies, the United States shipped increasingly large amounts of war materials to Siberia. Added to the soviet union's own shipment of military equipment to this far eastern theatre, these supplies formed the necessary stockpiles required for the eventual soviet entry into the war.

On Aug. 8, three months after the reich's surrender, the soviet union declared war on Japan. The Red armies starting the attack the following day (Aug. 9) at 12.10 A.M., launched a three-ply invasion of Japanese-held Manchuria. The over-all command of the soviet forces was vested in Marshal Alexander M. Vasilevsky, who concentrated his armies at strategic areas of the Soviet-Manchurian border. His plan was to drive four spearheads into Manchuria and encircle the Japanese Kwantung army, estimated variously at between 1,000,000 and 2,000,000 men. To accomplish this, Vasilevsky had three large armies. On the west was the Trans-Baikal army under Marshal Rodion Y. Malinovsky, which struck across the mountain passes of the Great Hingan range in a drive paralleling the Chinese Eastern railway. On the east, was the 1st Far Eastern

BLOOD PLASMA and whole blood being given to wounded marines in Feb. 1945 at a first aid station set up on Iwo Jima. Great quantities of the vital fluid were flown there from the U.S. because of the high casualty rate





army led by Marshal Kirill A. Meretskov; this force, based in the Vladivostok area, spearheaded a converging westward assault toward Harbin. In the centre and north, the 2nd Far Eastern army under Gen. Maxim Purkayev, with its base of operations in the Blagoveshchensk area, drove across the Amur river.

In the first phase of the Manchurian invasion, the greatest advances were rolled up by Malinovsky's forces. One section of his Trans-Baikal army sped down the Chinese Eastern railway and another to the south swept toward Tuchuan and Hsinking (Changchun). Meanwhile, Russian marines staged an amphibious landing in Korea, Aug. 12, capturing the naval base of Rashin and the nearby port of Yuki; this operation was intended to cut off the Kwantung army from its supply ports closest to home.

Heretofore regarded as one of Japan's best fighting units, the Kwantung army hardly put up the lively resistance expected of it. One explanation was that the troops of this force, while not lacking in courage, had little experience in mechanized warfare on a large scale and were poorly equipped for this kind of campaign. The Red army, on the other hand had four years of experience against the wehrmacht and was splendidly trained and equipped for mechanized battle. By Aug. 15, when Hirohito made his surrender broadcast, the Russians were deep in Manchuria. As the Japanese failed to comply immediately with Marshal Vasilevsky's order that they lay down their arms, the soviet armies did not halt their offensive. By Aug. 20, they captured Hsinking, Mukden and Harbin and a soviet communiqué said that almost all of Manchuria had been liberated. Thereafter, Japanese forces started to capitulate en masse and on Aug. 23, Premier Stalin announced that soviet armies had occupied all of Manchuria, Paramoshiri (Paramushiru) in the Kuriles and southern Sakhalin. Some desultory fighting continued as Russian forces occupied the northern half of Korea and completed occupation of the Kuriles by Sept. 1. After the conclusion of the fighting in Manchuria, there was some debate as to whether the Russian entry or the atomic bomb was the decisive factor in bringing about the downfall of Japan. This issue appeared to be purely academic and conjectural. Sober observers refused to measure the credit for victory by yardstick methods and emphasized that it was the combined efforts of the United Nations, large and small, that brought about the defeat of the axis powers.

9. End of World War II.—The atomic bombings and the soviet invasion of Manchuria convinced the Japanese that further resistance was futile and the Japanese government decided to accept the surrender offer as laid down at the Potsdam conference by Great Britain, the United States and China, July 26. Under these terms, Japan was to be stripped of its vast empire and reduced to the home islands. While Emperor Hirohito was permitted to retain his throne, he was made subject to the authority of the commander of the Allied occupation armies. Hirohito announced acceptance of the Potsdam terms, Aug. 14, and on Sept. 2, Japanese emissaries signed the formal surrender document in a ceremony aboard the U.S. battleship "Missouri" in Tokyo bay, thus concluding World War II, six years and one day after it was launched by the German invasion of Poland, Sept. 1, 1939. (See also ADVERTISING; AGRICULTURE; ARCHITECTURE; AVIATION, MILITARY; BANKING; BUSINESS REVIEW; CHILD WELFARE; CRIME; DEATH STATISTICS; EDUCATION; EXCHANGE CONTROL AND EXCHANGE RATES; HOSPITALS; INTERNATIONAL LAW; INTERNATIONAL TRADE; IRON AND STEEL; MEDICINE; MUNITIONS OF WAR;

MARINE ROCKETEERS on Iwo Jima shut their ears against the terrible din of a barrage aimed at Japanese emplacements during Feb. 1945

NAVIES OF THE WORLD; NEWSPAPERS AND MAGAZINES; PACIFISM; PHYSICAL MEDICINE AND OCCUPATIONAL THERAPY FOR THE WOUNDED; POLICE; PRISONERS OF WAR AND DISPLACED PERSONS; PSYCHIATRY; RAILROADS; REFUGEES; ROADS AND HIGHWAYS; STRATEGIC MINERAL SUPPLIES; SUBMARINE WARFARE; WAR PRODUCTION, U.S. See also various countries.) (D. Ko.)

### IV.—WORLD WAR II CASUALTIES

United States.—U.S. war casualties by the close of 1945 were still subject to final revision, but on Nov. 1, 1945, the army reported 217,569 killed, 571,442 wounded, 18,311 missing and 115,333 prisoners. The navy casualties were 56,261 killed, 80,260 wounded, 8,908 missing and 710 prisoners. On Jan. 18, 1946, the marine corps reported 19,940 dead, 55,409 wounded, 688 missing and 3 prisoners. On Oct. 1, 1945, the coast guard casualties were 808 dead, 213 wounded and 95 missing. On Dec. 26, 1945 there were 5,638 merchant seamen reported as dead or missing. Thus, the country's total war casualties were 1,068,794, the army accounting for 922,655 and the navy for 146,139 casualties.

Other United Nations.—The British commonwealth and empire armed forces suffered the following total casualties from Sept. 3, 1939, to Aug. 14, 1945, according to a statement by the prime minister in commons:

	Killed, including died of injuries	Missing	Wounded	Prisoners of war	Total
United Kingdom . . . . .	244,723	53,039	277,090	180,405	755,257
Canada . . . . .	37,476	1,843	53,174	9,045	101,538
Australia . . . . .	23,365	6,030	39,803	26,363	95,561
New Zealand . . . . .	10,033	2,129	19,314	8,453	39,929
South Africa . . . . .	6,840	1,841	14,363	14,589	37,633
India . . . . .	24,338	11,754	64,354	79,489	179,935
Colonies . . . . .	6,877	14,208	6,972	8,115	36,172
Total . . . . .	353,652	90,844	475,070	326,459	1,246,025

For the same period, war casualties of merchant seamen were:

Deaths . . . . .	30,189
Missing . . . . .	5,264
Wounded . . . . .	4,402
Internees . . . . .	5,556
Total . . . . .	45,411

Soviet war dead on the eastern battle fronts were estimated by a general of the Red army in Berlin as between 12,000,000 and 15,000,000, one-half of them soldiers and the other half civilians. The casualties in the short war with Japan were officially announced as 8,219 killed and 22,264 wounded. Civilian losses in the Ukraine alone amounted to 2,500,000-dead and 1,500,000 missing according to the *Red Star*, soviet army newspaper.

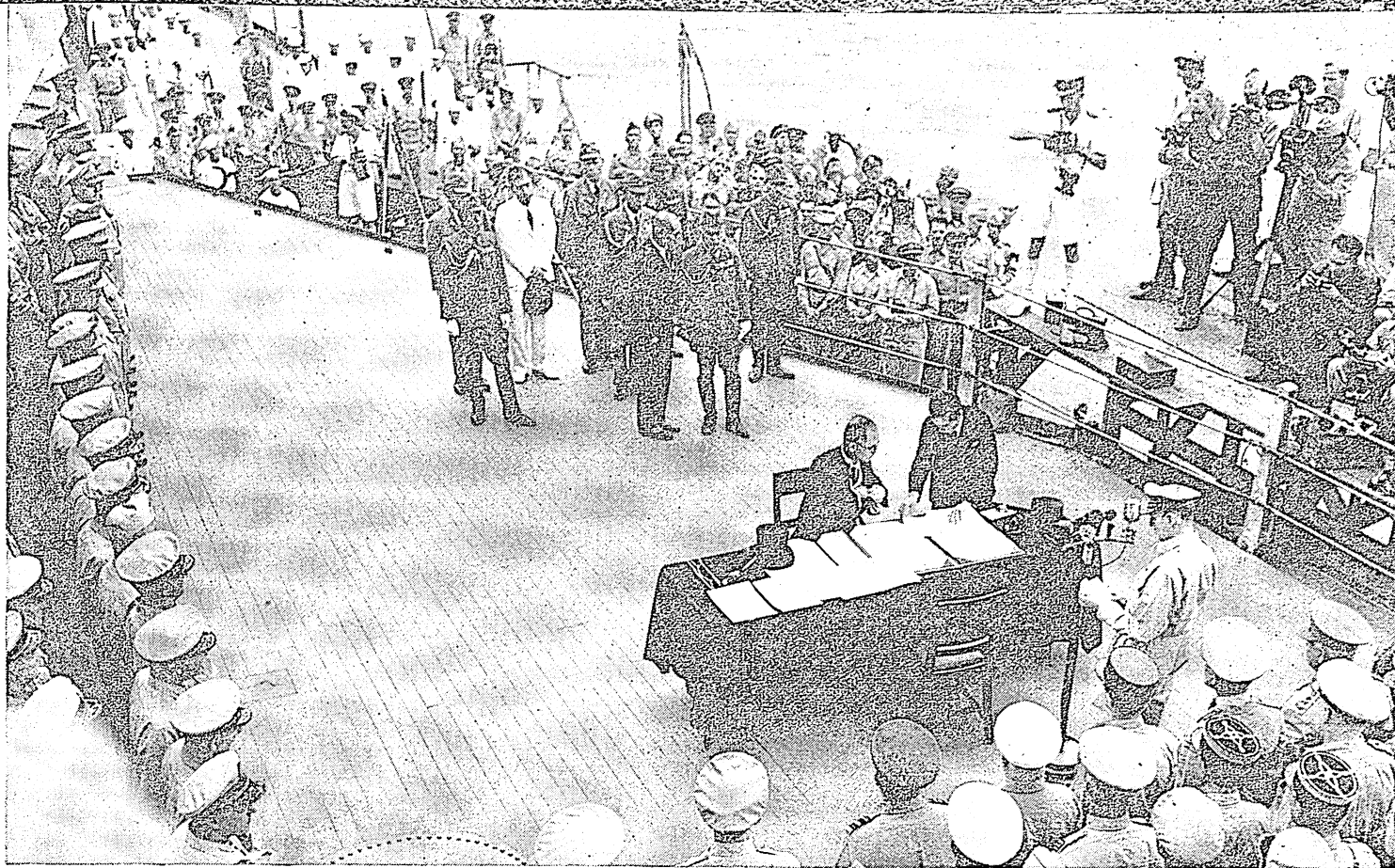
Official figures for Chinese military casualties during eight years of fighting the Japanese, as of July 1945, were:

Killed . . . . .	1,310,224
Wounded . . . . .	1,752,591
Missing . . . . .	115,248
Total . . . . .	3,178,063

French casualties from Sept. 1939, totalled 1,235,000 including 200,000







THE JAPANESE SURRENDER document was signed aboard the U.S.S. "Missouri" in Tokyo bay on Sept. 2, 1945 (Japanese time). Gen. Douglas MacArthur is shown broadcasting the ceremonies as Japanese Foreign Minister Mamoru Shigemitsu signs for the emperor. Behind him, Gen. Yoshijiro Umezu, chief of the imperial general staff awaits his turn to sign, and at the left stand a line of ranking U.S. army and navy officers

17,494 killed, 9,353 wounded and 17,647 missing. There were also 3,584 deaths in the navy. (See also ATOMIC BOMB.) (W. B. M.)

killed and 250,000 seriously wounded in the armed forces. About 100,000 civilian victims died from acts of war in France, 50,000 were executed by the enemy and 300,000 died in Germany; 208,000 were repatriated as invalids from Germany and 127,000 civilians were wounded in France.

Belgian casualty figures, as revised after its liberation, included 7,760 military deaths either in action in May 1940 or in captivity. 20,271 civilians were killed from Sept. 1939, to the end of the war.

Out of a total population of 3,706,349 (1935 census) Denmark lost 3,006 lives in the war. Of these, 1,500 were seamen in the Free Danish merchant navy and volunteers in Allied armies.

The war cost Greece 415,300 dead out of a population of 7,350,000. This included 23,700 deaths in action against Italians and Germans; 260,000 civilian deaths due to starvation; 7,000 deaths through bombings; 40,000 slain by Bulgarians; 30,000 executed by the enemy; 50,000 killed in guerrilla warfare; 1,100 killed in the middle east; 3,500 killed in the navy and the merchant marine. Of the 210,000 refugees in the middle east and the deported persons, 50% would probably never return to Greece, while the loss from reduced birth rate during four years of war amounted to 410,000.

Military casualties of the Netherlands for the entire war period were 6,238 killed and 87 missing. During the same period, 25,000 civilian underground workers were killed.

Norway, with a total population of 3,000,000, lost more than 10,000 lives in the war including 900 members of the naval and air forces and 3,200 merchant seamen.

Polish military casualties were 265,800 killed and wounded in the various campaigns of the war. About 5,000,000, or 14% of the population (including 3,000,000 Jews), were killed, starved or perished in concentration camps.

Yugoslavia had 1,685,000 civilian and military dead, 75% of them in battle with the Germans.

Axis Nations.—Estimated losses of the German armed forces in killed, permanently wounded and permanent medical cases between Sept. 1, 1939, and May 10, 1945, were placed at 7,400,000 by the British prime minister in commons on Oct. 11, 1945. A captured German document gave the total casualties for all services up to Nov. 30, 1944, as 4,064,438. However, Adolf Hitler was stated to have announced on Feb. 24, 1945, that total war losses were 12,500,000 including 6,300,000 killed, 3,000,000 seriously wounded and 3,200,000 captured. The medical branch of the U.S. Strategic Bombing survey stated on Dec. 10, 1945, that 500,000 civilians were killed in Germany by Allied bombs, while 700,000 were injured.

The Japanese government on Sept. 5, 1945, listed the army dead in action and from illnesses due to the war as 350,000, while navy dead were 158,795. Army wounded were given as 4,616,000. Civilians dead from air raids were given on Aug. 23, 1945, as 241,309 and civilians injured as 313,041.

Italian military casualties, while fighting on the axis side, were officially stated to be 60,000 dead, 200,000 missing and 500,000 captured. After the armistice, fighting on the Allied side, Italy suffered between Sept. 8, 1943, and April 30, 1945, a total of 44,494 army casualties including

## V.—COST IN MONEY OF WORLD WAR II

Statistical accuracy in the computation of the costs of World War II could not be obtained by the close of 1945. There was no precise date when the war costs began, nor when such costs would end, nor was it possible to distinguish the point where normal defense costs faded into preparedness costs, nor was the value of discarded supplies left over from World War I that were used throughout World War II determinable, and other unmeasurable costs were reduced to figures by sheer conjecture. The result of these factors had been widely varying tentative conclusions as to the costs of World War II.

In the president's budget message, Jan. 9, 1945, the cost of the war through the fiscal year 1946 was estimated at \$450,000,000,000, but this was based on the assumption that the war would end in 1946. For the United States, the cost of World War II as of V-E day had reached \$275,703,000,000 according to the secretary of treasury, who reported that the U.S. had spent during 1941 about \$6,700,000,000; 1942—\$28,300,000,000; 1943—\$75,100,000,000; 1944—\$89,700,000,000; 1945—\$75,900,000,000. Obviously these figures reflect only the monetary transactions of the treasury. Moreover, these monetary figures do not include costs of corporate conversion and reconversion, private voluntary efforts of bond sales, Red Cross voluntary assistance and gifts, nor the loss of irreplaceable natural resources, nor the losses suffered by the people through curtailment of civilian production or reduced consumption of normal imports, or the psychological costs of suffering and sorrow.

One of the most reliable estimates of the monetary costs of World War II to the people of the United States, submitted to the *United States News*,<sup>1</sup> showed the following breakdown of expenditures:

Munitions:	
Aircraft costs . . . . .	\$ 47,352,000,000
Navy and other ships . . . . .	41,287,000,000
Ammunition . . . . .	21,570,000,000
Tanks, jeeps and motor transport . . . . .	21,369,000,000
Guns and their precision instruments . . . . .	11,558,000,000
Radio, telephone and electronics . . . . .	11,442,000,000
Combat clothing, and munition supplies . . . . .	40,851,000,000
Total munitions . . . . .	\$195,429,000,000
Non-munitions:	
Pay, subsistence and travel . . . . .	\$ 69,122,000,000
War construction costs . . . . .	28,000,000,000
Other non-munition items . . . . .	48,940,000,000
Total non-munitions . . . . .	\$146,062,000,000
Total war costs, June 30, 1941, to Dec. 31, 1946 . . . . .	\$341,491,000,000

In contrast with the foregoing data, the research staff engaged in studying war costs at American university, Washington, D.C., concluded that the cost of World War II to the people of the United States between Dec. 7, 1941, and Aug. 14, 1945, had approximated \$317,600,000,000. This study also reported that the cost of the war to Russia had amounted to \$192,000,000,000; the United Kingdom \$120,000,000,000; Germany \$272,000,000,000; Italy \$94,000,000,000; and Japan \$56,000,000,000. Thus for the leading nations, the cost of the war exceeded a million

<sup>1</sup>Reprinted from *United States News*, an independent weekly newspaper on national affairs, published in Washington, D.C., copyright 1946 by United States News Publishing Corporation.



THIS COAST GUARD lookout aboard an L.S.T. kept sharp watch one morning in 1945 as dawn broke and threw into relief a U.S. armada moving toward Luzon

million dollars: \$1,051,600,000,000.

When other nations are included, greater uncertainties arise. The costs of the war to the Chinese peoples were immense but unfortunately no reliable data were available to indicate even a rough approximation of their war costs. Official reports of many countries do not include obvious war costs. The rate at which the monetary units of different countries may be converted into U.S. dollars had varied widely during the war and arbitrary judgment was required to reduce war costs to a common dollar basis. After making adequate allowance for probable error, the following table shows the minimum costs of World War II to other peoples:

Country	Cost
Canada . . . . .	\$15,680,000,000
France, 1935 to the capitulation . . . . .	9,000,000,000
After Normandy landings . . . . .	6,000,000,000
Belgium . . . . .	3,250,000,000
Poland—to fall of Warsaw . . . . .	1,550,000,000
Czechoslovakia, 1935 to invasion . . . . .	800,000,000
Netherlands—to invasion . . . . .	925,000,000
Greece—1935-1942 . . . . .	220,000,000
Yugoslavia, 1935-1942 . . . . .	200,000,000
South American countries . . . . .	8,000,000,000
Mexico . . . . .	200,000,000
China (estimates unreliable) . . . . .	.....
Estimated costs of World War II . . . . .	\$45,825,000,000

Unfortunately, inadequate data were available to indicate the war costs to the peoples of Finland, Norway, Latvia, Lithuania, Estonia, Hungary, Rumania, Bulgaria, and to such neutral nations as Turkey, Sweden and Iran. For the nations reporting reasonably accurate data, it appeared to be clear that the costs of World War II exceeded \$1,097,400,000,000. World War II was, indeed, a "million million dollar war!" (E. H. HE.)

**WPB:** see WAR PRODUCTION BOARD.

**WRA:** see WAR RELOCATION AUTHORITY.

**Wrestling.** Three triple champions were crowned in the 1945 National A.A.U. wrestling championships, contested at Dallas, Tex. Dr. A. M. Northrup, San Francisco

veterinarian, won his third national title in as many years and his second straight in the 175-lb. division. In 1943 he won the 165-lb. crown. Richard Vaughan of Lancaster, Pa., repeated the heavyweight conquests he made in 1944 and 1937. Douglas Lee of Baltimore, winner of the 135-lb. class in 1941 and 1942, won the 155-lb. title in 1945. The Oklahoma City Y.M.C.A., with 34 points, won the team championship, followed by the Corpus Christi Naval Air Training base, 17, and San Francisco Olympic Club, 9. (M. P. W.)

**WSA:** see WAR SHIPPING ADMINISTRATION.

**Wyoming.** A Rocky mountain state, admitted to the union July 10, 1890, as the 44th state. Leadership in the extension of rights to women gave it the name "Equality state." Land area 97,506 sq.mi.; water area 408 sq.mi.; pop. (1940) 250,742. The rural population was 157,165; urban 93,577; 229,818 native white; 950 Negro; 17,107 foreign born. On July 1, 1944, the bureau of census estimated the population of the state at 257,108. Capital, Cheyenne (1940: 22,474). Other cities of 10,000 or more: Casper (17,964); Laramie (10,627); Sheridan (10,529).

**History.**—State officials for 1945 were: governor, Lester C. Hunt (D.); secretary of state, William Jack (D.); auditor, Carl Robinson (D.), who resigned Sept. 15, 1945; John J. McIntyre (D.) was appointed by the governor, Sept. 16, 1945, as state auditor; treasurer, Earl Wright (R.); superintendent of public instruction, Esther Anderson (R.). Wyoming supreme court justices for 1945 were: Fred H. Blume (R.), chief justice; Ralph



Kimball (R.) and William Riner (R.), associate justices.

**Education.**—The number of elementary schools in 1945 was 1,040, with an enrolment of 40,420, and with 1,016 teachers. There were 136 high schools and 20 permit high schools (two years only) with an enrolment of 14,103 students and with 750 high school teachers. Total salaries of teachers, superintendents, supervisors and principals was \$3,370,254.09.

**Social Insurance and Assistance, Public Welfare and Related Programs.**—Estimated expenditures for 1945 for social assistance and public welfare were as follows: aid to dependent children \$190,220 (380 cases); old-age assistance \$1,275,142 (580 cases); general relief \$150,320 (540 cases); aid to the blind \$53,600 (128 cases).

In 1945 Wyoming had three correctional institutions, one state training school, one industrial institute for boys and one industrial school for girls. Estimated expenditures for 1945 were as follows: penitentiary \$236,672 (223 inmates); industrial boys' school \$61,400 (84 inmates); industrial girls' school \$45,260 (85 inmates); state training school \$118,862 (386 inmates); hospital for insane \$140,622 (666 inmates). Other state institutions and their estimated expenditures for 1945 were: state children's home \$32,609 (41 inmates); Wyoming general hospital \$188,252 (140 beds); Hot Springs State park \$12,111; tuberculosis sanatorium \$36,118 (23 patients); soldiers' home \$30,622 (32 inmates).

**Communications.**—In Nov. 1945, state highways totalled 4,082 mi.; rural highways 20,012 mi.; railroads 1,996.2 mi. (main tracks, taxable).

**Banking and Finance.**—On June 30, 1945, there were 30 state banks with deposits of \$40,021,216 and resources of \$44,230,610. National banks numbered 26, with deposits of \$99,111,106.23 and resources of \$109,613,004.21. There were ten insured savings and loan associations.

Total receipts for the fiscal year were \$16,312,140.26; disbursements \$15,102,244.87; gross bonded debt \$2,520,000.

**Ranching and Agriculture.**—Wyoming livestock products sold for approximately between \$72,000,000 and \$79,000,000 in 1945, and other farm products sold at between \$15,000,000 and \$22,000,000 for the same period.

Table I.—Leading Ranch and Farm Products of Wyoming, 1945 and 1944

Product	1945 (prel.)	1944
Cattle . . . . .	1,109,000	1,052,000
Hogs . . . . .	136,000	164,000
Sheep . . . . .	3,898,000	3,521,000
Wool, lb. . . . .	30,110,000	29,118,000
Tame hay, tons . . . . .	792,000	761,000
Wheat, bu. . . . .	3,290,000	3,198,000
Sugar beets, tons . . . . .	310,000	305,000
Dry beans, cwt. . . . .	1,400,000	1,251,000
All corn, bu. . . . .	1,300,000	1,260,000
Potatoes, bu. . . . .	2,200,000	2,170,000

**Manufacturing.**—The value of manufactures, excluding oil refining and dairying, was estimated at \$27,000,000 for 1944. No figures were available for 1945.

**Mineral Production.**—The total value of Wyoming's principal mineral production in 1945 was estimated at \$55,140,000. Petroleum was the

Table II.—Principal Mineral Products of Wyoming, 1945 and 1944

Minerals	Taxable valuation	
	1945	1944
Petroleum . . . . .	\$30,892,000	\$28,850,108
Bituminous coal . . . . .	18,900,000	18,671,170
Iron . . . . .	2,600,000	2,316,244
Bentonite . . . . .	300,000	273,095
Natural gas . . . . .	1,900,000	1,359,368

principal mineral product. The largest producer among the numerous fields was Lance Creek. (M. H. E.)

**X-Ray.** The year 1945 was notable as the 50th anniversary of the discovery of X-rays. This event, which had such a far-reaching effect upon the practice of medicine and which revolutionized theories held concerning the nature of matter and energy, took place on Nov. 8, 1895, at the University of Würzburg. The discoverer, Wilhelm Konrad Roentgen, published his first paper on this great discovery, entitled "On a New Kind of Rays," in the *Sitzungsberichte* of the Würzburg Physical Medical society on Dec. 28, 1895. In that first paper and another later published in the same journal March 9, 1896, Roentgen set forth all of the properties of X-rays which are known with one exception, the ionization of gases.

Almost immediately after publication of these papers, beginnings were made in many countries to apply the new rays to the diagnosis and treatment of disease. Numerous historical articles published in medical journals during Nov. and Dec. of 1945 attest the widespread use of X-rays in medicine at the end of the first half-century following their discovery. Articles in the *American Journal of Roentgenology and Radium Therapy* and *Radiology* will serve to inform the interested reader of the de-



ITALIAN CHILD being X-rayed in Rome during the U.N.R.R.A. campaign against tuberculosis in 1945, as U.N.R.R.A. official looked on

velopment and present status of radiology in various fields of medical practice.

An important investigation carried on during 1945 was concerned with the prevalence and cause of pulmonary calcification. Because pulmonary calcification has long been considered evidence of healed tuberculosis many men were rejected for military service when excessive calcification was found by roentgenographic examination. An analysis of the incidence of pulmonary calcification shown by X-ray examination in conscripted men made early in World War II showed that the prevalence of calcified lesions varied widely in different parts of the United States from 6% in Oregon to 28% in Kentucky. There is a large area in the east central states where the incidence of lung calcifications was much higher than in surrounding areas and the remainder of the country. It was also noted that the prevalence of calcifications was generally much higher than that of positive reactions to tuberculin. These and other considerations led to an investigation of pulmonary calcification conducted co-operatively by the National Tuberculosis association, the U.S. public health service and a large number of specialists throughout the country. About 10,000 student nurses in 65 schools located in nine widely separated cities were the material for study.

The investigation confirmed by X-ray examination the regional differences in prevalence of pulmonary calcification and also the fact that the frequency of calcification is relatively high in the east central area of the country. It also established the fact that the majority with calcification have negative tuberculin reactions.

The possibility that pulmonary calcification might result from infection by *Histoplasma capsulatum* was then investigated.

Preliminary data were based on the results of chest roentgenograms, tuberculin tests and intradermal histoplasmin tests on 3,103 student nurses in four centres. The results indicated that infection with histoplasma, or an immunologically related organism, is common in some localities, and that it is probably the principal nontuberculous cause of pulmonary calcification.

The investigation was not completed, but if the final results turn out to be essentially the same as those given in the pre-



liminary report a number of implications were expected to be apparent. Histoplasmosis may be a much more common disease, especially in a central area of the U.S., than has been the conception in the past. Its nonrecognition may be because its clinical manifestations are so slight as not to have been recognized. A second result of the investigation is apparent proof that the high incidence of pulmonary calcification in certain areas is the result of infection with *Histoplasma capsulatum* or a related organism, and not to tuberculosis. (See also CANCER; PHOTOG-  
RAPHY; TUBERCULOSIS.)

BIBLIOGRAPHY.—Carroll E. Palmer, "Nontuberculous Pulmonary Calcification and Sensitivity to Histoplasmin," *Pub. Health Rep.*, 60:513-520 (May 11, 1945). (A. C. CH.)

**Yachting.** The ending of World War II in the European theatre in early May and the consequent lifting of restrictions on sailing off the east coast of the United States restored yachting to something of its prewar status. Thus the season of 1945 in all sections of the United States excepting the west coast, where the waters were restricted until the end of the war in the Pacific, was an active one with both the racing and the cruising men. While the racing was still confined to the classes of smaller yachts, without paid crews, toward the end of the season a number of the larger yachts and ocean racers came out and participated in the long-distance events. For the first time in four years, there was a limited amount of building, but this was confined chiefly to experimental and development jobs, using some of the new materials perfected during the war, such as moulded plywood and, in very small craft, some of the new plastics. A class of some 50 little racing boats known as the L 16's was built (16 ft. on the water line) as well as several boats for the junior sailors. Several cruisers of some 50 ft. in length over-all were also launched, which followed in general type and construction those built before World War II.

Several events of intersectional or international scope were sailed, but in most of these, because of transportation difficulties, the boats were provided by the club holding the race, and were sailed by crews representing the competing organizations. Chief of these was the 24th world's championship of the Star class, sailed on Long Island sound off Stamford, Conn., which brought entries from 21 fleets from all parts of the United States, from Cuba and Canada. The championship was taken by the San Diego (Calif.) Bay fleet, Malin Burnham, skipper, with 87 points; the Los Angeles entry, James Cowie, skipper, being the runner-up with 85 points. Among the college sailors, the U.S. coast guard academy crew won the McMillan trophy for the intercollegiate championship sailed on Shinnecock bay, and Massachusetts Institute of Technology took the college Star class title. In the sailing dinghy trophies, M.I.T. also took the Danmark and the Fowle trophies.

After a lapse of four years during the war, the Lake (Ontario) Yacht Racing association resumed its annual regatta and brought together 90 yachts from Canada and the United States, at Hamilton, Ont. Winners of principal classes and trophies: Freeman cup, "Tramp Royal," Col. L. Grant; 12- and 10-metre class, "Mitena," J. VanVoories; Class P and 30's, "Blue Moon," J. A. Williamson; 8 metres, "Bangalore," E. J. Doyle; Class R, "Shadow," N. and K. Casle; 6-metre, "Jill," Howard Klitgard.

Long-distance racing saw the Vineyard race (232 mi.) resumed by the Stamford Yacht club. Winners, Class A, "Revonoc," Harvey Conover; Class B, "Chanteyman," E. R. Raymond, Jr. The Chicago-Mackinac race (Lake Michigan) had 37 starters. Winners: racing division, "Cara Mia," L. L. Karas; cruising class, "Bangalore Too," Lombard and Kinsey. Port Huron-Mackinac race (Lake Huron) saw only six yachts finish out of 40 starters because of very severe weather. Winners:

"Blitzen," Grates-Knapp, in racing cruising division; "Shamrock," Wunsch-Kerr, in racing division. (H. L. St.)

**Yale University.** As 1945 drew to a close, Yale was in the midst of transition from war to peace. The army air force technical training school, which at one time occupied a third of the university buildings and graduated 13,000 officers, had left the university. Army, navy and marine students in college training programs were reduced sharply in number and a school for training officer specialists for Japan terminated when hostilities ceased.

The Yale studies for returning servicemen, under the direction of Professor Ralph H. Gabriel, became increasingly important as hundreds of applications were received from veterans desiring to resume college work. The returned serviceman was offered his choice of a standard program of studies in one of the schools or of a special course arranged to meet his needs and capacities. He was urged to participate in all university affairs.

A revised peacetime liberal arts course, designed to bring college students to increased intellectual maturity, was adopted. It was intended to provide an undergraduate with fundamental studies, acquaint him with the great fields of knowledge and make him a reasonably competent person in a limited field. The course had three essential features: a standard plan for the majority of students; an experimental, controlled educational program for selected students of demonstrated ability; and a program freeing men of exceptional merit from formal requirements. Assigned summer reading was to be required.

Three new research centres were established—a labour and management centre, an institute of occupational medicine and hygiene and a nutrition laboratory.

Emphasis on far eastern studies, brought into focus by the war, continued with a staff officers' school for Asiatic studies and a school in Chinese for U.S. religious and medical missionaries, educators and state department officials.

Reorganization of the work of the Sheffield Scientific school was completed and its faculty became the teaching body in mathematics and the sciences for the graduate school. Undergraduate courses in science were placed under the control of Yale college. The National Yale Alumni Placement service was prepared to give aid to several thousand younger graduates returning to civilian life from the armed forces. (For statistics of faculty, enrolment, endowment, library volumes, etc., see UNIVERSITIES AND COLLEGES.) (C. A. L.)

**Yalta Conference.** Yalta is a well-known Russian resort on the Crimean coast of the Black sea which became internationally famous as a result of the meeting of the original Big Three, Roosevelt, Stalin and Churchill in Feb. 1945. The meeting, popularly known as the Yalta conference, was held under conditions of extreme wartime secrecy. A communiqué issued on Feb. 12 stated that the conference had lasted eight days, gave the names of the participants and summarized the principal political conclusions which were reached. (The communiqué is set out below.)

There were also military conversations among high-ranking U.S., British and Russian officers; but the contents of these were naturally not disclosed. Among those who participated in the conference as members of the U.S. delegation were Secretary of State Edward R. Stettinius, Gen. George C. Marshall, Adm. Ernest J. King, Harry Hopkins, Adm. William D. Leahy and Averell W. Harriman, ambassador to the soviet union.

The policy of the participating powers toward Germany was defined, and one of the most important decisions of the conference concerned the government of Poland. A few weeks before the opening of the conference the soviet government had

recognized the Lublin committee, a communist-dominated and soviet-oriented political grouping, as the government of Poland. Great Britain and the United States maintained diplomatic relations with the Polish government-in-exile in London.

It was agreed that the new Soviet-Polish frontier should follow the Curzon line, "with digressions from it in some regions of five to eight kilometres in favour of Poland." This decision took away from Poland about two-fifths of its prewar territory with a mixed population of Poles, Ukrainians, White Russians and Jews, the Poles being the largest single ethnic group, according to the latest census figures. Poland was to "receive substantial accessions of territory in the north and west."

It was agreed that there should be joint action of the three powers to assist the peoples in countries liberated from axis rule and that "the establishment of order in Europe and the rebuilding of national economic life must be achieved by processes which will enable the liberated peoples to destroy the last vestiges of nazism and fascism and to create democratic institutions of their own choice."

In regard to Yugoslavia the conference decided that the agreement between Marshal Tito and Dr. Ivan Subasitch (Subasic) (representative of the Yugoslav government in London) should be put in effect and lead to the formation of a new government. It was also recommended that this new government should enlarge the anti-Fascist Assembly of National Liberation to include members of the last Yugoslav parliament who had not "compromised themselves by collaboration with the enemy." It was also agreed that "permanent machinery should be set up for regular consultation between the three foreign secretaries." (See also RECONSTRUCTION PLANNING; UNITED NATIONS CONFERENCE ON INTERNATIONAL ORGANIZATION; UNITED STATES.) (W. H. CH.)

#### REPORT OF THE CONFERENCE

For the past eight days, Winston S. Churchill, Prime Minister of Great Britain, Franklin D. Roosevelt, President of the United States of America, and Marshal J. V. Stalin, Chairman of the Council of People's Commissars of the Union of Soviet Socialist Republics, have met with the Foreign Secretaries, Chiefs of Staff, and other advisors in the Crimea.

The following statement is made by the Prime Minister of Great Britain, the President of the United States of America, and the Chairman of the Council of People's Commissars of the Union of Soviet Socialist Republics on the results of the Crimean Conference:

##### THE DEFEAT OF GERMANY

We have considered and determined the military plans of the three allied powers for the final defeat of the common enemy. The military staffs of the three allied nations have met in daily meetings throughout the Conference. These meetings have been most satisfactory from every point of view and have resulted in closer coordination of the military effort of the three allies than ever before. The fullest information has been interchanged. The timing, scope and coordination of new and even more powerful blows to be launched by our armies and air forces into the heart of Germany from the East, West, North and South have been fully agreed and planned in detail.

Our combined military plans will be made known only as we execute them, but we believe that the very close working partnership among the three staffs attained at this Conference will result in shortening the War. Meetings of the three staffs will be continued in the future whenever the need arises.

Nazi Germany is doomed. The German people will only make the cost of their defeat heavier to themselves by attempting to continue a hopeless resistance.

##### THE OCCUPATION AND CONTROL OF GERMANY

We have agreed on common policies and plans for enforcing the unconditional surrender terms which we shall impose together on Nazi Germany after German armed resistance has been finally crushed. These terms will not be made known until the final defeat of Germany has been accomplished. Under the agreed plan, the forces of the three powers will each occupy a separate zone of Germany. Coordinated administration and control has been provided for under the plan through a central control commission consisting of the Supreme Commanders of the three powers with headquarters in Berlin. It has been agreed that France should be invited by the three powers, if she should so desire, to take over a zone of occupation, and to participate as a fourth member of the control commission. The limits of the French zone will be agreed by the four governments concerned through their representatives on the European Advisory Commission.

It is our inflexible purpose to destroy German militarism and Nazism and to ensure that Germany will never again be able to disturb the peace of the world. We are determined to disarm and disband all German armed forces; break up for all time the German General Staff that has repeatedly



PRIME MINISTER CHURCHILL, President Roosevelt and Premier Stalin with members of their advisory staffs at the conference near Yalta in the Crimea during Feb. 1945

contrived the resurgence of German militarism; remove or destroy all German military equipment; eliminate or control all German industry that could be used for military production; bring all war criminals to just and swift punishment and exact reparation in kind for the destruction wrought by the Germans; wipe out the Nazi Party, Nazi laws, organizations and institutions, remove all Nazi and militarist influences from public office and from the cultural and economic life of the German people; and take in harmony such other measures in Germany as may be necessary to the future peace and safety of the world. It is not our purpose to destroy the people of Germany, but only when Nazism and militarism have been extirpated will there be hope for a decent life for Germans, and a place for them in the comity of nations.

##### REPARATION BY GERMANY

We have considered the question of the damage caused by Germany to the allied nations in this war and recognized it as just that Germany be obliged to make compensation for this damage in kind to the greatest extent possible. A commission for the compensation of damage will be established. The commission will be instructed to consider the question of the extent and methods for compensating damage caused by Germany to the allied countries. The commission will work in Moscow.

##### UNITED NATIONS CONFERENCE

We are resolved upon the earliest possible establishment with our allies of a general international organization to maintain peace and security. We believe that this is essential, both to prevent aggression and to remove the political, economic and social causes of war through the close and continuing collaboration of all peace-loving peoples.

The foundations were laid at Dumbarton Oaks. On the important question of voting procedure, however, agreement was not there reached. The present Conference has been able to resolve this difficulty.

We have agreed that a conference of United Nations should be called to meet at San Francisco in the United States on April 25, 1945, to prepare the charter of such an organization, along the lines proposed in the informal conversations at Dumbarton Oaks.

The Government of China and the Provisional Government of France will be immediately consulted and invited to sponsor invitations to the conference jointly with the Governments of the United States, Great Britain and the Union of Soviet Socialist Republics. As soon as the consultation with China and France has been completed, the text of the proposals on voting procedure will be made public.

##### DECLARATION ON LIBERATED EUROPE

The Premier of the Union of Soviet Socialist Republics, the Prime Minister of the United Kingdom, and the President of the United States of America have consulted with each other in the common interests of the peoples of their countries and those of liberated Europe. They jointly declare their mutual agreement to concert during the temporary period of instability in liberated Europe the policies of their three governments in assisting the peoples liberated from the domination of Nazi Germany and the peoples of the former Axis satellite states of Europe to solve by democratic means their pressing political and economic problems.

The establishment of order in Europe and the rebuilding of national economic life must be achieved by processes which will enable the liberated peoples to destroy the last vestiges of Nazism and Fascism and to create democratic institutions of their own choice. This is a principle of the Atlantic Charter—the right of all peoples to choose the form of government under which they will live—the restoration of sovereign rights and self-government to those peoples who have been forcibly deprived of them by the aggressor nations.

To foster the conditions in which the liberated peoples may exercise these rights, the three governments will jointly assist the people in any European liberated state or former Axis satellite state in Europe where in their judgment conditions require (A) to establish conditions of internal peace; (B) to carry out emergency measures for the relief of distressed peoples; (C) to form interim governmental authorities broadly representative of all democratic elements in the population and pledged to the earliest possible establishment through free elections of governments responsive to the will of the people; and (D) to facilitate where

necessary the holding of such elections.

The three governments will consult the other United Nations and provisional authorities or other governments in Europe when matters of direct interest to them are under consideration.

When, in the opinion of the three governments, conditions in any European liberated state or any former Axis satellite state in Europe make such action necessary, they will immediately consult together on the measures necessary to discharge the joint responsibilities set forth in this declaration.

By this declaration we reaffirm our faith in the principles of the Atlantic Charter, our pledge in the declaration by the United Nations, and our determination to build in cooperation with other peace-loving nations world order under law, dedicated to peace, security, freedom and general well-being of all mankind.

In issuing this declaration, the three powers express the hope that the Provisional Government of the French Republic may be associated with them in the procedure suggested.

#### POLAND

A new situation has been created in Poland as a result of her complete liberation by the Red Army. This calls for the establishment of a Polish provisional government which can be more broadly based than was possible before the recent liberation of Western Poland. The provisional government which is now functioning in Poland should therefore be re-organized on a broader democratic basis with the inclusion of democratic leaders from Poland itself and from Poles abroad. This new government should then be called the Polish Provisional Government of National Unity.

M. Molotov, Mr. Harriman and Sir A. Clark Kerr are authorized as a commission to consult in the first instance in Moscow with members of the present provisional government and with other Polish democratic leaders from within Poland and from abroad, with a view to the re-organization of the present government along the above lines. This Polish Provisional Government of National Unity shall be pledged to the holding of free and unfettered elections as soon as possible on the basis of universal suffrage and secret ballot. In these elections all democratic and anti-Nazi parties shall have the right to take part and to put forward candidates.

When a Polish Provisional Government of National Unity has been properly formed in conformity with the above, the government of the U.S.S.R., which now maintains diplomatic relations with the present provisional government of Poland, and the government of the United Kingdom and the government of the U.S.A. will establish diplomatic relations with the new Polish Provisional Government of National Unity, and will exchange ambassadors by whose reports the respective governments will be kept informed about the situation in Poland.

The three heads of government consider that the Eastern frontier of Poland should follow the Curzon line with digressions from it in some regions of five to eight kilometres in favour of Poland. They recognize that Poland must receive substantial accessions of territory in the North and West. They feel that the opinion of the new Polish Provisional Government of National Unity should be sought in due course on the extent of these accessions and that the final delimitation of the western frontier of Poland should thereafter await the peace conference.

#### YUGOSLAVIA

We have agreed to recommend to Marshal Tito and Dr. Subasic that the agreement between them should be put into effect immediately, and that a new government should be formed on the basis of that agreement.

We also recommend that as soon as the new government has been formed it should declare that:

(1) The anti-Fascist assembly of National Liberation (Avnoj) should be extended to include members of the last Yugoslav Parliament (Skupschina) who have not compromised themselves by collaboration with the enemy, thus forming a body to be known as a temporary Parliament; and,

(2) Legislative acts passed by the anti-Fascist Assembly of National Liberation will be subject to subsequent ratification by a constituent assembly.

There was also a general review of other Balkan questions.

#### MEETINGS OF FOREIGN SECRETARIES

Throughout the Conference, besides the daily meetings of the heads of governments and the Foreign Secretaries, separate meetings of the three Foreign Secretaries, and their advisors have also been held daily.

These meetings have proved of the utmost value and the Conference agreed that permanent machinery should be set up for regular consultation between the three Foreign Secretaries. They will, therefore, meet as often as may be necessary, probably about every three or four months. These meetings will be held in rotation in the three capitals, the first meeting being held in London, after the United Nations Conference on World Organization.

#### UNITY FOR PEACE AS FOR WAR

Our meeting here in the Crimea has reaffirmed our common determination to maintain and strengthen in the peace to come that unity of purpose and of action which has made victory possible and certain for the United Nations in this war. We believe that this is a sacred obligation which our Governments owe to our peoples and to all the peoples of the world.

Only with the continuing and growing cooperation and understanding among our three countries and among all the peace-loving nations can the highest aspiration of humanity be realized—a secure and lasting peace which will, in the words of the Atlantic Charter, “afford assurance that all the men in all the lands may live out their lives in freedom from fear and want.”

Victory in this war and establishment of the proposed international organization will provide the greatest opportunity in all history to create in the years to come the essential conditions of such a peace.

Signed: WINSTON S. CHURCHILL  
FRANKLIN D. ROOSEVELT  
J. STALIN

February 11, 1945.

**Yamashita, Tomoyuki** (? -1946), Japanese army officer, was a close student of German military tactics. An able strategist, he trained Japanese soldiers in the technique of jungle warfare and conceived the military plan for the Japanese invasion of Malaya, 1941-42. After a 10-week campaign, Singapore surrendered to Gen. Yamashita on Feb. 15, 1942. On March 9, Gen. Yamashita assumed command of the Philippines campaign. With a numerically superior army and air force, he won the battle of Bataan, April 9, and conquered the Corregidor island fortress, May 6, 1942. After the surprise landing of U.S. troops on Leyte, Oct. 20, 1944, Gen. Yamashita assumed personal command of the resisting enemy forces. His army was badly defeated in both the Leyte and Luzon campaigns.

Yamashita surrendered at Baguio, Luzon, to Lt. Gen. Jonathan M. Wainwright, Sept. 3, 1945, and was made a prisoner of war. Arraigned Oct. 8 in Manila before a military court on charges of being a war criminal, Yamashita pleaded not guilty and subsequently denied that he knew of atrocities committed in his command.

Although found guilty (Dec. 7) and sentenced to be hanged, he immediately filed an appeal through his counsels with the U.S. supreme court to contest the decision. The U.S. supreme court (Dec. 17), granted Yamashita a stay of his execution until a decision could be made on its intervention in the case. But on Feb. 4, 1946, the U.S. supreme court turned down his plea for it to intervene and he was hanged Feb. 23.

**Yeast.** During 1945 there was continued expansion in the United States of manufacturing facilities for the production of active dry yeast for baking, bringing to an unprecedented total the output of this product. Up until September, all active dry yeast produced was set aside by the government for use in baking by the armed services in World War II; thereafter civilian distribution of this product was resumed.

In Great Britain attention continued to be focused on production of food yeast as a source of protein and vitamins. The colonial office formed a company, Colonial Food Yeast, Ltd., to manufacture food yeast in Jamaica by growing on a substrate of sugar cane products the yeast *Torulopsis utilis*. Interest in yeast as a protein source, particularly as a rich source of the amino acid lysine, was also evidenced during 1945 in the United States.

From the scientific standpoint, an important advance was the work of Carl and Gertrude Lindegren of Washington university, St. Louis, Mo., in yeast genetics. Their theoretical studies of yeast reproduction and heredity found practical application in demonstrating that *Saccharomyces cerevisiae*, the common bakers' and brewers' yeast, could be given the ability to produce vitamins it ordinarily is unable to synthesize, by hybridizing with another species of yeast able to synthesize those particular vitamins.

**BIBLIOGRAPHY.**—Carl C. Lindegren and Gertrude Lindegren, “Vitamin-synthesizing Deficiencies in Yeast Supplied by Hybridization,” *Science*, 102:33 (1945); F. W. Tanner, Jr., Charles Vojnovich and J. M. Van Lanen, “Riboflavin Production by *Candida Species*,” *ibid.*, 101:180 (1945); J. O. Lampen, Helen L. Baldwin and W. H. Peterson, “The Synthesis of Para-aminobenzoic Acid by Yeast,” *Archives of Biochemistry*, 7:277 (1945). (F. W. N.)

**Yemen:** see ARABIA.

## Young Men's Christian Association.

The Young Men's Christian association is a world-wide fellowship seeking to improve the spiritual, social, recreational and physical life of young people, particularly young men and boys. In 1945 the Y.M.C.A. reached the peak of its war services



and began rebuilding peacetime programs. As one of the six co-operating agencies in the United Service organizations, the Y.M.C.A. conducted 453 centres for military personnel and 57 for war production workers in the United States. In addition, civilian associations opened their program and dormitory facilities to servicemen. Through its world's committee the Y.M.C.A. provided religious, educational and recreational materials to prisoners of war in 33 different countries at a cost of more than \$9,000,000. Similar services were continued for displaced persons in Europe. The volume of Y.M.C.A. sponsored programs for children and adolescents in school and neighbourhood groups continued to expand. Campus programs were reorganized and strengthened. Co-educational activities increased in every age group.

Y.M.C.A.s also recognized their responsibility to the association movements in eastern Europe, the near and far east, which were developed with North American aid as part of a world service program instituted in 1889. Funds were raised to help nationals of these countries replace bombed out buildings, destroyed or stolen equipment and scattered leadership. In 1945, expenditures of the 1,267 Y.M.C.A.s in the United States totalled \$70,416,200 and capital investment \$224,398,200. Officers were Howard A. Coffin, president, and Eugene E. Barnett, general secretary.

Headquarters of the National Council of the Y.M.C.A. were at 347 Madison avenue, New York 17. (O. E. P.)

YUGOSLAV PARTISAN presenting a flag to a tankman of the 2nd New Zealand division, which entered Trieste on May 3, 1945. Their arrival was protested by Marshal Tito, but territorial claims to the city were temporarily settled in June by an agreement on joint Allied administration

## Young Womens Christian Association.

The Young Womens Christian association in the United States continued in 1945 to carry special war projects while at the same time adapting its program to help women and girls meet the problems brought about by the change from a wartime to a peacetime economy. Through the World Emergency and War Victims fund, Y.W.C.A.s in all parts of the world were assisted by grants of money and personnel in meeting the special needs of women and girls in uniform and those engaged in war production work. After the end of World War II the efforts of this fund were directed toward helping in the re-establishment of Y.W.C.A.s in war-devastated countries, in recruiting and training Christian leadership for postwar work, and in giving material aid to the victims of war. The closing of many U.S.O. centres for which the Y.W.C.A. was responsible brought demands for similar continuing services from the communities affected. This meant increasing emphasis during the latter part of 1945 on expansion and the organizing of new Y.W.C.A.s. The executive body of the Y.W.C.A. of the U.S.A. is the National Board, headquarters at 600 Lexington avenue, New York 22, N.Y. President in 1945: Mrs. Henry A. Ingraham; general secretary, Mrs. Harrison S. Elliott. Publication: *The Woman's Press*. (M. S. Ss.)

**Yugoslavia.** A federal republic in southeastern Europe. Yugoslavia was established after World War I as the kingdom of the Serbs, Croats and Slovenes, and received the name Yugoslavia officially in 1929. Under King Peter II in



1941 it rejected German demands for collaboration; as a result of German aggression it was defeated and partitioned in 1941. It was liberated in 1945 by Russian and British armies and by the partisans under leadership of Marshal Tito (Josip Brozovich). Area 95,558 sq.mi.; pop. (est. Jan. 1, 1940) 15,703,000. Capital (1931 census): Belgrade, 238,775. Other chief cities: Zagreb, 185,581; Subotica, 100,058; Ljubljana, 59,767; Sarajevo, 78,173. Religion: 6,785,501 Greek Orthodox; 5,217,910 Roman Catholic; 1,561,166 Mohammedans; 231,169 Protestants; 68,405 Jews.

**History.**—By the beginning of 1945 the royal Yugoslav government, which had left Yugoslavia after heroic resistance against the Germans in 1941 and was established in London, like all other anti-German European governments in exile, tried to come to an agreement with the Anti-Fascist Council of National Liberation (A.V.N.O.J. or Antifasisticko Vijeće Narodnog Oslobođenja Jugoslavije) under its leader Marshal Tito. King Peter II agreed to the formation of a regency. A coalition cabinet was established in Belgrade in March. Of its 28 members, 6 represented the London government. The two most prominent of these were Ivan Subasitch, a Croat who became minister of foreign affairs, and Milan Grol, a Serb democrat. But all the power remained in the hands of Marshal Tito and other members of the Communist party. The secret police, the O.Z.N.A. (Odelenje Zastite Narod—Department of Defense of the People), was responsible for the maintenance of order and of the right spirit. By the end of the summer Dr. Subasitch and Dr. Grol had resigned from the cabinet.

On April 11 Yugoslavia concluded a 20-years' treaty with Russia. Yugoslav policy was conducted throughout 1945 in complete agreement with Russian policy. The huge Yugoslav army had not been demobilized by the end of 1945. Very much in the country had been destroyed and the economic and transportation situation suffered heavily from losses inflicted by the German-Italian occupation. The government evolved far-reaching plans for the improvement of economic conditions of the country and went with great energy after their realization.

The nationality problem which had afflicted Yugoslavia for 20 years was solved by the government by the creation of a federation in which the various nationalities and regions were put on an equal basis.

Yugoslavia was divided into six federal districts, Bosnia-Herzegovina, Croatia, Macedonia, Montenegro, Serbia and Slovenia, each with its own administration, mostly under communists. The Croatian Peasant party which represented the overwhelming majority of the Croats was in opposition; its famous leader, Dr. Vladimir Matchek, the veteran democratic leader of the Yugoslavs, went into exile. In Macedonia, Macedonian was recognized as a separate Slav language and was made the official language of south Serbia. A special alphabet was evolved for the new language. The creation of this new national Macedonia was to serve as a centre of attraction for Greek and Bulgarian Macedonia, which were coveted by Yugoslavia. The ministry of national education in Skoplje, the capital of the new Macedonia, published on July 1, 1945, the first issue of *Prosvetno Delo* in the new alphabet, the central Macedonian dialect being used as the new literary language.

On Nov. 11 elections were held for the constituent assembly. Only candidates of Marshal Tito's Liberation Front which formed the government presented themselves. The electorate voted overwhelmingly for the unique list of candidates. On Nov. 29 the constituent assembly proclaimed the federal People's Republic of Yugoslavia and abolished the monarchy. King Peter protested against it as a violation of the agreement concluded between Subasitch and Tito under guarantees of the Allies, and charged that a totalitarian tyranny reigned in Yugoslavia.

In the field of foreign policy the Yugoslav government raised demands upon Italy and Austria. From the latter it demanded Klagenfurt and the southern part of Kärnten (Carinthia); from Italy, Venezia Giulia, the former Austrian Küstenland, with the important port of Trieste. The demands for the Italian territory led to international complications which were not settled by the end of 1945. (See TRIESTE.)

**Agriculture, Minerals and Industry.**—Yugoslavia is the principal producer of minerals in the Balkans. Of greatest importance are its large deposits of copper, lead, zinc, bauxite and chrome. In view of the many streams and waterfalls, the hydro-electric power could be developed to a great extent and thus help the exploitation of the many untapped mineral resources. Most Yugoslav industry has been financed and developed by foreign capital and enterprise. Northwestern Yugoslavia is most highly developed industrially, while the southern and southeastern parts preserve their often primitive agricultural character.

**Education.**—Education on the elementary level was compulsory and free. In 1938 there were 8,727 elementary schools with 1,393,422 pupils. In addition to a large number of professional, industrial and agricultural schools, there were 197 high schools with 116,655 pupils and 32 training colleges for teachers with 3,199 pupils. There were 3 universities in 1938 with 16,207 students, at Belgrade (with a law school at Subotica and a school for arts and sciences at Skoplje), Zagreb and Ljubljana.

**BIBLIOGRAPHY.**—Hal Lehrman, "Yugoslav Democracy, Limited," *The Nation* (Sept. 8, 1945); Sam Pope Brewer, "The Ordeal of Yugoslavia," *The American Mercury* (Nov. 1945); Temple H. Fielding, "Tito, A Portrait from Life," *Harper's* (Oct. 1945); A. Pomerantsev, "Yugoslav Democracy Combats Reactionary Intrigues," *New Times* (Oct. 15, 1945). (H. Ko.)

**Yukon Territory.** Yukon Territory lies in the extreme northwest of continental Canada, bounded by Alaska, British Columbia, the Northwest Territories and the Arctic ocean. Area, 207,076 sq.mi.; pop. (1941) 4,914. Seat of government, Dawson. Local administration is in the hands of a territorial legislative council composed of three members elected triennially, and a controller. The Yukon is represented at Ottawa by one member of the house of commons. The Yukon was created a separate territory by parliament in 1898. At the general elections in July 1945, the Yukon returned the Progressive Conservative candidate.

**Communications.**—Communications within the territory are maintained by aeroplane, and, during the season of navigation, by steamship. From June till October, steamships ply regularly between Whitehorse and Dawson. A railway from Whitehorse to Skagway gives access to the Pacific. With the completion of the Canada-Alaska highway, the Yukon was brought into direct road communication with the rest of Canada. Approximately 570 mi. of the highway lie in the Yukon. The pipeline of the Canol project from Fort Norman reached railhead at Whitehorse, where a petroleum refinery was being built.

**Natural Resources.**—The gross value of production in 1943 was \$11,166,898. Of this total, furs represented \$338,035; lumber \$25,950; fish \$2,495. In 1944, the estimated value of mineral production was \$3,067,135. In 1944, the available water-power was 731,000 h.p. Turbine installation of the same date was 19,719 h.p. The continued economic development of the territory, especially of the Whitehorse region awaited clarification of the Canol project. The Canadian government in November waived its right of purchase. According to Canadian Press report, the Imperial Oil company was carrying out investigations to discover whether enough oil was available to make it a profitable commercial enterprise. (See CANADA.) (J. I. C.)

**Zanzibar and Pemba:** see BRITISH EAST AFRICA.

**Zhukov, Georgi Konstantinovich** (1895— ), Russian army officer, joined the Russian imperial army as a private in 1915. After the revolution, he attended the Frunze military academy, where he received his military training under Gen. Boris Shaposhnikov, crack soviet strategist. He was named chief of the red army general staff and vice-commissar for defense, Feb. 1941. During the nazi drive on Moscow in the fall of 1941, Zhukov was given command of the capital's defense forces on Oct. 23. His armies launched a series of counterattacks; in December, German defenses cracked under the hammering Russian blows, and Hitler's armies were driven back. Zhukov directed the counteroffensive at Stalingrad, but did not remain to direct the last steps, for early in Jan. 1943 he was sent to Moscow to co-ordinate the forces for raising the siege of Leningrad. On March 4, 1944, Zhukov was put in command of the first Ukrainian army, replacing Gen. Nikolai Vatutin. Starting at Poland's 1939 border, Zhukov launched an offensive which reached the borders of Czechoslovakia. Zhukov received the highest award of the soviet union, the order of victory, on April 10. Early in Jan. 1945, Zhukov led the 1st White Russian army in the drive on Berlin, which fell to the Russians May 2. The Russian marshal headed the Allied delegation that accepted the German surrender in Berlin, May 8.

Zhukov, appointed head of the Russian occupation forces in the reich, asserted June 9 that he was determined to pursue a program of economic disarmament that would make it impossible for the reich ever to rise again as a military power. His scheduled visit to the United States, Oct. 5, was cancelled, officially, because of illness.

**Zinc.** There were still gaps in 1945 in the official data on zinc production in the important countries, but by adding estimates from various sources a fairly complete table was compiled.

Table I.—World Production of Zinc

	(Thousands of short tons)					
	1939	1940	1941	1942	1943	1944
Australia . . . . .	79.8	84.6	89.1	86.2	81.0	87.5
Belgium . . . . .	204.7	72.	44	44	33	?
Canada . . . . .	175.6	185.7	213.6	215.8	206.5	169.7
France . . . . .	67.3	41.7	28.6	25.2	19.6	9.2
Germany . . . . .	234.6	248	292	292	276	?
Great Britain . . . . .	55.6	66	72	74	72	?
Italy . . . . .	39.0	44	?	?	?	?
Japan . . . . .	?	60	72	?	?	?
Mexico . . . . .	39.0	36.8	42.6	57.0	60.0	51.4
Netherlands . . . . .	22.6	7	?	?	?	?
Northern Rhodesia . . . . .	14.2	14.8	15.2	?	?	?
Norway . . . . .	50.6	19.0	7.1	8.3	16.7	5
Poland . . . . .	130.0	132	132	138	138	?
Spain . . . . .	14.8	13.6	21.1	21.1	21.2	19.9
U.S.S.R. . . . .	99	105	105	110	132	?
United States . . . . .	507.2	675.3	822.0	891.9	942.3	869.3
Total . . . . .	1,806	1,802	?	?	?	?

The figures in Table I include so many gaps and estimates that it is not possible to arrive at any total that would be worth while. It is to be noted, however, that in most cases the 1944 outputs decreased below 1943.

**United States.**—The salient features of the zinc industry in the United States are indicated in Table II.

Although consumption continued to increase in 1944, produc-

Table II.—Data of Zinc Industry in the U.S., 1940-44

	(Thousands of short tons)				
	1940	1941	1942	1943	1944
Mine production . . . . .	655.1	749.1	768.0	744.2	718.6
Smelter production . . . . .	675.3	822.0	891.9	942.3	869.3
Domestic ores . . . . .	590.0	652.6	630.0	594.2	574.5
Foreign ores . . . . .	85.3	169.4	261.9	348.1	294.8
Imports . . . . .	196.8	323.8	404.8	593.2	486.3
In ore . . . . .	180.3	289.2	368.4	537.0	422.7
Metal . . . . .	16.5	34.6	36.4	56.2	63.6
Secondary recovery . . . . .	222.0	284.0	330.5	368.5	345.5
Consumption . . . . .	733.1	827.4	728.2	816.8	888.6
Stocks . . . . .	88.1	92.0	155.6	261.0	298.9
Producers' . . . . .	20.0	25.1	84.4	170.6	233.7
Consumers' . . . . .	68.1	66.9	71.2	90.4	65.2

tion, imports and secondary recovery all declined. Mine production, which had averaged 60,000 tons monthly during 1944 declined from 56,669 tons in Jan. 1945 to 46,249 tons in August, followed by increases to 50,053 tons in October, and totalled 512,346 tons for the ten months. The output of slab zinc declined from 71,855 tons in Jan. 1945 to 62,902 tons in September, with a nine months' total of 613,553 tons. Consumption dropped even more sharply, from 86,228 tons in January to 53,533 tons in September, with a total of 668,554 tons in the period.

**Canada.**—Mine production of zinc in Canada was 225,412 short tons in 1944, declining to 204,818 tons in 1945.

(G. A. Ro.)

**Zirconium.** The small output of zirconium in the United States is negligible as compared with requirements, which are supplied by imports, mainly from Australia and Brazil; shipments from India were discontinued in 1943 and 1944. Imports during World War II years were as shown in the table.

Imports of Zircon and Baddleyite, 1940-44

	(In short tons)				Baddleyite from Brazil
	Australia	Zircon from India	Brazil	Total	
1940 . . . . .	7,387	3,609	*	10,996	1,591
1941 . . . . .	14,689	963	*	15,652	5,002
1942 . . . . .	11,145	196	...	11,341	15,283
1943 . . . . .	11,472	...	110	11,582	8,821
1944 . . . . .	11,317	...	101	11,418	2,231

\*Included with baddleyite.

Zircon was being produced on a small scale in 1945 by the concentration of beach sands in Florida.

(G. A. Ro.)

**Zoology.** During 1945 in the United States the first signs of recovery from the effects of World War II were apparent in zoology: many professional zoologists returned from the armed forces or from war-connected research projects to their former positions; appreciable numbers of graduate students re-entered the graduate schools; exchange of books and research papers between Europeans (except those in former enemy countries) and investigators elsewhere was resumed; editors in the U.S. noted an increase in the number of papers submitted from foreign countries—an increase which may be ascribed partly to the limited opportunities for publication elsewhere.

**Research and Publications.**—From the vast mass of publications—thousands of papers and hundreds of books and monographs—it is impossible to do more than select a few for consideration here.

**Anatomy and Cytology.**—F. Wood Jones produced a companion volume to his masterly study of the human hand in his detailed account of the anatomy, function, development and phylogeny of the foot; F. J. Cole wrote an important history of comparative anatomy; W. E. L. Clark's book on tissues retained its fresh originality in its second edition. Among more specialized works, N. B. Everett reviewed the perennial problem of the origin of germ cells in vertebrates and E. Stauffer, using ingenious techniques developed by F. Baltzer, followed the development of axolotl embryos made haploid by removal of the egg nucleus. G. Fankhauser reviewed his important studies of the effect of polyploidy on amphibian development.

**Animal Behaviour.**—The advance in knowledge of embryonic behaviour was summarized in A. Gesell's book which centres its interest on man, but draws heavily on comparative studies. The classical approach to the analysis of behaviour was exemplified in J. E. Smith's investigations of the starfish in which defects of movement and co-ordination were correlated with particular surgical lesions in the nervous system. Analysis of the social order in animals, so largely stimulated by the work of W. C.



Allee and his students, continued to be represented by numerous papers; among these may be mentioned the studies of aggressive behaviour in the rat by J. P. Seward.

**Embryology.**—Active investigations of the feather and feather pigmentation continued: Mary E. Rawles reported her ingenious transplantation of wing buds of chick embryos to body cavities of other embryos. The pigment cells of the host embryo then migrated into the wing and pigmented the graft skin; the skin was removed and transplanted to a chick of the original donor breed.

The pigment cells of the temporary host persisted and supplied pigment to succeeding generations of feathers.

J. Pasteels, seeking to answer the vexatious question of the origin of primary entoderm in birds, concluded from his studies of duck embryos, that it was formed by progressive delamination from the surface layer of cells. This conclusion, in harmony with Peters' results and opposed to the long-accepted view that entoderm invaginated around a blastopore, led to a radical interpretation of the two-layered stage: Pasteels no longer regarded this as a gastrula, but as a blastula with its cavity (the blastocoel) between the two layers.

This was a memorable year in the history of human embryology: A. T. Hertig and J. Rock described two well-preserved embryos younger than any previously known; one about seven and one-half and one about nine days old. These, together with several other slightly older embryos recovered by the same investigators, would make it possible to revise the accounts of the early development of man. Two of the older embryos—about 13½ and 16½ days—were also described by C. T. Heuser,

Hertig and Rock.

J. Brachet of the University of Brussels, although handicapped by lack of access to British and U.S. publications during the war, published a new book on chemical embryology—a rapidly developing field founded by J. Needham in 1931.

**Natural History and Taxonomy.**—In response to the needs of servicemen stationed in the islands of the Southwest Pacific, E. Mayr prepared a handbook of the birds of that immense region with adequate keys and illustrations to permit identification in the field. The fifth volume of J. L. Peters' *Check-list of Birds of the World* and the posthumous work of F. C. Baker on planorboid snails appeared.

Of both literary and scientific interest were T. Barbour's personal reminiscences of Florida and W. Beebe's anthology of writings in natural history—from Pliny to Julian Huxley.

**General.**—Perhaps the most widely-reviewed book was G. L. Simpson's highly original study of evolution. Simpson did much to bridge the gulf between genetics and palaeontology. He drew on the evidence and theory of both sciences to aid in elucidating rates and patterns in evolution. Other books, among the many which might be of more than transitory interest, are L. Loeb's study of individuality; the physicist E. Schrödinger's speculations about life (in the biological, not the general, sense) and R. Hofstadter's scholarly study of the effect of Darwinism on social thought in the U.S. (See also ENDOCRINOLOGY; ENTOMOLOGY; GENETICS; MARINE BIOLOGY; PALAEONTOLOGY; PHYSIOLOGY.)

**BIBLIOGRAPHY.**—F. C. Baker, *The Molluscan Family Planorbidae* (1945); T. Barbour, *A Naturalist's Florida* (1945); W. Beebe, *The Book of Naturalists: An Anthology of the Best Natural History* (1944); J. Brachet, *Embryologie Chimique* (1944); W. E. LeGros Clark, *The Tissues of the Body, an Introduction to the Study of Anatomy* (1945); F. J. Cole, *A History of Comparative Anatomy from Aristotle to the Eighteenth Century* (1944); N. B. Everett, *Biological Reviews*, 20 (1945); G. Fankhauser, *Quarterly Reviews of Biology*, 20 (1945); A. Gesell, *The Embryology of Behavior* (1945); A. T. Hertig and John Rock, *Carnegie Institution of Washington, Publication 557* (1945); C. T. Heuser, John Rock and A. T. Hertig, *ibid.*, 557 (1945); R. Hofstadter, *Social Darwinism in American Thought* (1944); F. Wood Jones, *Structure and Function as Seen in the Foot* (1944); L. Loeb, *The Biological Basis of Individuality* (1945); E. Mayr, *Birds of the Southwest Pacific* (1945); J. Pasteels, *Anatomical Record*, 93 (1945); Mary E. Rawles, *Physiological Zoology*, 18 (1945); E. Schrödinger, *What is Life? The Physical Aspect of the Living Cell* (1945); J. P. Seward, *Journal of Comparative Psychology*, 38 (1945); G. L. Simpson, *Tempo and Mode in Evolution* (1944); J. E. Smith, *Biological Reviews*, 20 (1945); E. Stauffer, *Revue Suisse de Zoologie*, 52 (1945). (G. P. DuS.)

**Zoological Gardens.**—In the United States, the New York zoological park announced a new information and educational service for students of animal life and a new department of insect life, for which the curator appointed was Brayton Eddy, administrator of entomology and plant industry for Rhode Island. A new station for scientific research, under the direction of Dr. William Beebe was to be established at Rancho Grande, by courtesy of the Venezuelan government, 3,000 ft. above sea level in 300 sq.mi. of tropical jungle. At the Bronx zoo a kangaroo was born and the pelican, Old Jenny, who had been there from 1904, died.

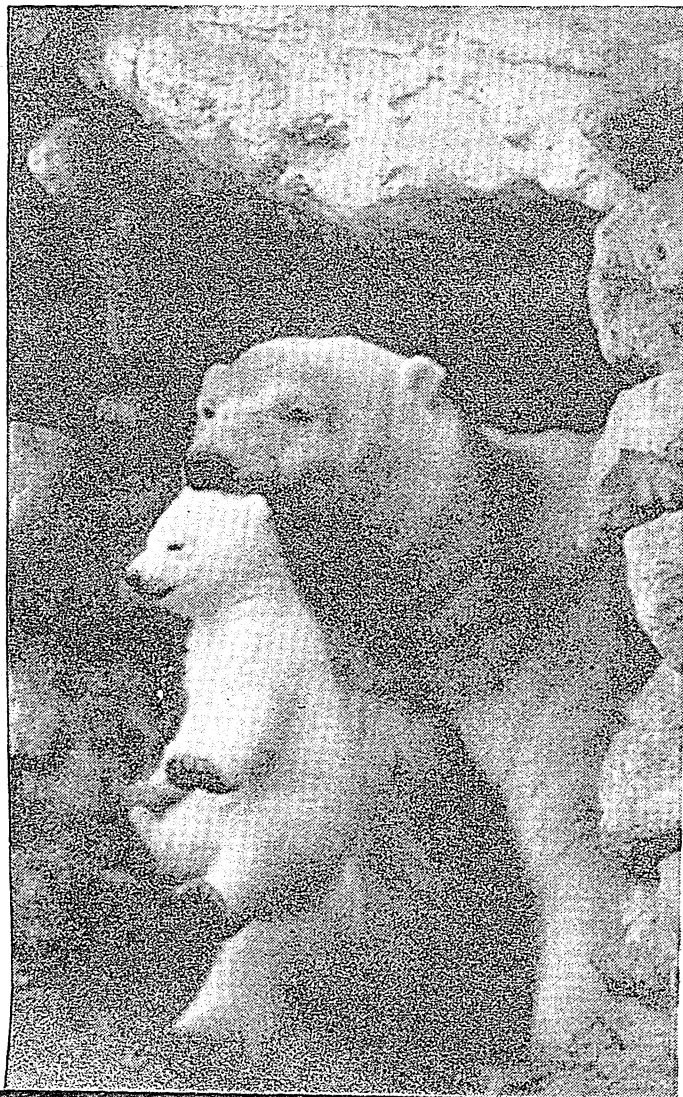
The London zoo lost Ming, the giant panda, who was valued at £2,000 and had been brought from western China before World War II. Twelve black-footed Cape penguins were important new arrivals. The "Pets' Corner" was opened for the first peace-in-Europe Whitsun holiday. Flying bombs had caused damage and loss in gate receipts, but the loss was made up by August and postwar reconstruction schemes costing £250,000 were planned.

Sir Peter Chalmers Mitchell, secretary of the zoo from 1903 to 1935, died from an accident in July.

Antwerp zoo was presented with two elephants by Field Marshal Montgomery's army group. In the Zurich zoo an unusual event was a successful operation for rupture on a newly born yak calf.

(V. R.)

POLAR BEAR Sultana II with her half-year old cub at the Washington Park zoo in Milwaukee, Wis., where they attracted crowds during 1945



# INDEX

The black type entries are article headings and cross references. These black type article entries do not show page notations because they are to be found in their alphabetical position in the body of the book, but they show the dates of the issues of the *Book of the Year* in which the articles appear. For example "Air Transport Command 46, 45, 44" indicates that the entry "Air Transport Command" is to be found in the 1946 *Book of the Year*, the 1945 *Book of the Year* and the 1944 *Book of the Year*. The reference "Agricultural Machinery: see Agriculture 46, 45, 44, 43. See Farm Machinery 42" indicates that the entry "Agricultural Machinery" is to be found in the article "Agriculture" in the 1946 *Book of the Year*, the 1945 *Book of the Year*, the 1944 *Book of the Year*, and the 1943 *Book of the Year*, and under the heading "Farm Machinery" in the 1942 *Book of the Year*. All black type entries without dates indicate that the same entries appear in all previous issues. Examples, not Advertising 46, 45, 44, 43, 42, but Advertising; not Abyssinia: see Ethiopia 46, 45, 44, 43, 42, but Abyssinia: see Ethiopia.

The light type headings which are indented under black type article headings and cross references refer to articles elsewhere in the text (of this issue only) related to the entry listed in black type. The light type headings which are not indented refer to information in the text (of this issue only) not given a special article. All the light type headings show page references.

All headings whether consisting of a single word or more are treated for the purpose of alphabetization as single complete headings. Names beginning with "Mc" and "Mac" are alphabetized as "Mac"; "St." is treated as "Saint." All references below show the exact quarter of the page by means of the letters *a*, *b*, *c*, and *d*, signifying respectively the upper and lower halves of the first column and the upper and lower halves of the second column.

Abbas II 45  
Abd-El-Aziz IV 44  
Aberhart, William 44  
Abrasives  
Abyssinia: see Ethiopia  
Academic Freedom: see Education  
Academy of Arts and Letters, American: see Societies and Associations 46. See American Academy of Arts and Letters 45, 44, 43, 42  
Academy of Arts and Sciences, American: see Societies and Associations 46. See American Academy of Arts and Sciences 45, 44, 43, 42  
Academy of Political and Social Science, American: see Societies and Associations 46. See American Academy of Political and Social Science 45, 44, 43, 42  
Accident Insurance: see Insurance  
Accidents  
Aviation, Civil 93d; Death Statistics 251a; Police 590b  
Acheson, Dean G. 46, 45, 44  
Act of Chapultepec: see Inter-American Conference on Problems of War and Peace; Pan American Union 46  
Actors and Acting: see Theatre  
Adams, Herbert 46  
Ade, George 45  
Aden  
Adjusted Compensation: see Veterans' Administration  
Adler, Guido 42  
Adult Education: see Education  
Advertising  
Interior Decoration 396b; Newspapers and Magazines 530b; Public Utilities 614b; Radio 621b; Rayon 630c; War Information, Office of, 812a; Words and Meanings, New 832b  
Aerial Photography: see Photography  
Aeronautics: see Aviation, Military 46, 45. See Aviation, Civil 46, 45, 44, 43, 42  
Standards, National Bureau of, 697a  
Aero-otitis and Aeroinfluenza: see Ear, Nose and Throat, Diseases of, 44  
Aeroplanes: ARA 24b; ATC 35b; American Literature 50b; Atomic Bomb

87a; Automobile Industry 90d; Aviation, Civil 92c; Aviation, Military 95d; Business Review 162c; Coast Guard, U.S. 219c; Disasters 265a; Electrical Industries 283d; Lumber 448d; Munitions of War 504b; Navies of the World 513b; Newspapers and Magazines 526d; Plastics Industry 585b; Power Engineering 596b; Radar 617c; Surplus Property Disposal 714b; War Production, U.S. 814c; Words and Meanings, New 832b; World War II 834c  
Afghanistan  
A.F. of L.: see American Federation of Labor  
Africa, British East: see British East Africa  
Africa, British South: see British South African Protectorates  
Africa, British West: see British West Africa  
Africa, French Equatorial: see French Colonial Empire  
Africa, French North: see French Colonial Empire  
Africa, French West: see French Colonial Empire  
Africa, Italian East: see Italian Colonial Empire  
Africa, Portuguese East and West: see Portuguese Colonial Empire  
Africa, South-West: see Mandates; South Africa, The Union of  
Africa, Spanish West: see Spanish Colonial Empire  
Africa, Union of South: see South Africa, The Union of  
Agagianian, Gregorio Pietro XV 46  
Agattu: see Alaska; World War II 43  
Agranulocytosis 196c  
Agricultural Adjustment Administration (AAA): see Agriculture 42  
Agricultural and Industrial Chemistry, Bureau of: see Agricultural Research Administration 46, 45, 44  
Agricultural Chemistry and Engineering, U.S. Bureau of: see Chemistry and Engineering, Agricultural, U.S. Bureau of, 43, 42  
Agricultural Machinery: see Agriculture 46, 45, 44, 43. See Farm Machinery 42  
87a; Automobile Industry 90d; Aviation, Civil 92c; Aviation, Military 95d; Business Review 162c; Coast Guard, U.S. 219c; Disasters 265a; Electrical Industries 283d; Lumber 448d; Munitions of War 504b; Navies of the World 513b; Newspapers and Magazines 526d; Plastics Industry 585b; Power Engineering 596b; Radar 617c; Surplus Property Disposal 714b; War Production, U.S. 814c; Words and Meanings, New 832b; World War II 834c

Agricultural Marketing Service: see Agriculture 42  
Agricultural Research Administration 46, 45, 44  
Agriculture  
Bacteriology 103c; Budget, National 154d; Census Data 188b; Economics 271b; Entomology 289b; FCA 299c; Fertilizers 308d; Forests 322c; Home Economics 369a; Income and Products, U.S. 384c; Inter-American Affairs, Office of, 393c; Prices 600b; RFC 632b; Rural Electrification 653b; Soil Erosion 685a; Strikes and Lock-outs 703c; Wages and Hours 807c; Wealth and Income, U.S. 822b. See also under various states and countries  
Agriculture, U.S. Department of: see Government Departments and Bureaus  
ARA 24a; WFA 811b  
Aguirre Cerda, Pedro 42  
Ahmed II, Sidi 43  
Ainsworth, William Newman 43  
Air Conditioning  
Electric Transportation 284d; Motor Transportation 497d  
Aircraft Carriers: see Aviation, Military 46, 45. See Navies of the World 46, 45, 44, 43, 42. See Air Forces of the World 44, 43, 42  
Shipping, Merchant Marine 670d  
Air Forces of the World: see Aviation Military 46, 45. See Air Forces of the World 44, 43, 42  
Air Mail: see Post Office  
Airports and Flying Fields  
Architecture 66a; Aviation, Civil 95d; Budget, National 155b; CAA 213a; Municipal Government 499c; Surplus Property Disposal 715b. See also under various states and countries  
Air Races 43, 42  
Air Raid Defense 43  
Air Raid Shelters 42  
Air Sanitation: Bacteriology 103b; Public Health Engineering 613b; Air-sea rescue agency 219d  
Air Transport Command 46, 45, 44  
Aviation, Civil 93b; Iceland 379d; Newspapers and Magazines 527b  
A.L.A.: see American Library Association  
Alabama  
Alaska  
Alaska Highway: see Roads and Highways  
Albania  
Agriculture 32a; Greece 356a; U.S.S.R. 746b; U.N.R.R.A. 776b; United Nations War Crimes Commission 776d  
Albemarle, Arnold Allan C. K. 43  
Alberta  
Albertini, Luigi 42  
Albright Art Gallery: Art Exhibitions 73c; Art Galleries 75c  
Alcan (Alaska) Highway: see Roads and Highways  
Alcohol, Industrial  
Chemistry 195a; Forests 322d; Liquors, Alcoholic 443a; Rubber 650b  
Alcoholic Intoxication: see Intoxication, Alcoholic  
Alcoholic Liquor: see Brewing and Beer; Liquors, Alcoholic; Wines  
"Alcoholics Anonymous": see Intoxication, Alcoholic 45, 44, 42  
Aleutian Islands: see Alaska 46, 45, 44, 43. See World War II 44, 43  
Alexander, Sir Harold Rupert Leofric George 46, 45, 44, 43  
Alexander, Robert 42  
Alexei 46  
Communism 226d; U.S.S.R. 747d  
Alfalfa  
Alfonso XIII: see Alphonso XIII 42  
Algeria: see French Colonial Empire  
Aliens 46, 45, 44, 43. See Census; Immigration and Emigration, U.S. 42  
Alimentary System, Disorders of  
All-American Canal: see Aqueducts; Irrigation  
Public Utilities 614c  
Allen, Glover Morrill 43  
Allen, Terry de la Mesa 44  
Allergy  
Chemotherapy 197a; Medicine 466a; Dietetics 264d  
Allied Commission on Reparations 46

Allied Control Commission: see Allied Military Government 45  
Allied Control Council: see Allied Military Government 46  
Allied Council for Japan: see Allied Military Government 46  
Allied Military Government 46, 45, 44  
Berlin 119c; Germany 344b; International Law 399a; Italy 410c; Japan 416b; MacArthur, D. 450d; Moscow Conference 493a  
Allocations and Allotments: see Priorities and Allocations 46, 45, 44, 43, 42. See Business Review 43, 42. See Supply Priorities and Allocations Board 42  
Alloxan: Diabetes 262c; Endocrinology 287b  
Alloys: see Beryllium; Magnesium; Metallurgy; Molybdenum; Monazite; Nickel; Titanium; Vanadium  
Allspice: see Spices  
Almonds: see Nuts  
Alphonso XIII 42  
Aluminum  
Law 435b; Secondary Metals 660c; Standards, National Bureau of, 697c  
Alvear, Marcelo Torcuato de 43  
Ambassadors and Envoys  
Amblygonite 444b  
American Academy of Arts and Letters: see Societies and Associations 46. See American Academy of Arts and Letters 45, 44, 43, 42  
American Academy of Arts and Sciences: see Societies and Associations 46. See American Academy of Arts and Sciences 45, 44, 43, 42  
American Academy of Political and Social Science: see Societies and Associations 46. See American Academy of Political and Social Science 45, 44, 43, 42  
American Association for the Advancement of Science: see Societies and Associations 46. See American Association for the Advancement of Science 45, 44, 43, 42  
American Association of Law Libraries: see Societies and Associations 46. See American Association of Law Libraries 45, 44  
American Bankers Association: see Societies and Associations 46. See American Bankers Association 45, 44, 43, 42  
American Bar Association: see Societies and Associations 46. See American Bar Association 45, 44, 43, 42  
American Bible Society: see Societies and Associations 46. See American Bible Society 45, 44, 43, 42  
American Chemical Society: see Societies and Associations 46. See American Chemical Society 45, 44, 43, 42  
American Citizens Abroad 46, 45, 43, 42  
American College of Life Underwriters: see Societies and Associations 46. See American College of Life Underwriters 45  
American College of Surgeons: see Societies and Associations 46. See American College of Surgeons 45, 44, 43, 42  
American Dental Association 46, 45, 44, 43  
American Economic Association: see Societies and Associations 46. See American Economic Association 45, 44, 43, 42  
American Federation of Labor  
Communism 227d; Green, W. 356b; Labour Unions 426a; Lewis, J. L. 439a; U.S. 780c; World Federation of Trade Unions 834a  
American Geographical Society: see Societies and Associations 46. See American Geographical Society 45, 44, 43, 42  
American Historical Association 42  
American Indians: see Indians, American  
American Institute for Property and Liability Underwriters, Inc.: see Societies and Associations 46

See American Institute for Property and Liability Underwriters, Inc. 45

American Institute of Accountants: see Societies and Associations 46

American Institute of Architects 42

American Institute of Chemical Engineers: see Societies and Associations 46

American Institute of Electrical Engineers: see Societies and Associations 46

American Institute of Mining and Metallurgical Engineers: see Societies and Associations 46

American Iron and Steel Institute: see Societies and Associations 46

See American Iron and Steel Institute 45, 44, 43, 42

American Judicature Society 42

American Law Institute: see Societies and Associations 46

See American Law Institute 45, 44, 43, 42

American Legion

American Library Association

American Literature

American Medical Association

Industrial Health 389a

American National Red Cross: see Red Cross

American Samoa: see Samoa, American

American Society of Civil Engineers: see Societies and Associations 46

American Society of Composers, Authors and Publishers (ASCAP): see Societies and Associations 46

See Performing Right Societies 45, 44, 43, 42. See Music; Radio 43, 42

American Society of Mechanical Engineers: see Societies and Associations 46

American Veterans of World War II (Amvets) 46

American Volunteer Group (Flying Tigers): see Chennault, Claire L. 45, 44, 43

American Youth Congress: see Youth Movements 43, 42

Ames, Joseph Sweetman 44

Amino Acids: Alimentary System, Disorders of, 41d; Biochemistry 125d; Dietetics 264d; Medicine 466b; Vitamins 806a; Yeast 852d

Amulree, William W. Mackenzie 43

Amvets: see American Veterans of World War II 46

Anaemia

Anaesthesia

A.M.A. 52c; Medicine 467a

Andalusite 424d

Anderson, Clinton Presba 46

Anderson, Sir John 44

Anderson, Sir K.A.N. 45, 44, 43

Anderson, Sherwood 42

Anderson, William Franklin 45

Andrews, Charles McLean 44

Andrews, Frank Maxwell 44, 43, 42

Angling

Anglo-Egyptian Sudan

Angola: see Portuguese Colonial Empire

Animal Fats: see Vegetable Oils and Animal Fats

Animal Industry, Bureau of: see Agricultural Research Administration 46, 45, 44

Annam: see French Colonial Empire

Annenberg, Moses Louis 43

Anniversaries and Centennials: see Calendar (page xxii)

Anrac control stations 219c

Antarctic Exploration: see Exploration and Discovery 43, 42

Anthropology

Anti-Aircraft Guns: see Munitions of War

Antigua: see West Indies, British

Antilles, Greater and Lesser: see West Indies

Antimony

Secondary Metals 660d

Anti-Saloon League of America: see Societies and Associations 46

See Anti-Saloon League of America 45, 44, 43, 42

Anti-Semitism

Jewish Religious Life 417a; Lithuania 444c; Pius XII 583c

Antitank Guns: see Munitions of War

Antitrust Law: see Law

Aluminum 45b; Glass 346b; Insurance 392b; Motion Pictures 494a; Newspapers and Magazines 530b; Railroads 628d; Supreme Court of the U.S. 712a

Antoine, André 44

Antonescu, Ion 45, 44, 43, 42

Anzelevitz, Benjamin: see Bernie, Ben 44

Aosta, Amedeo 43

Appendicitis 41c

Apples: see Fruit 46, 45. See Apples 44, 43, 42

Appleyard, Rollo 44

Applied Chemistry: see Chemistry

Applied Psychology: see Psychology

Appropriations and Expenditures: see Budget, National

Aquariums

Aqueducts

ARA: see Agricultural Research

Administration 46, 45, 44

Arabia

Arab League: Iraq 404c; Palestine 556d; Trans-Jordan 737d

Arce y Ochotorena, Emanuel 46

Archaeology

Archery

Architects, American Institute of: see American Institute of Architects 42

Architecture

Art Galleries 75d

Archives, National

Arctic Exploration: see Exploration and Discovery 43, 42

Areas and Populations of the Countries of the World

See also under various countries

Argentina

Agriculture 27d; American Literature 52a; Anti-Semitism 58a; Beryllium 124c; Brazil 140b; Bridges 143d; Child Welfare 204a; Debt, National 253a; Disasters 265c; Employment 286c; Etching 293b; Exchange Control 295a; Fascism 300b; Flour 315b; Hogs 368d; Infant Mortality 391b; Inter-American Conference 394a; International Trade 399b; Leather 437a; Navies of the World 514c; Panama 558d; Pan American Union 559b; Paraguay 560c; Petroleum 570c; Polo 591a; Railroads 630b; Rayon 631d; Shows 673b; Silver 674d; Socialism 678b; Social Security 679c; Soil Erosion 686a; Spanish-American Literature 693c; Sweden 716d; Swimming 717b; Tariffs 720c; Tin 733b; Tungsten 742b; U.S. 783a; Uruguay 794a; Wheat 826b; Wines 828c; Wool 831b

Argentinita 46

Arizona

Arkansas

Armies of the World

See also under various countries

Armistage, Albert Borlase 44

Armour, Allison Vincent 42

Armstrong, Margaret Neilson 45

Army, U.S.: see Selective Service, U.S.; United States 44

American Literature 49b; Aviation, Civil 93b; Aviation, Military 95d; Bread 141d; Brewing and Beer 143a; Bridges 144d; Coast Guard, U.S. 219d; Coinage 222b; Death Statistics 250d; Indians, American 388c; Medicine 468c; Meteorology 472a; Military Academy, U.S. 482a; Munitions of War 500a; Negroes (American) 517b; Philately 571b; Psychiatry 609b; Psychology 612a; Rivers and Harbours 642d; Shipbuilding 668b; Smithsonian Institution 676c; Standards, National Bureau of, 697a; U.S.O. 777d; Venereal Diseases 799a; WAC 829d; World War II 834c

Army Air Forces, U.S.: ATC 35b; Aviation, Military 95d; Eye, Diseases of, 298b; Meteorology 472b; Military Academy, U.S. 482a; Photography 575d; Plastics Industry 585b; Psychiatry 609a; Psychology 612a; Warfare, Incendiary 810c

Army Specialized Training Program: see Education 46, 45, 44

Arnauld de la Periere, Lothar von 42

Arnim, Dietloff Juergen von 44

Arnold, Bion Joseph 43

Arnold, Henry H.

Aronson, Naoum 44

Arsenic

Art: see American Literature; Architecture; Painting; Sculpture; etc.

Arteaga y Betancourt, Manuel 46

Art Exhibitions

Etching 293a

Art Galleries and Art Museums

Etching 292b

Arthritis

Arthur, Joseph Charles 43

Artillery: see Munitions of War; World War II 46, 45, 44, 43, 42. See Armies of the World 42

Art Institute of Chicago: Art Exhibitions 73b; Art Galleries 75c; Painting 555a

Art Sales

Arts and Sciences, American Academy of: see Societies and Associations 46. See American Academy of Arts and Sciences 45, 44, 43, 42

Aruba: see Curaçao

Asbestos

Asbestosis: see Silicosis 42

ASCAP: see Societies and Associations 46. See Performing Right Societies 45, 44, 43, 42. See Music;

Radio 43, 42

Ascension: see British West Africa

Asia: see Afghanistan; China; India; etc.

Asphalt

Assassinations

Association for the Advancement of Science, American: see Societies and Associations 46. See American Association for the Advancement of Science 45, 44, 43, 42

Association of Research Libraries: see Societies and Associations 46. See Research Libraries, Association of, 45. See Association of Research Libraries 44

Assollant, Jean 43

Asthma 42b

Aston, Francis William 46

ASTP: see Education 46, 45, 44

Astronomy

ATC: see Air Transport Command 46, 45, 44

Athletics: see Track and Field Sports; etc.

Athlone, 1st Earl of

Secret Service, U.S. 661a

Atoll, John George S. M. 43

Atlantic Charter: see Defense, National (U.S.); Roosevelt, Franklin Delano; United States 42

Atomic Bomb 46

American Legion 47b; American Literature 49b; Architecture 67a; Aston, F. W. 77c; Attlee, C. R. 87c; Aviation, Military 96b; Berlin Conference 120a; California, University of, 168c; Canada 174d; Censorship 185d; Chemistry 194a; Chicago, University of, 200b; Civilian Defense 214a; Death Statistics 251a; Education 272d; Electrical Industries 283d; Great Britain 351c; Hutchins, R. M. 378d; International Law 397d; Japan 414c; Johns Hopkins University 418b; Lawrence, E. O. 435d; Marriage and Divorce 460c; Metallurgy 471b; Moscow Conference 493b; Newspapers and Magazines 526d; Nimitz, C. W. 535a; Oppenheimer, J. R. 548a; Pacifism 553a; Philosophy 574d; Physics 580c; Plastics Industry 586a; Priorities and Allocations 604a; Public Opinion Surveys 614a; Reconstruction Planning 633d; Religion 638d; Roads and Highways 644d; Scientific Research and Development, Office of, 658b; Seismology 662d; Submarine Warfare 709b; Truman, H. S. 739a; U.S. 778c; Vatican City State 796b; V.F.W. 802c; Warfare, Incendiary 810d; WMC 813a; War Production, U.S. 815b; Washington 819d; WAC 830b; Words and Meanings, New 832b; World War II 834b

Attlee, Clement Richard 46, 43

Atomic Bomb 86d; Berlin Conference 119c; Great Britain 351b; Parliament, Houses of, 563b; Poland 589d; Reconstruction Planning 633c; Truman, H. S. 739c; U.S.S.R. 746d

Attu: see Alaska; World War II 44, 43

Auchinleck, Sir C. J. E. 44, 43, 42

Austin, Frederick Britten 42

Austin, Herbert Austin 42

Australia, Commonwealth of

Advertising 23a; Agriculture 27d; Aviation, Civil 94c; Banking 107b; Baptist Church 108c; Beryllium 124c; Cadmium 166d; Copper 235d; Cricket 240b; Dance 248c; Death Statistics 250d; Debt, National 253b; Disciples of Christ 266b; Employment 286c; Exchange Control 295d; Fertilizers 309c; Flour 315b; Forests 323b; Gold 348a; Hogs 368d; Infant Mortality 391b; International Trade 400a; Iron and Steel 405c; Japan 414a; Lead 435d; Mineral and Metal Production 483a; Moscow Conference 493a; Motor Transportation 498b; Navies of the World 514b; New Guinea 523b; New Zealand 533b; Photography 576b; Prisoners of War 606b; Railroads 630a; Rice 642d; Rivers and Harbours 643d; Roads 644b; Roman Catholic Church 646d; Shipping, Merchant Marine 671c; Silver 674d; Socialism 678b; Soil Erosion 686c; Sugar 710b; Taxation 724b; Tin 733b; United Nations Monetary and Financial Program 761b; United Nations War Crimes Commission 776d; Wheat 826b; Wool 831b; World War II 843b; Zinc 855b; Zirconium 855c. See also under various states

Australia, South: see South Australia

Austria 46, 45

Agriculture 32a; Allied Military Government 43d; Anti-Semitism 57d; Coal 218d; Communism 227c; Democracy 256d; EAC 294b; Exchange Control 296b; Fascism 300b; International Law 399a; International Trade 399b; Italy 411d; Leather 437a; Music 505c; News-

papers and Magazines 530b; Paper and Pulp Industry 560b; Philately 571c; Prisoners of War 606d; Reconstruction Planning 633d; Refugees 637b; Socialism 678d; South Tirol 691a; U.S.S.R. 746b; U.N.R.R.A. 776c; Vatican City State 796c; World War II 837d; Yugoslavia 854c

Autobiography: see American Literature; etc.

Automobile: see Automobile Industry 46, 45, 44, 43. See Motor Transportation 46, 45, 44, 43, 42. See Motor Vehicles 42

Atomic Bomb 87a

Automobile Accidents: see Accidents; Insurance 46, 45, 44, 43, 42. See Disasters 43, 42

Automobile Industry 46, 45, 44, 43

Business Review 161b; Detroit 261d; Electrical Industries 283d; Machinery 452b; Plastics Industry 586b; Strikes and Lock-outs 704c; Wages and Hours 807a

Automobile Insurance: see Insurance

Automobile Racing 43, 42

Avery, Sowell Lee 45

Aviation, Civil

Economics 271c; Socialism 678c. See also under various countries

Aviation, Military 46, 45. See Air Forces of the World; Gliding; Munitions of War; Psychology; World War II 44, 43, 42. See Blockade; Marine Corps 43, 42. See also under various countries

Avila Camacho, Manuel 44, 43, 42

Ayala, Eusebio 43

Avocados: see Fruit 46

Azores, The: see Portugal 46, 45, 44. See Portuguese Colonial Empire 43, 42

Bacon

Bacteriology

Baden-Powell, R. S. S. B.-P. 42

Badminton

Badoglio, Pietro 45, 44

Baekland, Leo Hendrik 45

Baer, William Jacob 42

Bagby, Albert Morris 42

Bagramyan, Ivan C. 45

Bahamas

Meteorology 472d; Radio 625a; West Indies 823a

Bahrain Islands: see British Empire

Bailey, Vernon 43

Bailey bridge: Bridges 144d; Roads 644d

Baillet-Latour, Count Henry de 43

Baker, Sara Josephine 46

Baker Island: see Pacific Islands, U. S. 46, 45, 44. See South Sea and Equatorial Islands 42

BAL 196c

Ballet: see Dance

Ballroom Dancing: see Dance

Baltic States: see Estonia; Latvia; Lithuania

Baltimore

Bananas: see Fruit 46, 45. See Bananas 44, 43, 42

Bankers Association, American: see Societies and Associations 46. See American Bankers Association 45, 44, 43, 42

Bank for International Settlements

Banking

Business Review 163c; Consumer Credit 233d; FDIC 305a; Federal Reserve System 306a; International Law 399a; RFC 632b; Socialism 678c; Societies and Associations 681b; Taxation 723d. See also under various states and countries

Bank of England

Great Britain 353b

Bankruptcy: see Business Review 46, 45, 44, 43, 42. See Securities and Exchange Commission 46, 45, 44, 42. See Federal Bureau of Investigation 45, 44, 43. See Law 42

Railroads 628b

Banks: see Banking 46, 45, 44, 43, 42. See Savings Banks, Mutual 42

Banting, Sir Frederick Grant 42

Baptist Church

Bar Association, American: see Societies and Associations 46. See American Bar Association 45, 44, 43, 42

Barbados: see West Indies, British

Barbier, George 46

Barbour, Ralph Henry 45

Barbour, W. Warren 44

Barclay, McClelland 44

Barclay, Sir Thomas 42

Barium Minerals

Atomic Bomb 82c; Physics 581b

Barker, Lowells Franklin 44

Barkley, Alben William 46

Barley

ARA 24c; Agriculture 26c. See also under various states and countries

Barr, Norman Burton 44

Barros Camara, João de 46

Barrymore, John Blythe 43

Bartet (Regnault), Jeanne Julia 42

Bartók, Béla 46

Baruch, Bernard Mannes 44



Basalt: *see* Stone  
Bascom, Florence 46  
Baseball  
Newspapers and Magazines 527b  
Basic English 44  
Basilone, John 46  
Basketball  
Basutoland: *see* British South African Protectorates  
Bataan: *see* Philippines, Commonwealth of the; World War II 43  
Batocki, Max J. O. A. T. von 45  
Batt, William Loren 43  
Battleships: *see* Navies of the World  
Baudrillard, Henri Marie Alfred 43  
Bauer, Gustav 45  
Baur, Harry 44  
Bauxite  
Hungary 378c  
Bayard, Thomas Francis 43  
Beach, Amy Marcy Cheney 45  
Beans, Dry  
Beard, Daniel Carter 42  
Beatty, Sir Edward Wentworth 44  
Beaux, Cecilia 43  
Beaverbrook, William M. A. 42  
Bechuanaland Protectorate: *see* British South African Protectorates  
Beck, Josef 45  
Beck, Ludwig 45  
Beef: *see* Meat  
Beekeeping  
Entomology 290b; Horticulture 372c  
Beer: *see* Brewing and Beer  
Beer-Hofmann, Richard 46  
Beers, Clifford Whittingham 44  
Belgian Colonial Empire  
Belgian Congo: *see* Belgian Colonial Empire  
Belgium  
Agriculture 31c; Allied Military Government 43b; Anthropology 55d; Anti-Semitism 57c; Banking 107c; Belgian Colonial Empire 116c; Bridges 143d; Canada 174d; Child Welfare 202b; Coal 217c; Debt, National 253a; Democracy 256c; Denmark 259b; Drugs 269a; Education 276d; Exchange Control 294d; Foreign Investments in the U. S. 322b; Furniture Industry 335b; Infant Mortality 391b; International Trade 400a; Iron and Steel 405d; Lead 435d; Leather 437a; Linen and Flax 442d; Mineral and Metal Production 483a; Music 505c; Psychiatry 610b; Radiant 627a; Railroads 629d; Rayon 631d; Refugees 637a; Roads 645b; Roman Catholic Church 646b; Rubber 652a; Social Security 679c; Tariffs 720b; Unitarian Church 748b; United Nations Monetary and Financial Program 761a; United Nations War Crimes Commission 776d; U. S. Investments Abroad 785a; Uruguay 794c; War Debts 810a; World War II 834c; Zinc 855b; Zoology 856d  
Bell, Alexander 42  
Bellamann, Henry 46  
Below, Otto von 45  
Benadryl: Chemotherapy 197a; Medicine 466a  
Benavides, Oscar R. 46  
Benchley, Robert Charles 46  
Bendix, Vincent 46  
Benefactions: *see* Donations and Bequests  
Benét, Stephen Vincent 44  
Bennett, Henry Gordon 43  
Bennett, Richard 45  
Benton, William 46, 45, 44  
Committee for Economic Development 226b; Motion Pictures 496c; Radio 624d; War Information, Office of, 812b  
Bentonite  
Benzene hexachloride 290b  
Bequests, Philanthropic: *see* Donations and Bequests  
Berenschot, Gerardus Johannes 42  
Berg, Ernst Julius 42  
Bergson, Henri 42  
Berlin  
Berlin Conference 46  
East Prussia 271a; France 328b; Iran 404a; Koenigsberg 423a; Newspapers and Magazines 526d; Reconstruction Planning 633c; Rhineland 640c; Spain 691d; U.S.S.R. 746c; WAC 830b  
Bermuda  
Bernacchi, Louis Charles 43  
Bernie, Ben 44  
Berry, Martha McChesney 43  
Bertrand, Louis 42  
Beryllium  
Metallurgy 471b  
Berzarin, Nikolai Y. 46  
Besier, Rudolf 43  
Bessarabia: *see* Rumania 46, 45, 44, 43, 42. *See* Union of Soviet Socialist Republics; World War II 42  
Bestor, Arthur Eugene 45  
Best Sellers: *see* Book Publishing 46. *See* Publishing (Book) 45, 44, 43, 42  
Betatron: *see* Radiology 44. *See* Cancer 43. *See* Physics 42  
Bevan, Arthur Dean 44  
Beveridge, Sir William Henry 43

Beveridge Report: *see* Social Security 46, 45, 44, 43  
Bevin, Ernest 46, 45, 43, 42  
Berlin Conference 119c; Truman, H. S. 739c  
BEW: *see* Foreign Economic Administration 46, 45, 44. *See* Economic Warfare, Board of, 43, 42  
Bibesco, Prince Georges Valentin 42  
Bibesco, Princess Elizabeth 46  
Bible Society, American: *see* Societies and Associations 46. *See* American Bible Society 45, 44, 43, 42  
Bicycling: *see* Cycling  
Biddle, Francis 46, 45, 43, 42  
Biggers, John David 42  
"Big Inch" Line: *see* Petroleum 46, 45, 44  
Billiards  
Billington, Rose Ann 43  
Binyon, Laurence 44  
Biochemistry  
Heart and Heart Diseases 365b  
Biography: *see* American Literature; English Literature  
Biological Survey, Bureau of: *see* Fish and Wildlife Service 43, 42  
Biology: *see* Botany; Genetics; Marine Biology; Physiology; Zoology  
Birch, Reginald Bathurst 44  
Bird Refuges: *see* Fish and Wildlife Service 43, 42  
Birdseye, Claude Hale 42  
Birling 43  
Birth Control  
Birth Statistics 127d  
Birth Statistics  
Census Data 186a; Child Welfare 204d; Marriage and Divorce 460d  
Bismuth  
Black Markets 46, 45, 44. *See* Crime 43  
Clothing Industry 217a; Crime 241d; Meat 465b; Philippines 574b; Prices 602c; Words and Meanings, New 832d  
Blackouts: *see* Photography; Municipal Government 42  
Blackton, James Stuart 42  
Blamey, Sir Thomas Albert 46, 44  
Bledsoe, Julius (Jules) C. 44  
Bloch, Claude Charles 42  
Block, Paul 42  
Blockade: *see* Submarine Warfare 46, 45, 44. *See* Blockade 43, 42  
Blomfield, Sir Reginald 43  
Blood Plasma: *see* Medicine 46, 45, 44, 43, 42. *See* Surgery 46, 45, 44, 43. *See* Physiology 46, 45, 43, 42  
Chemotherapy 196d; Endocrinology 287a; Massachusetts 464a; Physiology 582c; Words and Meanings, New 833a  
Blood Pressure: *see* Medicine  
Surgery 713b  
Blue Cross: *see* Insurance 46, 45  
Blumenthal, George 42  
Board of Economic Warfare: *see* Foreign Economic Administration 46, 45, 44. *See* Economic Warfare, Board of, 43, 42  
Boas, Franz 43  
Bock, Fedor von 43, 42  
Boggianni, Tommaso Pio 43  
Boghemia and Moravia 45, 44, 43, 42  
Bois, Elie-Joseph 42  
Boisson, Pierre François 44  
Bolivia  
Agriculture 31b; Antimony 57b; Argentina 70c; Brazil 140b; Bridges 144a; Exchange Control 295a; Inter-American Affairs, Office of, 394a; International Trade 401b; Irrigation 407d; Meteorology 473b; Mineral and Metal Production 483a; Petroleum 570c; Silver 674d; Spain 692b; Spanish Literature 694c; Tariffs 720c; Tin 733b; Tungsten 742b; United Nations Monetary and Financial Program 761a  
Bombing: *see* Atomic Bomb 46. *See* Munitions of War 46, 45, 44, 43, 42  
Archaeology 59d; Aviation, Military 95d; Dams 247b; Death Statistics 251a; Foreign Investments in the U. S. 321d; Oregon 548c; Petroleum 568d; Psychology 611b; Public Opinion Surveys 614a; Radar 618c; Radar Countermeasures 620a; World War II 834b. *See* also under various cities and countries  
Bonaire: *see* Curaçao  
Bonds: *see* Stocks and Bonds  
Bonds, War: *see* War Bonds 46, 45, 44. *See* Banking 43. *See* Savings Banks, Mutual 42  
Bong, Richard Ira 46  
Bonine, Fred N. 42  
Bono, Emilio G. G. de 45  
Bonomi, Ivanoe 45  
Book-Collecting and Book Prices  
Book Publishing 46. *See* Publishing (Book) 45, 44, 43, 42  
Books: *see* Book Publishing 46. *See* Children's Books; Libraries 46, 45, 44, 43, 42. *See* Publishing (Book) 45, 44, 43, 42. *See* also under American Literature; English Literature; French Literature; etc.  
Book Sales: *see* Book-collecting and Book Prices

Boothe, Clare: *see* Luce, Clare  
Boothe 46, 45, 44, 43  
Bor, General: *see* Komorowski, Tadeusz 45  
Borates  
Borglum, (John) Gutzon (de la Mothe) 42  
Boris III 44  
Bormann, Martin 43  
Hitler, A. 367d  
Borneo 46, 42. *See* Netherlands Indies 45, 44. *See* British Empire; Netherlands Colonial Empire 45, 44, 43. *See* Dutch East Indies 43  
Diamonds 263c; Rubber 650c; World War II 843b  
Borno, Louis 43  
Boron 471c  
Bosch, Robert 43  
Bose, Subhas Chandra 46  
Bosen, James Cruze: *see* Cruze, James 43  
Boston  
Bosworth, Hobart van Zandt 44  
Botana, Natalio 42  
Botanical Gardens: *see* Botany  
Botany  
Bougainville: *see* Solomon Islands 46, 45, 44  
Boule, Pierre Marcelin 43  
Boutens, Peter Cornelis 44  
Bovard, Oliver Kirby 46  
Bowles, Chester 46, 45, 44  
Bowling  
Bowling  
Boyington, Gregory 46, 45  
Boys' Clubs of America, Inc. 42  
Boy Scouts  
Newspapers and Magazines 530a  
Bracco, Roberto 44  
Bracken, John 46, 45, 44, 43  
Bradley, Omar Nelson 46, 45, 44  
World War II 835d  
Bragg, Sir William Henry 43  
Bramah, Ernest 43  
Brandeis, Alice Goldmark 46  
Brandeis, Louis Dembitz 42  
Brandy 443b  
Brauchitsch, Walther von 43, 42  
Brazil  
Agriculture 31a; American Literature 52a; Architecture 67b; Argentina 70a; Aviation, Civil 94d; Beryllium 124c; Bridges 143d; Child Welfare 204a; Cocoa 221d; Coffee 222a; Cotton 238d; Debt, National 253a; Democracy 256d; Diabetes 262b; Diamonds 263c; Diatomite 263d; Electric Transportation 285a; Exchange Control 295a; Exchange Stabilization Funds 297a; Forests 322c; Guatemala 358b; Inter-American Affairs, Office of, 393c; International Trade 400a; Leather 437c; Manganese 456a; Mineral and Metal Production 483a; Navies of the World 514c; Pan American Union 559a; Paraguay 560d; Philately 571c; Railroads 630a; Rayon 631d; Rice 642d; Roman Catholic Church 646a; Rubber 650d; Silk 674b; Social Security 679c; Tariffs 720b; Tungsten 742b; United Nations Monetary and Financial Program 761a; Uruguay 794a; Zirconium 855c  
Bread and Bakery Products  
Food Research 317b; Prices 601b  
Breadner, Lloyd Samuel 46, 45, 44  
Breitscheid, Rudolph 45  
Brereton, Lewis Hyde 46, 45, 44, 43  
Bresnahan, Roger 45  
Brett, George Howard 43, 42  
Bretton Woods: *see* United Nations Monetary and Financial Program 46. *See* Banking; Exchange Stabilization Funds; International Law 46, 45  
Brewing and Beer  
Brick 42  
Prices 601a  
Bricker, John William 45, 44  
Bridge, Contract: *see* Contract  
Bridge  
Bridges, Robert 42  
Bridges  
Munitions of War 500d; Roads and Highways 643d  
Bridgman, George B. 44  
Briggs, Caspar Warren 43  
Briquettes, Fuel: *see* Fuel Briquettes  
Bristol, Arthur LeRoy 43  
Bristow, Joseph Little 45  
British Borneo: *see* Borneo 46, 42. *See* British Empire 45, 44, 43  
British Columbia  
British East Africa  
British Empire  
Death Statistics 250d; Exchange Control 294c; F.C.C. 304c; Forests 323a; Lumber 449b; Shipbuilding 668b; U. S. Investments Abroad 785d; World War II 846c  
British Guiana  
Archaeology 64b; Bauxite 115b; Mineral and Metal Production 483a  
British Honduras  
Central America 190c  
British Isles: *see* Great Britain and Northern Ireland, United Kingdom of  
British Legion  
British Malaya: *see* Federated Malay

## INDEX

859

States; Straits Settlements; Unfederated Malay States 46, 45, 44, 43, 42. *See* World War II 44, 43, 42. *See* Japan 43, 42  
British Pacific Islands: *see* Pacific Islands, British  
British Possessions in the Mediterranean: *see* Mediterranean, British Possessions in the 46, 45, 44, 43. *See* British Possessions in the Mediterranean 42  
British Somaliland: *see* British East Africa  
British South African Protectorates  
British-U.S. War Boards 46, 45, 44  
British West Africa  
British West Indies: *see* West Indies, British  
Broadcasting: *see* Radio; Television F.C.C. 304b; Words and Meanings, New 832b  
Bromine  
Brooke, Sir Alan F. 45, 44, 43, 42  
Brooke, Sir Basil 45, 44  
Brooke-Popham, Sir Robert 42  
Brookhart, Smith Wildman 45  
Brookings Institution: *see* Societies and Associations 46. *See* Brookings Institution 45, 44, 43, 42  
Economics 271a  
Brooklyn-Battery Tunnel: *see* Tunnels 43, 42  
Broomcorn 46  
Brower, Gerald 42  
Brown, Carleton Fairchild 42  
Brown, Prentiss Marsh 44  
Brown, Wade Hampton 43  
Browne, Dame Sidney Jane 42  
Brozovich or Broz, Josip (Tito) 46, 45, 44  
Brunei: *see* Borneo 46, 42. *See* British Empire 45, 44, 43  
Bruno Giuseppe 46  
Brush, George de Forest 42  
Bryan, John Stewart 45  
Bryn Mawr College  
Bubonic Plague: *see* Plague, Bubonic and Pneumonic  
Buckner, Simon Bolivar, Jr. 46  
Okinawa 546b; World War II 844a  
Buckner, Thomas Aylette 43  
Buckwheat  
Budenny, Simeon M. 43, 42  
Budget, National  
*See* also under various countries  
Building and Construction Industry  
Architecture 64d; Business Review 163a; Cement 185b; Gypsum 361c; Plastics Industry 586b; Prices 600b; Strikes and Lock-outs 703c; Wages and Hours 807b; W. L. B. 812d; Wealth and Income, U. S. 822a  
Bulgaria  
Agriculture 31d; Berlin Conference 119d; Communism 227c; Debt, National 253a; Economics 271b; E.A.C. 294a; Exchange Control 296b; Great Britain 352a; Greece 355c; International Trade 399b; Moscow Conference 493b; Navies of the World 516a; Reconstruction Planning 633d; U.S.S.R. 746b; United Nations War Crimes Commission 776d  
Bumpus, Hermon Carey 44  
Burdwan, Sir Bijay Chand M. 42  
Bureau of Standards, National: *see* Standards, National Bureau of  
Burma  
Agriculture 32c; Communism 227d; Forests 323b; Gems 337c; Lead 435d; Mineral and Metal Production 483a; Tin 733b; Tungsten 742b; World War II 844c  
Burma Road: *see* Roads and Highways 46, 45, 44, 43, 42. *See* Burma 42  
Burns, John 44  
Burton, Harold Hitz 46  
Busch, Ernst 46  
Buses: *see* Automobile Industry 46, 45, 44, 43. *See* Electric Transportation, Motor Transportation 46, 45, 44, 43, 42  
Defense Transportation, Office of, 254d  
Bush, Vannevar 42  
Bush, Wendell T. 42  
Business Review  
Butadiene: Chemistry 194d; Petroleum 570d; Rubber 650b  
Butter  
Agriculture 27c; Dairying 245d; Food Research 316c; Milk 482c; Vegetable Oils and Animal Fats 796d  
Byelorussia 46  
U.N.R.R.A. 776c  
Byram, Harry E. 42  
Byrnes, James F.  
Berlin Conference 119c; Truman, H. S. 739c  
Byron, Arthur William 44  
Cabinet Members  
Cabot, Hugh 46  
Cacao: *see* Cocoa  
Cadmium  
Cady, Hamilton Perkins 44

- Caggiano, Antonio 46  
 Caillaux, Joseph Mario Auguste 45  
 Calder, Alexander Stirling 46  
 Calendar of Events: *see* pages 1-16  
 California  
 California, University of  
 Meteorology 472c  
 Callaghan, Daniel Judson 43  
 Calles, Plutarco Elias 46  
 Calvé, Emma 43  
 Camacho, Manuel Avila: *see* Avila  
 Camacho, Manuel 44, 43, 42  
 Camara, João de Barros: *see* Barros  
 Camara, João de 46  
 Cambodia: *see* French Colonial Empire  
 Cambridge University  
 Cameras: Munitions of War 500d;  
 Photography 475d  
 Cameron, Sir David Young 46  
 Cameroons: *see* British West Africa;  
 French Colonial Empire; Man-  
 dates  
 Camouflage 46, 45, 44  
 Campbell, Sir Gerald 42  
 Camp Fire Girls  
 Campinchi, César 42  
 Canada, Dominion of  
 Abrasives 17d; Advertising 21a;  
 ARA 25a; Agriculture 27d; Alumi-  
 num 44d; A.L.A. 47d; Antimony 57b;  
 Archaeology 62d; Arsenic 72d; As-  
 bestos 77a; Atomic Bomb 79c; Avia-  
 tion, Civil 94c; Banking 107a; Bap-  
 tist Church 108b; Barium Minerals  
 108d; Bermuda 124b; Birth Statis-  
 tics 127c; Bismuth 128c; Bread 142a;  
 British-U.S. War Boards 151a; Busi-  
 ness Review 164d; Cadmium 166d;  
 Canadian Literature 176b; Cana-  
 dian-U.S. War Committees 177a; Ce-  
 ment 185b; Child Welfare 204a;  
 Christian Science 210a; Coal 217c;  
 Cobalt 221b; Coke 222c; Community  
 Chest 228b; Community Trusts  
 228b; Consumer Credit 234b; Copper  
 235d; Dance 248b; Death Statistics  
 250c; Debt, National 253a; Diabetes  
 262b; Diamonds 263c; Disciples of  
 Christ 266b; Dominican Republic  
 267c; Drugs 269b; Electrical Indus-  
 tries 283b; Electric Transportation  
 284a; Employment 286c; Etching  
 293b; Exchange Control 294d; Feld-  
 spar 308c; Fertilizers 309a; Flour  
 315b; Fluorspar 316b; Football 318d;  
 Forests 322c; Friends, Religious  
 Society of, 332c; Fruit 333b; Furni-  
 ture Industry 335b; Furs 335c; Gas,  
 Natural 336c; Gold 348a; Graphite  
 351a; Gypsum 361c; Hogs 368d; Ice  
 Hockey 379b; Industrial Health  
 389d; Infant Mortality 391a; Insur-  
 ance 391d; International Trade 399d;  
 Iron and Steel 405d; Japan 415b;  
 Labour Unions 427b; Lacrosse 427d;  
 Lead 435d; Leather 437a; Lime 442a;  
 Linen and Flax 442b; Lumber 449b;  
 Lutherans 449d; Magnesium 453d;  
 Mercury 470d; Mineral and Metal  
 Production 483a; Moscow Confer-  
 ence 493a; National Geographic So-  
 ciety 508c; Navies of the World 514b;  
 Newspapers and Magazines 530a;  
 Nickel 534c; Paper and Pulp Indus-  
 try 559c; Peat 565c; Photography  
 576b; Platinum Group Metals 586c;  
 Potatoes 594b; Prisoners of War  
 606b; Prizes 607d; Public Opinion  
 Surveys 613c; Pyrite 616b; Radio  
 625a; Radium 627a; Railroads 630a;  
 Reconstruction Planning 634a; Reli-  
 ef 637c; Roads 645a; Roman Catho-  
 lic Church 646a; Salt 655c; Sand and  
 Gravel 656d; Selenium 665d; Seventh  
 Day Adventists 666a; Shipbuilding  
 668a; Shipping, Merchant Marine  
 671c; Shows 673a; Silver 674d; So-  
 cialism 678b; Social Security 679c;  
 Societies and Associations 681b;  
 Sodium Carbonate 684d; Sodium  
 Sulphate 684d; Squash Racquets  
 696a; Standards, National Bureau  
 of, 697a; Stone 702a; Strikes and  
 Lock-outs 704c; Sugar 710b; Suicide  
 Statistics 710c; Sulphur 711a; Sun-  
 day Schools 711b; Talc 719d; Tariffs  
 720c; Taxation 724b; Tellurium 727c;  
 Titanium 733d; Tuberculosis 740d;  
 Tungsten 742b; Tunnels 743a; Uni-  
 ted Church of Canada 748b; United  
 Nations Monetary and Financial  
 Program 761a; U.N.R.R.A. 776a;  
 U.S. Investments Abroad 785b;  
 West Indies 823b; Wheat 826a; Wild-  
 life Conservation 827b; World War  
 II 836a; Yachting 850b; Zinc 855b.  
*See also* under various provinces and  
 territories  
 Canadian Literature  
 Canadian-U.S. War Committees 46,  
 45, 44  
 Canals and Inland Waterways  
 Irrigation 406c; Meteorology 475b  
 Canal Zone: *see* Panama Canal and  
 Canal Zone 42  
 Cancer  
 Atomic Bomb 87a; Death Statistics  
 251a; Donations 267d; Drugs 268c;  
 Medicine 467a; Societies and Asso-  
 ciations 681c  
 Candler, Warren Akin 42  
 Candy  
 Cane Sugar: *see* Sugar  
 Canning Industry  
 Cannon, Annie Jump 42  
 Cannon, James, Jr. 45  
 Canol Oil Project: *see* Northwest  
 Territories 46, 45, 44. *See* Petro-  
 leum 44  
 Canada 174d; Yukon Territory 854d  
 Canterbury, Archbishop of 43. *See*  
 Temple, William 45  
 Canton Island: *see* Pacific Islands,  
 U.S. 46, 45, 44. *See* South Sea and  
 Equatorial Islands 42  
 Capablanca, José Raoul 43  
 Cape of Good Hope 688a  
 Caperton, William Banks 42  
 Cape Verde Islands: *see* Portuguese  
 Colonial Empire  
 Caraway Seed: *see* Spices  
 Carbohydrates: *see* Chemistry 43  
 Carbon 193d  
 Carbon Black 46  
 Rubber 649d  
 Carleton Tunnel: *see* Tunnels 42  
 Carlie, Wilson 43  
 Carlson, Evans Fordyce 44  
 Carnegie Institute: Art Exhibitions  
 73a; Art Galleries 75d; Painting 555a  
 Carnegie Trusts: *see* Societies and  
 Associations 46. *See* Carnegie  
 Trusts 45, 44, 43, 42  
 Carney, Thomas Joseph 43  
 Carol I 42  
 Caroline Islands 46, 45. *See* Pacific  
 Islands, Mandated 44, 43, 42  
 Caro Rodriguez, Jose Maria: *see*  
 Rodriguez, Jose Maria Caro 46  
 Carpatho-Ukraine 46  
 Ukraine 744c; U.S.S.R. 745d  
 Carr, Wilbur John 43  
 Carrel, Alexis 45  
 Carter, Boake 45  
 Carter, William Spencer 45  
 Carver, George Washington 44  
 Casey, Richard Gardiner 44  
 Cassel, Gustav 46  
 Cassirer, Ernst 46  
 Castelnau, Edouard de C. de 45  
 Castillo, Ramón S. 45  
 Catafights: *see* Shipping, Mer-  
 chant Marine 43  
 Cataracts of the Eye: *see* Eye, Dis-  
 eases of 42  
 Catastrophes: *see* Disasters  
 Catholic Church: *see* Roman Catho-  
 lic Church  
 Catholic Community Service, Na-  
 tional: *see* Societies and Associa-  
 tions 46. *See* Catholic Community  
 Service, National 45, 44  
 Catholic Library Association: *see*  
 Societies and Associations 46. *See*  
 Catholic Library Association 45,  
 44, 43, 42  
 Catholic Organizations for Youth  
 46, 45, 44  
 Catholic Rural Life Conference,  
 National  
 Catholic Welfare Conference, Na-  
 tional  
 Prisoners of War 607a  
 Catholic Youth Organization: *see*  
 Catholic Organization for Youth  
 46, 45, 44. *See* Catholic Youth Or-  
 ganization 43, 42  
 Catroux, Georges 44  
 Cattani, Federico 44  
 Cattell, James McKeen 45  
 Cattle  
 ARA 24d; Agriculture 26d; Food Re-  
 search 316d; Leather 437a; Livestock  
 445a; Meat 465a; Tuberculosis 742a;  
 Veterinary Medicine 803b. *See also*  
 under various states and countries  
 Cavalieri, Lina 45  
 Cazalet, Victor Alexander 44  
 CCC: *see* Civilian Conservation  
 Corps; Commodity Credit Cor-  
 poration 43, 42  
 C.E.D.: *see* Committee for Econom-  
 ic Development 46, 45, 44  
 Celebes Islands: *see* Netherlands  
 Indies 46, 45, 44. *See* Netherlands  
 Colonial Empire 46, 45, 44, 43, 42.  
*See* Dutch East Indies 43, 42  
 Cellophane 585b  
 Cellulose Products: *see* Paper and  
 Pulp Industry; Plastics Industry;  
 Rayon and Other Synthetic Fib-  
 res 46, 45, 44, 43. *See* Cellulose  
 Products 42  
 Cement  
 Prices 600c. *See also* under various  
 states  
 Censorship 46, 45, 44, 43  
 Law 431b; Newspapers and Maga-  
 zines 530b; Radio 624a  
 Census Data (U.S.)  
 Centennials: *see* Calendar (page xxii)  
 Central America  
 Aviation, Civil 94d; Soil Erosion  
 685d  
 Cerda, Pedro Aguirre: *see* Aguirre  
 Cerda, Pedro 42  
 Cereals: *see* Barley; Corn; Oats;  
 Rice; Rye; Wheat 46, 45, 44, 43.  
*See* Cereals 42  
 Ceylon  
 Gems 337c; Graphite 351a; Spices  
 695b  
 Chaffee, Adna Romanza 42  
 Chain Stores: *see* Business Review  
 Taxation 724a  
 Chambers of Commerce  
 Chaminade, Cécile 45  
 Champion, Pierre 43  
 Chandler, Albert Benjamin 46  
 Baseball 109d  
 Chang Ching-Hui 43  
 Channel Islands: *see* British Empire  
 Chapultepec Conference: *see* Inter-  
 American Conference on Prob-  
 lems of War and Peace; Pan  
 American Union 46  
 Charles 46  
 Charter of the United Nations: *see*  
 United Nations Conference on  
 International Organization 46  
 Chauvel, Sir Henry George 46  
 Cheese  
 Agriculture 27a; Dairying 245d;  
 Prices 601b  
 Chemical Therapy: *see* Chemother-  
 apy  
 Chemical Warfare 42  
 Chemistry  
 Societies and Associations 681c  
 Chemistry and Engineering, Agri-  
 cultural, U.S. Bureau of 43, 42  
 Chemotherapy  
 Chemurgy  
 Ch'en, Eugene 45  
 Chennault, Clair L. 46, 45, 44, 43  
 Chernyakhovsky, Ivan D. 46, 45  
 World War II 838c  
 Cherries: *see* Fruit 46  
 Chess  
 Chevrolet, Louis 42  
 Chiang Kai-shek  
 Berlin Conference 120b; China 206d;  
 Japan 414c; Manchuria 455a; Tibet  
 733a  
 Chiang Kai-shek, Madame 44, 43  
 Chicago  
 Chicago, University of  
 Archaeology 62d; Meteorology 472b;  
 Motion Pictures 496c; Town and  
 Regional Planning 736a  
 Chicory: *see* Coffee 43  
 Chiefs of Staff, The Combined: *see*  
 Combined Chiefs of Staff, The 46,  
 45, 44  
 Child Labour: *see* Child Welfare 46,  
 45, 44, 43. *See* Child Labour 42  
 Children's Books  
 Children's Bureau, United States:  
*see* Child Welfare 46, 45, 44, 43, 42.  
*See* Juvenile Delinquency 43, 42.  
*See* Child Labour 42  
 Child Welfare  
 Law 432d  
 Chile  
 Agriculture 31b; Argentina 70a;  
 Brazil 140c; Copper 235d; Debt,  
 National 253a; Disasters 265c; Em-  
 ployment 286c; Exchange Control  
 295a; Fertilizers 309b; Infant Mor-  
 tality 391b; Iodine 402b; Iron and  
 Steel 405c; Manganese 456a; Mer-  
 cury 470d; Meteorology 473b; Min-  
 eral and Metal Production 483a;  
 Navies of the World 514c; Nitrogen,  
 Chemical 535a; Railroads 630b; Rice  
 642d; Silver 674d; Soil Erosion 685d;  
 Spanish-American Literature 693b;  
 Spanish Literature 694c; Tariffs  
 720b; United Nations Monetary and  
 Financial Program 761a; Wines 828c  
 China  
 Agriculture 28d; Allied Military  
 Government 44c; A.L.A. 48d; Ameri-  
 can Literature 50d; Berlin Confer-  
 ence 119c; Birth Control 127b; Bot-  
 any 134d; Child Welfare 202b; Coal  
 217c; Communism 227d; Costa Rica  
 237d; Democracy 256d; Dominican  
 Republic 267a; Education 276d; Ex-  
 change Control 294d; Famines 299a;  
 Forests 322c; Formosa 323c; Great  
 Britain 351d; Guerrilla Warfare 358d;  
 Horticulture 372a; Immigration and  
 Emigration, U.S. 382d; Interna-  
 tional Law 398b; International Trade  
 400a; Irrigation 407d; Italian Co-  
 lonial Empire 408d; Japan 413c; Kor-  
 ea 424b; Manchuria 454d; Mercury  
 470d; Meteorology 473b; Mineral  
 and Metal Production 483a; Mon-  
 golia 489c; Moscow Conference 492d;  
 National Geographic Society 508d;  
 Navies of the World 516a; Philately  
 571c; Photography 576b; Prisoners  
 of War 604d; Railroads 630a; Recon-  
 struction Planning 634b; Refugees  
 636d; Rice 642d; Roads 644b; Roman  
 Catholic Church 647a; Silk 674c;  
 Sinkiang 675b; Soil Erosion 685a;  
 Submarine Warfare 706b; Sugar  
 710b; Sunday Schools 711b; Tin  
 733b; Tuberculosis 741d; Tungsten  
 742b; U.S.S.R. 746a; United Nations  
 Conference 749a; United Nations  
 Monetary and Financial Program  
 761a; U.N.R.R.A. 776a; United  
 Nations War Crimes Commission  
 776d; U.S. 783b; World War II 843a  
 Chinese-Japanese War: *see* World  
 War II 46, 45, 44, 43. *See* Chinese  
 Japanese War 42  
 Chinese Turkestan: *see* Sinkiang  
 Chittenden, Russell Henry 44  
 Cholera 196d  
 Chordotomy 41d  
 Chosen: *see* Korea 46. *See* Chosen 45,  
 44, 43, 42  
 Christian X  
 Christian Mission on World Order  
 44  
 Christian Science  
 Christian Unity  
 Christie, John Walter 45  
 Christie, Loring C. 42  
 Chromite  
 Chronology: *see* Calendar of Events,  
 pages 1-16  
 Church, Samuel Harden 44  
 Churches, World Council of: *see*  
 Christian Unity  
 Churchill, Winston Leonard S.  
 Arabia 58d; Atomic Bomb 79c; Ber-  
 lin Conference 119c; Conservative  
 Party 233b; Egypt 278c; Ethiopia  
 293d; Gaulle, C. de 336d; Great  
 Britain 351c; Greece 355b; Italy  
 411d; Japan 414c; Labour Party  
 425c; Manchuria 455a; Parliament,  
 Houses of, 563a; Poland 587d; Roose-  
 velt, F. D. 648b; Secret Service, U.S.  
 661a; Spain 691d; Stalin, J. V. 696d;  
 Syria and Lebanon 718d; Truman,  
 H. S. 739c; U.S.S.R. 746d; World  
 War II 841b; Yalta Conference 850d  
 Church Membership  
 Church of England  
 Church Reunion: *see* Christian  
 Unity 46, 45, 44, 43, 42. *See* Reli-  
 gion 44, 43, 42  
 Ciano, Galeazzo 45  
 Cigars and Cigarettes: *see* Tobacco  
 Cinema Industry: *see* Motion Pic-  
 tures  
 Cinnamon: *see* Spices  
 C.I.O.: *see* Congress of Industrial  
 Organizations  
 Citrine, Sir Walter McLennan 44  
 Citrus Fruits: *see* Fruit 46, 45. *See*  
 Grapefruit; Lemons and Limes;  
 Oranges 44, 43, 42  
 City and Town Planning: *see* Town  
 and Regional Planning  
 City Government: *see* Municipal  
 Government  
 City Manager: Plan: *see* Municipal  
 Government  
 Civil Aeronautics Administration  
 46, 45. *See* Airports and Flying  
 Fields 44, 43, 42  
 Airports 34b; Aviation, Civil 95c;  
 Psychology 612a  
 Civil Air Patrol: *see* Civilian De-  
 fense 44, 43. *See* Aviation, Civil,  
 43, 42  
 Civilian Conservation Corps 43, 42  
 Civilian Defense  
 Civilian Production Administration:  
*see* Priorities and Alloca-  
 tions; War Production Board 46  
 Civilian Requirements, Office of:  
*see* War Production, U.S. 45, 44  
 Civil Liberties 46, 45, 43, 42. *See*  
 Aliens; Anti-Semitism; Birth  
 Control; Education; Law; Lynch-  
 ings; Negroes (American); News-  
 papers and Magazines; Radio 44  
 Law 430d  
 Civil Service, U.S.  
 Clair, Matthew Wesley 44  
 Clapper, Raymond 45  
 Clark, Mark Wayne 46, 45, 44, 43  
 Oxford University 550c; World War  
 II 838a  
 Clark, Thomas Campbell 46  
 Clarke, John Hessin 46  
 Clausen, Julia 42  
 Clawson, Rudger 44  
 Clay, Laura 42  
 Clay, Lucius DuBignon 46  
 Clays  
 Wages and Hours 807a. *See also*  
 under various states  
 Clendenning, Logan 46  
 Cleveland  
 Clifford, Sir Hugh 42  
 Climate: *see* Meteorology  
 Clothing Industry  
 Business Review 164d; Home Eco-  
 nomics 369a; Prices 600d; Rayon  
 630c; Strikes and Lock-outs 703c  
 Cloves: *see* Spices  
 Coal  
 Electrical Industries 282b; Fuel Bri-  
 quettes 334d; Power Engineering  
 596d; Prices 600d; Railroads 629d;  
 Roads 645c; Selective Service, U.S.  
 664b; Socialism 678c; Strikes and  
 Lock-outs 703c; Wages and Hours  
 807a. *See also* under various states  
 and countries  
 Coast and Geodetic Survey, U.S.  
 Decorations, Medals and Badges  
 253d; National Geographic Society  
 508d  
 Coast Guard, U.S.  
 American Literature 50b; Coinage  
 222b; Indians, American 388c; Mete-  
 orology 472d; Philately 571b; Ship-  
 building 668b; Venereal Diseases  
 799a  
 Coast Guard Academy, U.S.: *see*

Coast Guard U.S. 43, 42  
Coates, Joseph Gordon 44  
Cobalt  
Cobb, Irvin Shrewsbury 45  
Cochin-China: *see* French Colonial Empire  
Cocoa  
    *See* also under various countries  
Coco-Nuts  
    *See* also under various countries  
Coffee  
    Agriculture 31b. *See* also under various countries  
Coinage  
    Silver 675a  
Coke  
    Nitrogen, Chemical 535a. *See* also under various states  
Colby, Nathalie Sedgwick 43  
Cold, Common  
Colijn, Hendrick 45  
Colleges and Universities: *see* Universities and Colleges  
Colles, Henry Cope 44  
Colombia  
    Agriculture 31b; Debt, National 253a; Exchange Control 295a; Gems 337d; Gold 348b; Inter-American Affairs, Office of, 394a; International Trade 401b; Meteorology 473b; Mineral and Metal Production 483a; Navies of the World 514c; Pan American Union 559a; Platinum Group Metals 586c; Rayon 631d; Spanish Literature 694c; Tariffs 720c; United Nations Monetary and Financial Program 761a  
Colorado  
Colour Photography: *see* Motion Pictures; Photography  
    Printing 603c  
Columbia, District of: *see* Washington, D.C.  
Columbia University  
    Archaeology 62d; Education 275d  
Columbium  
Combined Chiefs of Staff, The 46, 45, 44  
Combined War Boards, British-U.S.: *see* British-U.S. War Boards 46, 45, 44  
Comets: *see* Astronomy  
Commintern: *see* Union of Soviet Socialist Republics 44  
Commerce: *see* Business Review; International Trade  
Commerce, U.S. Department of: *see* Government Departments and Bureaus  
Commerce Commission, Interstate: *see* Interstate Commerce Commission  
Commission on a Just and Durable Peace 46, 45  
Committee for Economic Development 46, 45, 44  
    Economics 271a  
Committee for Industrial Organization: *see* Congress of Industrial Organizations  
Committee of National Liberation, French: *see* France 45, 44  
Commodity Credit Corporation 43, 42  
Commodity Prices: *see* Business Review; Prices 46, 45, 44, 43, 42. *See* Agriculture 42  
Commons, Members of House of: *see* Parliament, Houses of  
Commonwealth Fund, The: *see* Societies and Associations 46. *See* Commonwealth Fund, The 45, 44, 43, 42  
Communications Commission, Federal: *see* Federal Communications Commission  
Communism  
    American Literature 50d; Austria 89b; Brazil 139a; Bulgaria 158c; Chiang Kai-shek 199a; China 206d; Cuba 242b; Czechoslovakia 244d; Democracy 256d; Denmark 259a; Economics 271b; Finland 310a; France 325c; French Colonial Empire 330d; Gilroy, N. 345d; Greece 355b; Hungary 377c; Italy 411a; Manchuria 455b; Mongolia 490b; Mooney, E. 491d; Newspapers and Magazines 530d; Norway 538d; Paris 562a; Poland 587d; Roman Catholic Church 646c; Rumania 652b; Sapieha, A.S. 657c; Slovakia 676a; Socialism 678b; Supreme Court of the U.S. 712c; Sweden 715d; U.S.S.R. 746b; Vatican City State 796b; Venezuela 799d; Yugoslavia 854a  
Communist Party: *see* Communism 44, 43, 42  
Community Chest  
    Donations 267d  
Community Trusts  
Composers, Authors and Publishers, American Society of: *see* Societies and Associations 46. *See* Performing Right Societies 45, 44, 43, 42. *See* Music; Radio 43, 42  
Conant, Gordon 43  
Confectionery: *see* Candy  
Conferences: *see* Berlin Conference; Inter-American Conference on Problems of War and Peace; Moscow Conference of Foreign Minis-

ters; United Nations Conference on International Organization; United Nations Monetary and Financial Program; Yalta Conference 46  
Agriculture 33c; Cuba 243b; Radio 625a; U.S. 783b  
Congo, Belgian: *see* Belgian Colonial Empire 46, 45, 44, 43, 42. *See* Belgium 42  
Congregational Christian Churches  
    Christian Unity 210c  
Congress, United States  
    United States 778c  
Congress of Industrial Organizations  
    Communism 227d; Elections 280d; Hillman, S. 366c; Labour Unions 426a; Law 429d; Negroes (American) 517c; Truman, H. S. 739d; U.S. 780c; World Federation of Trade Unions 834a  
Coningham, Sir Arthur 45, 44  
Conjunctivitis, Shipyard: *see* Eye, Diseases of, 43  
Connaught, Arthur W. P. A. 43  
Connecticut  
Conrad, Frank 42  
Conscientious Objectors: *see* Friends, Religious Society of; Pacifism  
    Law 431b; Selective Service, U.S. 664d; Seventh Day Adventists 666b  
Conscription: *see* Selective Service, U.S.  
    Education 276b; International Law 399a; Pacifism 553a; Religion 638c; Socialism 678a  
Conservation, Soil: *see* Soil Erosion and Soil Conservation  
Conservation Corps, Civilian: *see* Civilian Conservation Corps 43, 42  
Conservative Party, Great Britain  
    Great Britain 351c; London 446a  
Consumer Credit  
Continental Divide Tunnel: *see* Tunnels 43, 42  
Contract Bridge  
Contract Renegotiation: *see* Business Review 46, 45, 44, 43  
Contract Settlement, Office of: *see* Law; War Mobilization and Reconversion, Office of, 46, 45  
Contract Terminations 46, 45  
    Automobile Industry 89d; Aviation, Civil 95a; Business Review 160d; Clothing Industry 216d; Machinery 452a; Societies and Associations 681d; OVMR 814a  
Controlled Materials Plan: *see* Priorities and Allocations 46, 45, 44, 43. *See* War Production, U.S. 45, 44, 43  
Convoys: *see* Submarine Warfare 46, 45, 44, 43, 42. *See* Blockade 43, 42  
Cook, Will Marion 45  
Cooper, Sir Edwin 43  
Co-operative Movement 46, 45  
    Catholic Rural Life Conference, National 183d  
Coordinator of Inter-American Affairs: *see* Inter-American Affairs, Office of, 46, 45, 44  
Copper  
    Secondary Metals 660c; Stocks and Bonds 699c. *See* also under various states and countries  
Copro: *see* Coco-Nuts  
Copyright  
Coral Sea, Battle of: *see* Japan; World War II 43  
Corn  
    ARA 24b; Agriculture 25d; Alcohol, Industrial 39a; Chemistry 197d; Hogs 368c; Meat 465b. *See* also under various states and countries  
Cornell University  
Corruption  
Corporation Income Tax: *see* Taxation  
Corrigan, Joseph Moran 43  
Corundum: *see* Abrasives  
Cosmetics: *see* Soap, Perfumery and Cosmetics  
Cosmic Rays: *see* Physics  
Costa Rica  
    Central America 190c; Exchange Control 295a; Inter-American Affairs, Office of, 393c; Infant Mortality 391b; Navies of the World 516a; Roads 645a; Soil Erosion 685d; Tariffs 720b; United Nations Monetary and Financial Program 761a  
Cost of Living: *see* Business Review; Price Administration, Office of; Prices 46, 45, 44, 43. *See* Cost of Living 42  
    Stabilization Administrator, Office of, 696b. *See* also under various countries  
Cotton  
    ARA 24b; Agriculture 25b; Clothing Industry 217a; Genetics 338b; Home Economics 369b; Prices 600c; Rayon 631d. *See* also under various states and countries  
Cottonseed Oil: *see* Vegetable Oils and Animal Fats  
Couch, Harvey Crowley 42  
Counterfeiting 661a  
Countries of the World, Areas and

Populations of the: *see* Areas and Populations of the Countries of the World  
Courts, Civil: *see* Law  
Courts, Military: *see* Law 46, 45, 44  
CPA (Civilian Production Administration): *see* Priorities and Allocations; War Production Board 46  
Craig, Malin 46  
Cram, Ralph Adams 43  
Cranberries: *see* Fruit 46, 45  
Craven, Frank 46  
Credit, Consumer: *see* Consumer Credit  
Cremonesi, Carlo 44  
Crerar, Henry D. G. 46, 45, 43, 42  
    World War II 836a  
Crewe, Robert Offley A. C.-M. 46  
Cricket  
Crile, George Washington 44  
Crime  
    Law 430a; Lynching 450b; Marriage and Divorce 460d; Police 590d  
Crimea Conference: *see* Yalta Conference 46  
Cripps, Sir (Richard) Stafford 43  
Croatia: *see* Yugoslavia 46. *See* Croatia 45, 44, 43, 42  
Crop Insurance: *see* Agriculture 46, 45, 44, 43. *See* Crop Insurance 42  
Crosman, Henrietta 45  
Crowley, Leo Thomas 44  
Cruisers: *see* Navies of the World  
Crumit, Frank 44  
Crushed Stone: *see* Stone  
Cruze, James 43  
Cryolite  
    Fluorspar 316b; Greenland 356d  
Csaky, Stephen, Count 42  
Cuba  
    Agriculture 31a; Chromite 210d; Copper 235d; Diamonds 263c; Exchange Control 295a; Exchange Stabilization Funds 297b; Fruit 333b; International Trade 401b; Manganese 456a; Meteorology 473b; Navies of the World 516a; Nickel 534c; Radio 625a; Spanish-American Literature 693c; Sugar 710a; Tariffs 720c; United Nations Monetary and Financial Program 761a; West Indies 823a  
Cudahy, Edward Aloysius, Sr. 42  
Cudahy, John 44  
Cunningham, Sir Alan Gordon 42  
Cunningham, Sir Andrew Browne 45, 44, 43, 42  
Curaçao  
    West Indies 823a  
Curare 466b  
Curling  
Currency: *see* Coinage; Exchange Control and Exchange Rates. *See* also under various countries  
Currie, Lauchlin 43  
Curtin, John  
Curtis, Heber Doust 43  
Cycling  
Cyclotron: *see* Atomic Bomb; Chemistry; Physics 46  
C.Y.O.: *see* Catholic Organizations for Youth 46, 45, 44. *See* Catholic Youth Organization 43, 42  
Cyprus: *see* Mediterranean, British Possessions in the 46, 45, 44. *See* British Possessions in the Mediterranean 43, 42  
Czechoslovakia  
    Agriculture 32a; Anthropology 55d; Aviation, Civil 94c; Berlin Conference 119d; Canada 174d; Carpatho-Ukraine 182d; Coal 217c; Communism 227a; Debt, National 253a; Education 276d; Exchange Control 296b; Forests 322c; Germany 341d; Hungary 377c; International Trade 400a; Iron and Steel 405c; Mercury 470d; Mineral and Metal Production 483a; Pacifism 553b; Paper and Pulp Industry 560b; Presbyterian Church 598a; Silesia 674a; Slovakia 676a; Socialism 678d; Social Security 679c; Teschen 729c; U.S.S.R. 745d; Unitarian Church 748b; United Nations Monetary and Financial Program 761a; U.N.R.R.A. 776b; United Nations War Crimes Commission 776d; War Debts 810a; World War II 837d  
D'Abernon, Edgar Vincent 42  
Dafoe, Allan Roy 44  
Dafoe, John Wesley 45  
Dahomey: *see* French Colonial Empire  
Dairy Industry, Bureau of: *see* Agricultural Research Administration 46, 45, 44  
Dairying  
    ARA 25a; Agriculture 25b; Milk 482b; Prices 600b  
Dakar 43, 42  
Dalai Lama: *see* Tibet  
Dallin, Cyrus Edwin 45  
Dalmatia 44, 43, 42  
Dalton, Hugh 46  
Dams  
    Canals and Inland Waterways 178a; Floods 313b; Irrigation 406b; Meteorology 475b; TVA 728c  
Dance  
Danchenko, Vladimir N. 44  
Dandurand, Raoul 43  
Danube, Control of 42

## INDEX

861

Danzig 46  
Darby, William Orlando 46  
Darlan, Jean Louis Xavier F. 43, 42  
Dartmouth College  
Darwin, Leonard 44  
Dashwood, Mrs. Elizabeth M.: *see* Delafield, E. M. 44  
Dates: *see* Fruit 46  
Daudet, Léon 43  
Daugherty, Harry Micajah 42  
Daughters of the American Revolution, National Society of: *see* Societies and Associations 46. *See* Daughters of the American Revolution, National Society of 45, 44, 43, 42  
Davenport, Charles Benedict 45  
Davenport, Eugene 42  
Davies, David Davies 45  
Davies, Sir Henry Walford 42  
Davies, Joseph Edward 44  
Davis, Chester Charles 45, 44  
Davis, Elmer 46, 45, 44, 43  
    Newspapers and Magazines 527d  
Davis, Henry Hague 45  
Davis, Norman Hezekiah 45  
Davis, Robert Hobart 43  
Davis, William Rhodes 42  
Dawson, Bertrand Dawson 46  
Dawson, George Geoffrey 45  
DCB: *see* Defense Communications Board 42  
DDT: *see* Entomology; Medicine; Wildlife Conservation 46. *See* DDT 45  
    Advertising 22d; ARA 24a; Botany 134c; Fluorspar 316b; Horticulture 372c; Marine Biology 458c; Paints and Varnishes 556a; Petroleum 570d; Plague 584a; Public Health Engineering 613b; Wildlife Conservation 827b  
Deafness  
Death Ray: *see* Grindell-Matthews, Harry 42  
Deaths (of prominent persons): *see* Obituaries  
Death Statistics  
    Census Data 186a; Child Welfare 204c; Suicide Statistics 710c  
De Beck, William 43  
Debt, National 46, 45. *See* National Debt 44, 43, 42  
Debts, Government: *see* Debt, National 46, 45. *See* National Debt 44, 43, 42  
Decorations, Medals and Badges—Military, Naval and Civil 46, 45. *See* Decorations, Military and Naval 44  
    Coinage 222b  
Defense, Civilian: *see* Civilian Defense  
Defense, National (U.S.): *see* Aviation, Military 45. *See* War Production, U.S. 45, 44, 43. *See* National Guard; Navies of the World 45, 44, 43, 42. *See* Air Forces of the World 44, 43, 42. *See* Armies of the World; Defense, National (U.S.) 42  
Defense Aid, Office of: *see* Lend-Lease Administration, Office of 42  
Defense Board, Economic: *see* Foreign Economic Administration 46, 45, 44. *See* Economic Warfare, Board of 43, 42  
Defense Bonds: *see* Banking 43. *See* Savings Banks, Mutual 42  
Defense Communications Board: *see* War Communications, Board of 46, 45, 44, 43. *See* Defense Communications Board 42  
Defense Health and Welfare Services, Office of 43  
Defense Mediation Board, National 42  
Defense Research Committee, National: *see* Scientific Research and Development, Office of  
Defense Transportation, Office of, 46, 45, 44, 43  
    Aviation, Civil 94b; ICC 401c; Railroads 628c  
De Gaulle, Charles: *see* Gaulle, Charles de  
De Geer, Gerard (Jakob) 44  
Delafield, E. M. 44  
Deland, Margaretta W. (Campbell) 46  
Delaware  
De Lee, Joseph Bolivar 43  
De Marigny, Alfred: *see* Oakes, Sir Harry 44  
Deming, Edwin Willard 43  
Democracy  
    Allied Military Government 43d; U.S.S.R. 747a  
Democratic Party  
    Elections 280c  
Dempsey, Sir Miles C. 46, 45  
    World War II 836a  
Dengue 289a  
Denmark  
    Agriculture 31c; Anthropology 55d; Archaeology 62b; Aviation, Civil



- 94c; Child Welfare 202c; Debt, National 253a; Democracy 256c; Drugs 269a; Exchange Control 296b; Greenland 356c; Infant Mortality 391b; International Trade 400a; Leather 437a; Navies of the World 514c; Public Opinion Surveys 613c; Railroads 629d; Shipbuilding 669d; Shipping, Merchant Marine 671b; Socialism 679a; Sweden 716a; Tariffs 720b; Unitarian Church 748b; U.N.R.R.A. 776c; United Nations War Crimes Commission 777a; U.S. Investments Abroad 785a; Wheat 826b; World War II 841d
- Dennis, Charles Henry 44  
Denny, Harold Norman 46  
Dental Association, American: *see* American Dental Association 46, 45, 44, 43  
Dentistry  
Chemotherapy 197a  
Dent, Henri 42  
Deposit Insurance Corporation, Federal: *see* Federal Deposit Insurance Corporation  
Dermatology  
Allergy 42b  
D'Espérey, Franchet: *see* Espérey, Franchet d' 43  
Destroyers: *see* Navies of the World  
Detroit  
Deuteron 81c  
Devaney, John Patrick 42  
Devers, Jacob Loucks 46, 45, 44  
World War II 834c  
Dewey, Davis Rich 43  
Dewey, Thomas Edmund 45  
Diabetes  
Death Statistics 251a; Endocrinology 287b; Medicine 467a  
Diamonds  
Gems 337c; Mineralogy 485a. *See* also under various countries  
Diatomite  
Dickinson, Luren Dudley 44  
Dickinson, Willoughby Hyett D. 44  
Dictatorships: *see* Communism; Fascism; Germany; Spain; U.S.-S.R. 46, 45, 44, 43, 42. *See* Japan; Rumania 45, 44, 43, 42. *See* Italy 43, 42  
Diesel Engines: *see* Power Engineering 46  
Standards, National Bureau of, 697c  
Dies Investigating Committee: *see* Civil Liberties; German-American Bund 42  
Dietetics  
Dietl, Eduard 45  
Dilithium Sodium Phosphate 444b  
Dill, Sir John Greer 45  
Dimension Stone: *see* Stone  
Dinsmore, Charles Allen 42  
Diplomatic Services: *see* Ambassadors and Envoys  
Diphtheria: Death Statistics 251a; Dermatology 261a; Heart and Heart Diseases 365a; Medicine 466a  
Disasters  
French Colonial Empire 330a; Fruit 333b; Honduras 369d; Meteorology 475a  
Disciples of Christ  
District of Columbia: *see* Washington, D.C.  
Ditmars, Raymond Lee 43  
Ditter, J. William 44  
Divorce: *see* Marriage and Divorce  
Dodecanese 46. *See* Italian Colonial Empire 45, 44, 43, 42  
Greece 356a  
Dodge, Raymond 43  
Doenitz, Karl 46, 44  
Germany 344a; World War II 840d  
Dog Racing  
Dog Shows: *see* Shows  
Dollmann, Friedrich 45  
Dominica: *see* West Indies, British  
Dominican Republic  
Agriculture 33d; Exchange Control 295b; Navies of the World 516a; Radio 625a; Tariffs 720b; United Nations Monetary and Financial Program 761a; West Indies 823b  
Donations and Bequests  
Donovan, William Joseph 42  
Doolittle, James 46, 45, 44, 43  
Dormoy, Marx 42  
Douglas, Lord Alfred (Bruce) 46  
Draft: *see* Selective Service, U.S.  
Drama: *see* Radio; Theatre  
Dreiser, Theodore 46  
Dress: *see* Fashion and Dress  
Drew, George Alexander 44, 43  
Dridso, A. A.: *see* Lozovsky, S. A. 42  
Driesch, Hans Adolf Eduard 42  
Drought: *see* Meteorology 46, 45. *See* Drought 44, 43, 42  
Drugs and Drug Traffic  
Drunkness: *see* Intoxication, Alcoholic  
Dry Farming: *see* Soil Erosion and Soil Conservation 42  
Dubois, Eugene 42  
Duchene Tunnel: *see* Tunnels 42  
Dumbarton Oaks: *see* United Nations Conference on International Organization 46. *See* International Law 46, 45  
Dumortierite 424d  
Duncan, Sir Patrick 44  
Dunkerley, William Arthur: *see* Oxenham, John 42  
Du Pont, Richard Chichester 44  
Dust Storms: *see* Meteorology 46, 45. *See* Drought 44, 43, 42  
Dutch Borneo: *see* Borneo 46, 42. *See* Netherlands Indies 45, 44. *See* Netherlands Colonial Empire 45, 44, 43. *See* Dutch East Indies 43  
Dutch Colonial Empire: *see* Netherlands Colonial Empire 46, 45, 44, 43, 42. *See* Netherlands Indies 46, 45, 44. *See* Dutch East Indies 43, 42  
Dutch East Indies: *see* Netherlands Indies 46, 45, 44. *See* Dutch East Indies 43, 42  
Dutch Guiana: *see* Surinam  
Dutch Harbor: *see* Alaska; World War II 43  
Dyestuffs  
Petroleum 570d  
Dysentery 41b  
EAC: *see* European Advisory Commission 46, 45, 44  
Eaker, Ira C. 46, 45, 44, 43  
E.A.M. 355b  
Ear, Nose and Throat, Diseases of  
Earnings, Company: *see* Business Review  
Earthquakes: *see* Seismology 46, 45, 44, 43, 42. *See* Disasters 45, 44, 43, 42  
Easley, Claudius Miller 46  
East Africa, British: *see* British East Africa  
East Indies, Dutch: *see* Netherlands Indies 46, 45, 44. *See* Dutch East Indies 43, 42  
Eastman, Joseph Bartlett 45, 44, 43  
East Prussia 46  
Eaton, Edward Dwight 43  
Eberle, Abastenia St. Leger 43  
Eberstadt, Ferdinand 43  
Eclipses of the Sun and Moon: *see* Astronomy; Calendar (page xxii)  
Economic Association, American: *see* Societies and Associations 46. *See* American Economic Association 45, 44, 43, 42  
Economic Defense Board: *see* Foreign Economic Administration 46, 45, 44. *See* Economic Warfare, Board of, 43, 42  
Economic Development, Committee for: *see* Committee for Economic Development 46, 45, 44  
Economics 46, 45, 44, 43  
Economic Stabilization, Office of: *see* Stabilization Administrator, Office of, 46. *See* Economic Stabilization, Office of, 45, 44  
Economic Warfare, Office of: *see* Foreign Economic Administration 46, 45, 44. *See* Economic Warfare, Board of, 43, 42  
Ecuador  
Agriculture 33d; Archaeology 64b; Debt, National 253a; Exchange Control 295a; Exchange Stabilization Funds 297a; Infant Mortality 391b; Inter-American Affairs, Office of, 393c; Marriage and Divorce 461a; Motion Pictures 496c; N.E.A. 508b; Negroes (American) 517d; Nervous System 518b; Newspapers and Magazines 530b; Veterans' Administration 801d. *See* also under individual colleges and universities and under various cities, states and countries  
Education, U.S. Office of: *see* Federal Security Agency 46, 45, 44. *See* Education 46, 45, 44, 43, 42  
Education Association, National: *see* National Education Association  
Edwards, Agustín 42  
Edwards, Gus 46  
Eggs  
ARA 24d; Agriculture 25b; Poultry 595b  
Egypt  
Agriculture 32b; Assassinations 77b; Birth Control 127c; Cotton 238d; Debt, National 253a; Exchange Control 295d; Italian Colonial Empire 408d; Linen and Flax 442b; Phosphates 575d; United Nations Monetary and Financial Program 761a  
Eichelberger, Robert L. 46, 45, 44  
World War II 843b  
Eidmann, Frank Lewis 42  
Eire  
Exchange Control 295d; Linen and Flax 442c  
Eisenhower, D. D. 46, 45, 44, 43  
American Literature 51b; Anti-Semitism 57d; Boston 133d; Denmark 258b; Education 277a; Germany 344d; London 446d; Oxford University 550c; Pius XII 583d; World War II 834c  
E.L.A.S. 355b  
Elections  
Allied Military Government 43d; Democracy 256c. *See* also under various cities, states and countries  
Electrical Industries  
Business Review 161c; Public Utilities 614b; Socialism 678c  
Electricity 728c  
Electric Lighting: *see* Electrical Industries  
Electric Transmission and Distribution: *see* Electrical Industries  
Electric Transportation  
Electrification, Rural: *see* Rural Electrification  
Electron Microscope: *see* Photography 44, 43. *See* Radio 42  
Electrons: *see* Atomic Bomb; Chemistry; Physics 46  
Radar 618c  
Elementary Education: *see* Education  
Elias, Alois 43  
Elks, Benevolent and Protective Order of: *see* Societies and Associations 46. *See* Elks, Benevolent and Protective Order of, 45, 44  
Ellice Islands: *see* Pacific Islands, British  
Elliott, John Lovejoy 43  
Ellis, Carleton 42  
El Salvador: *see* Salvador, El  
Eltinge, Julian 42  
Ely, Richard Theodore 44  
Embassies, Great Britain: *see* Ambassadors and Envoys  
Embassies, United States: *see* Ambassadors and Envoys  
Emeralds 337d  
Emergency Management, Office for, 45, 44, 43, 42  
Emery: *see* Abrasives  
Emigration: *see* Immigration and Emigration, U.S.  
Emmons, Delos Carleton 43, 42  
Employment 46, 45, 44  
A.F. of L. 46c; Bank for International Settlements 105b; Business Review 162c; Census Data 187d; Child Welfare 202d; Civil Liberties 214c; Civil Service, U.S. 215a; Committee for Economic Development 226b; C.I.O. 231d; Democratic Party 257b; Economics 271c; Income and Product, U.S. 383d; Industrial Health 389a; Labour Unions 427b; Law 430d; Relief 637c; Socialism 678a; Social Security 679d; Truman, H. S. 739b; V.F.W. 802c; War Production, U.S. 814c. *See* also under separate industries and under various cities, states and countries  
Encephalitis 289a  
Enderbury Island: *see* Pacific Islands, U.S. 46, 45, 44. *See* South Sea and Equatorial Islands 42  
Endocrinology  
Engel, Kurt 43  
Engines 595c  
England: *see* Great Britain and Northern Ireland, United Kingdom of  
English Literature  
Entomology  
ARA 24a; Plague 584a; Veterinary Medicine 803c  
Entomology and Plant Quarantine, Bureau of: *see* Agricultural Research Administration 46, 45, 44  
Enzymes: *see* Biochemistry  
Epidemics and Public Health Control  
Alimentary System, Disorders of, 42a; Medicine 466c; Plague 584a; Public Health Engineering 613a  
Epilepsy: *see* Nervous System 43  
Episcopal Church: *see* Protestant Episcopal Church  
Epstein, Abraham 43  
Equatorial Islands: *see* South Sea and Equatorial Islands 42  
Eritrea: *see* Italian Colonial Empire  
Espérey, Franchet d' 43  
Espionage: *see* Federal Bureau of Investigation  
Estaunie, Edouard 43  
Estonia  
Paper and Pulp Industry 560b; U.S.S.R. 745d; Unitarian Church 748b; War Debts 810a  
Etching  
Ethical Culture Movement  
Ethiopia  
United Nations Monetary and Financial Program 761a  
Ethylene dibromide 290b  
European Advisory Commission 46, 45, 44  
European War: *see* World War II  
Evangelicals, National Association of: *see* National Association of Evangelicals 46  
Evans, Sir Arthur John 42  
Events of the Year: *see* Calendar of Events, pages 1-16  
Eves, Reginald Grenville 42  
Ewing, James 44  
Exchange Control and Exchange Rates  
Exchange Rates: *see* Exchange Control and Exchange Rates  
Exchange Stabilization Funds  
Exhibitions and Fairs: *see* Shows 46, 45, 44, 43. *See* Fairs, Exhibitions, Expositions 42  
Expenditure, Government: *see* Budget, National  
Exploration and Discovery 43, 42  
Explosions: *see* Disasters  
Explosive Rivets: *see* Industrial Research; Metallurgy 42  
Export Controls: *see* Foreign Economic Administration 46, 45  
Export-Import Bank of Washington  
Brazil 140d; Cuba 243b; Democratic Party 257c; Ecuador 271d; FEA 319d; Finland 310c; International Trade 399c; RFC 632b; U.S. Investments Abroad 785a; Uruguay 794b  
Exports: *see* Agriculture; International Trade; Tariffs. *See* also under various countries  
Eye, Diseases of  
Facsimile Transmission: Radio 621b; Telegraphy 725b  
Facts and Figures, Office of: *see* War Information, Office of, 43  
Fadden, Arthur William 42  
Fair Employment Practice, Committee on, 46, 45  
Fair Labor Standards Act: *see* Child Welfare; Law 46, 45, 44, 43. *See* Child Labour 42  
Fairs, State: *see* Shows  
Fairs, Exhibitions, Expositions 42  
Falange: *see* Fascism 45, 44, 43  
Spain 692c  
Falk Foundation, The Maurice and Laura: *see* Societies and Associations 46. *See* Falk Foundation, The Maurice and Laura 45, 44, 43, 42  
Falkland Islands: *see* British Empire  
Fall, Albert Bacon 45  
Famines 46, 45, 44  
Far Eastern Commission: *see* Allied Military Government 46  
Farish, William Stamps 43  
Farm Co-operatives: *see* Farm Credit Administration 46, 45, 44. *See* Agriculture 43. *See* Farmers' Co-operatives 42  
Farm Credit: *see* Farm Credit Administration 46, 45, 44. *See* Agriculture 43, 42  
Farm Credit Administration 46, 45, 44. *See* Agriculture 43. *See* Farm Mortgages; Federal Land Banks 42  
Farm Income: *see* Agriculture 46, 45, 44, 43. *See* Farm Income 42  
Farm Machinery: *see* Agriculture 46, 45, 44, 43. *See* Farm Machinery 42  
Farm Mortgages: *see* Farm Credit Administration 46, 45, 44. *See* Agriculture 46, 45, 44, 43. *See* Farm Mortgages 42  
Farm Purchase Loans: *see* Farm Security Administration 46, 45  
Farm Security Administration 46, 45. *See* Agriculture 43, 42. *See* Housing 42  
Farm Tenancy: *see* Agriculture, 43. *See* Farm Tenancy 42  
Fascism  
Italian Literature 409c; Sapieha, A. S. 657c  
Fashion and Dress  
Faust, Frederick 45  
Fawcett, Edward 43  
FBI: *see* Federal Bureau of Investigation  
FCA: *see* Farm Credit Administration 46, 45, 44. *See* Agriculture 43. *See* Farm Mortgages; Federal Land Banks 42  
FCC: *see* Federal Communications Commission  
FDIC: *see* Federal Deposit Insurance Corporation  
Feder, Gottfried 42  
Federal Bureau of Investigation  
Kidnapping 422a  
Federal Communications Commission  
Law 430b; Radio 620d; Television 726d  
Federal Council of the Churches of Christ in America  
Church Membership 211d; Commission on a Just and Durable Peace 225d; Religion 638c  
Federal Crop Insurance Corporation: *see* Agriculture 43. *See* Crop Insurance 42  
Federal Deposit Insurance Corporation

- Federal Farm Mortgage Corporation: *see* Farm Mortgages 42  
 Federal Home Loan Bank: *see* Housing 46, 45. *See* National Housing Agency 44, 43. *See* Federal Home Loan Bank System 42  
 Federal Housing Administration: *see* Housing 46, 45. *See* National Housing Agency 44, 43. *See* Federal Housing Administration 42  
 Federal Income Tax: *see* Taxation  
 Federal Land Banks: *see* Farm Credit Administration 46, 45, 44. *See* Federal Land Banks 43, 42  
 Federal Power Commission 46, 45, 44  
 Electrical Industries 283a; Law 430b  
 Federal Public Housing Authority: *see* Housing 46, 45. *See* National Housing Agency 44, 43  
 Federal Reserve System  
 Federal Savings and Loan Insurance Corporation: *see* Housing 46, 45. *See* National Housing Agency 44, 43. *See* Federal Savings and Loan Insurance Corporation 42  
 Federal Security Agency 46, 45, 44. *See* Civilian Conservation Corps; National Youth Administration; Social Security 43, 42  
 Industrial Health 389a  
 Federal Trade Commission 46, 45, 44  
 Federal Union: *see* Union Now 42  
 Federal Works Agency  
 Child Welfare 204b; Municipal Government 499d; Town and Regional Planning 735d  
 Federated Malay States  
 Federation of Labor, American: *see* American Federation of Labor  
 Feiler, Arthur 43  
 Feldspar  
 Fencing  
 Ferguson, James Edward 45  
 Ferrero, Gina Lombroso 45  
 Ferrero, Guglielmo 43  
 Fertilizers  
 ARA 24d; Agriculture 30c; Borates 131d; Cotton 238c; Food Research 317a; Nitrogen, Chemical 535a; Petroleum 570d; Superphosphates 711b; TVA 729a; Wheat 826a  
 Feuermann, Emanuel 43  
 FHA: *see* Housing 46, 45. *See* National Housing Agency 44, 43. *See* Federal Housing Administration 42  
 FHLB: *see* Housing 46, 45. *See* National Housing Agency 44, 43. *See* Federal Home Loan Bank System 42  
 Fibrin: Dentistry 260b; Surgery 713b; Words and Meanings, New 832c  
 Fiction: *see* Book Publishing 46. *See* Prizes 46, 45. *See* American Literature; Canadian Literature; English Literature; French Literature; German Literature; Italian Literature; Russian Literature; Spanish-American Literature; Spanish Literature 46, 45, 44, 43, 42. *See* Publishing (Book) 45, 44, 43, 42. *See* Literary Prizes 44, 43, 42  
 Field, Rachel 43  
 Fields, Lew 42  
 Field Sports: *see* Track and Field Sports  
 Fighting France (Free France): *see* France; French Colonial Empire 45, 44, 43, 42. *See* World War II 44, 43, 42  
 Figs: *see* Fruit 46, 45  
 Fiji: *see* Pacific Islands, British  
 Filariasis 289a  
 Filberts: *see* Nuts  
 Filoff, Bogdan Dimitrov: *see* Philoff, Bogdan Dimitrov 42  
 Financial Review: *see* Business Review  
 Fine Arts: *see* Music; Painting; Sculpture; etc.  
 Finger, Charles Joseph 42  
 Finland  
 Agriculture 31d; Berlin Conference 119d; Communism 227c; Debt, National 253a; Democracy 256c; Exchange Control 295b; Great Britain 352a; Lumber 449c; Navies of the World 514c; Nickel 534c; Paper and Pulp Industry 560b; Public Opinion Surveys 613d; Reconstruction Planning 634a; Socialism 679b; Sweden 716a; Tariffs 720b; U.S.S.R. 745d; War Debts 810a  
 Finlay, William Finlay 46  
 Finucane, Brendan (Paddy) 43  
 Fire Insurance: *see* Insurance  
 Fires and Fire Losses  
 Disasters 265c; Forests 322d; Meteorology 476a; Oregon 548c  
 Fires and Fire Prevention: *see* Warfare, Incendiary 46, 45, 44, 43  
 Fischer, Hans 46  
 Fish, Bert 44  
 Fish and Wildlife Service: *see* Fisheries 46. *See* Wildlife Conservation 46, 45, 44. *See* Fish and Wildlife Service 43, 42  
 Fisher, Clarence Stanley 42  
 Fisher, Frederic John 42  
 Fisher, Geoffrey Francis 46  
 Fisheries  
 Agriculture 33d; International Law 398d; Strikes and Lock-outs 703c. *See* also under various countries  
 Fisheries, Bureau of: *see* Fish and Wildlife Service 43, 42  
 Fiske, Bradley Allen 43  
 Fiske, Charles 43  
 Fiske, Harrison Grey 43  
 Fitzpatrick, Sir Charles 43  
 Fitzroy, Edward Algernon 44  
 Fiume: *see* Trieste; Yugoslavia 46  
 Flax: *see* Linen and Flax  
 Fleming, Sir John Ambrose 46  
 Flexner, Bernard 46  
 Flint: *see* Abrasives 45, 44, 43, 42  
 Floods and Flood Control  
 Canals and Inland Waterways 178c; Coast Guard, U.S. 220a; Irrigation 406b; Louisiana 447c; Meteorology 472d; Public Utilities 614c; Rivers and Harbours 643a; TVA 728d  
 Florida  
 Flour and Flour Milling  
 Bread 141d; Prices 601b  
 Fluorine 260b  
 Fluorspar  
 Flying Bombs: *see* Rockets 45  
 "Flying Tigers": *see* Chennault, Claire L. 45, 44, 43  
 American Literature 50b  
 Fokine, Michel 43  
 Folk Dancing: *see* Dance 43, 42  
 Food and Drug Administration: *see* Federal Security Agency 46, 45, 44. *See* Drugs and Drug Traffic 46, 45, 44, 43, 42  
 Advertising 22d  
 Food Research 46, 45, 44  
 Bread and Bakery Products 142a  
 Football  
 Ford, Edsel Bryant 44  
 Foreign Economic Administration 46, 45, 44  
 Agriculture 28b; Belgium 117d; Bolivia 130a; Business Review 162c; Central America 191a; China 209b; Colombia 223d; Costa Rica 237d; Dominican Republic 267a; Exchange Control 294d; Honduras 369d; Housing 376c; International Law 398d; International Trade 399c; Great Britain 351c; Guatemala 358b; New Zealand 533c; Oregon 548c; U.S. Investments Abroad 784d  
 Foreign Exchange: *see* Exchange Control and Exchange Rates  
 Foreign Investments in the U.S.  
 Foreign Missions 43, 42  
 Foreign Relief and Rehabilitation Operations, Office of: *see* Foreign Economic Administration 46, 45, 44  
 Foreign Trade: *see* International Trade 46, 45, 44, 43, 42. *See* Agriculture 43, 42  
 Forests  
 Agriculture 33d; Lumber 448d; Soil Erosion 685c; TVA 729a. *See* also under various countries  
 Formosa  
 Reconstruction Planning 634b; U.N.-R.R.A. 776c  
 Forrestal, James 46, 45  
 Forticel 584d  
 Fougner, G. Selmer 42  
 Foundations: *see* Societies and Associations 46. *See* Donations and Bequests 46, 45, 44, 43, 42. *See* also foundations under their specific names 45, 44, 43, 42  
 Four-H Clubs  
 France  
 Agriculture 31c; Allied Commission on Reparations 43a; Allied Military Government 43b; Aluminum 45a; Anthropology 55d; Anti-Semitism 57c; Archaeology 59d; Architecture 67a; Art Galleries 76a; Austria 89a; Aviation, Civil 94c; Banking 107c; Bauxite 115b; Berlin Conference 119c; Botany 135a; Bridges 143d; Child Welfare 202b; China 208d; Clothing Industry 217a; Coal 217c; Communism 227b; Dams 247a; Debt, National 253a; Democracy 256c; Drugs 269a; Education 276d; Etching 293a; EAC 294b; Exchange Control 294d; Fertilizers 309b; Fluorspar 316b; Football 319a; Foreign Investments in the U.S. 322a; Forests 322c; French Colonial Empire 329b; French Literature 331a; Germany 342c; Great Britain 351d; Greece 356a; Guerrilla Warfare 358d; Horticulture 372a; Infant Mortality 391b; I.L.O. 397c; International Law 398a; International Trade 400a; Iron and Steel 405c; Italian Colonial Empire 408d; Italy 411d; Japan 415b; Leather 437a; Linen and Flax 442d; Mineral and Metal Production 483a; Monaco 489b; Moscow Conference 492d; Motion Pictures 493d; Motor Transportation 498c; Music 505c; Navies of the World 514b; Newspapers and Magazines 530b; Pacifism 553b; Painting 555d; Paper and Pulp Industry 559c; Petroleum 568d; Photography 576b; Portugal 591c; Potash 594a; Presbyterian Church 598a; Prisoners of War 604d; Prizes 607d; Psychiatry 610b; Public Opinion Surveys 613c; Reconstruction Planning 633c; Refugees 637a; Rhineland 640c; Roads 645b; Roman Catholic Church 646c; Roosevelt, F. D. 648b; Rubber 650d; Saar 654c; Shipping, Merchant Marine 671c; Soap, Perfumery and Cosmetics 677b; Socialism 679b; Social Security 679c; Spain 691d; Sweden 716a; Swimming 717d; Syria and Lebanon 718c; Tariffs 720b; Taxation 724c; Television 727c; Unitarian Church 748b; United Nations Conference 749a; United Nations Monetary and Financial Program 761a; U.N.R.R.A. 776a; United Nations War Crimes Commission 776d; U.S. 783c; U.S. Investments Abroad 785a; Uruguay 794a; Vatican City State 796b; War Debts 810a; Wines 828b; Words and Meanings, New 833a; World War II 836a; Zinc 855b  
 France, Free (Fighting France): *see* France; French Colonial Empire 45, 44, 43, 42. *See* World War II 44, 43, 42  
 Franckenstein, Clemens von 43  
 Franco, Francisco  
 Spain 691d  
 Fraser, Sir Bruce Austin 46  
 Fraser, Leon 46  
 Frazer, Sir James George 42  
 Fredendall, Lloyd R. 44, 43  
 Free France (Fighting France): *see* France; French Colonial Empire 45, 44, 43, 42. *See* World War II 44, 43, 42  
 Freeman, James Edward 44  
 Freeman, Richard Austin 44  
 Freemasonry: *see* Masonic Fraternity 46, 45. *See* Masonic Order 43, 42  
 Freer Gallery of Art: *see* Smithsonian Institution  
 French Colonial Empire  
 French Committee of National Liberation: *see* France 45, 44  
 French Congo: *see* French Colonial Empire  
 French Equatorial Africa: *see* French Colonial Empire  
 French Guiana: *see* French Colonial Empire  
 French Guinea: *see* French Colonial Empire  
 French Indo-China: *see* French Colonial Empire 46, 45, 44, 43, 42. *See* World War II 43, 42. *See* Chinese-Japanese War; France; Japan; Thailand 42  
 French Literature  
 French North Africa: *see* French Colonial Empire  
 French Pacific Islands: *see* Pacific Islands, French  
 French Somaliland: *see* French Colonial Empire  
 French Sudan: *see* French Colonial Empire  
 French West Africa: *see* French Colonial Empire  
 Frequency Modulation: *see* Radio  
 FCC 304b; Radar Countermeasures 620b; Television 727a  
 Frew, Walter Edwin 42  
 Friedeburg, Hans Georg von 46  
 World War II 842a  
 Friends, Religious Society of  
 Pacifism 553a; Prisoners of War 607a  
 Frings, Joseph 46  
 Fruit 46, 45. *See* Apples; Bananas; Grapefruit; Grapes; Lemons and Limes; Oranges; Peaches; Pears; Plums and Prunes 44, 43, 42. *See* Pineapples 42  
 ARA 24c; Agriculture 25b; Candy 181a; Canning Industry 181a; Entomology 290a; Fertilizers 309c; Food Research 316c; Prices 600b; Prisons 607b; Vitamins 806b; *See* also under various states, provinces and countries  
 FSA: *see* Farm Security Administration: Federal Security Agency 46, 45  
 FSLIC: *see* Housing 46, 45. *See* Federal Savings and Loan Insurance Corporation 42  
 FTC: *see* Federal Trade Commission 46, 45, 44  
 Fuadin 41c  
 Fuel Briquettes  
 Fuel Oil: *see* Business Review; Petroleum 46, 45, 44, 43. *See* Price Administration, Office of, 45. *See* Rationing 44, 43  
 Fuller's Earth  
 Fulmer, Hampton Pitts 45  
 Fuqua, Stephen Ogden 44  
 Furniture Industry  
 Interior Decoration 396d; Strikes and Lock-outs 703c; Wages and Hours 807a  
 Furs  
 Northwest Territories 537c  
 FWA: *see* Federal Works Agency  
 Gager, Charles Stuart 44  
 Galen, Clement August von 46  
 Galway, George Vere A. M.-A. 44  
 Gambia: *see* British West Africa  
 Gandhi, Mohandas Karamchand  
 Gandhi, Mrs. Mohandas K. 45  
 Garbett, Cyril Forster: *see* York, Archbishop of, 43  
 Garfield, Harry Augustus 43  
 Garnet: *see* Abrasives  
 Garratt, Geoffrey Theodore 43  
 Garrett, John Work 43  
 Gas, Natural  
 FPC 305c; Law 430b; Plastics Industry 584d; Supreme Court of the U.S. 712b  
 Gasoline: *see* Petroleum 46, 45, 44, 43, 42. *See* Price Administration, Office of, 45. *See* Rationing 44, 43  
 Gasoline Engines: *see* Power Engineering 46  
 Gas Turbines: *see* Power Engineering 46. *See* Gas Turbine, The Combustion 45  
 Gaulle, Charles de  
 France 325a; Paris 561d; Syria and Lebanon 718d  
 Gay, Malsie 46  
 Gayda, Virginia 45  
 Gayford, Oswald Robert 46  
 Gehrig, Henry Louis 42  
 Geiger, Roy Stanley 46, 45  
 Okinawa 546c  
 Gems and Precious Stones  
 Mineralogy 484d  
 General Education Board: *see* Societies and Associations 46. *See* Rockefeller Foundation 45, 44, 43, 42  
 General Federation of Women's Clubs: *see* Societies and Associations 46. *See* Women's Clubs, General Federation of, 45, 44, 43, 42  
 Genetics  
 Genthe, Arnold 43  
 Geographical Society, American: *see* Societies and Associations 46. *See* American Geographical Society 45, 44, 43, 42  
 Geography 46, 45, 44. *See* American Geographical Society; National Geographical Society 43, 42  
 National Geographic Society 508c; Societies and Associations 681d  
 Geology  
 Archaeology 62d  
 George II 43, 42  
 George VI  
 Dams 247a; Great Britain 351b; Ireland, Northern 404d  
 George, Harold H. 43  
 George, Harold Lee 44  
 George of Bavaria, Prince 44  
 Georgia  
 Georgia Warm Springs Foundation 42  
 German-American Bund 43, 42  
 German Literature  
 Germany  
 Agriculture 31c; Allied Commission on Reparations 42d; Allied Military Government 43a; Aluminum 44d; American Literature 50d; Anthropology 55d; Anti-Semitism 57b; Arabia 59a; Archaeology 59d; Art Galleries 75d; Assassinations 77b; Atomic Bomb 84b; Aviation, Military 95d; Berlin Conference 119c; Bridges 143d; Canals and Inland Waterways 179b; Chemistry 195a; Child Welfare 202c; Christian Unity 210b; Clothing Industry 217b; Coal 217b; Coke 222c; Co-operative Movement 235b; Czechoslovakia 244d; Danzig 249b; Death Statistics 250d; Debt, National 253a; Drugs 269a; East Prussia 270d; Education 277a; Electrical Industries 283d; Estonia 291b; EAC 294b; Exchange Control 296b; Fascism 300b; Federal Council of Churches 304d; Fertilizers 309b; Finland 309d; Foreign Investments in the U.S. 321c; France 325b; Furniture Industry 335b; German Literature 341c; Greece 355a; Hungary 377c; Infant Mortality 391b; International Law 398a; International Trade 399b; Iron and Steel 405c; Jewish Religious Life 417a; Koenigsberg 423a; Latvia 428d; Lead 435d; Leather 437a; Linen and Flax 442c; Lithuania 444b; Lumber 449c; Metallurgy 471b; Mexico 478b; Mineral and Metal Production 483a; Motor Transportation 498c; Munitions of War 500a; Music 505c; Navies of the World 513c; Newspapers and Magazines 526d; Pacifism 553b; Painting 555d; Paper and Pulp Industry 560b; Peru 567c; Petroleum 568c; Philately 571c; Photography 576b; Plastics Industry 585b; Poland 587c; Portugal 591c; Potash 594a; Power Engineering 596b; Presbyterian Church 597d; Prisoners of War 604d; Psychology 611a; Public Opinion Surveys 614a; Radar Counter-

- measures 619c; Railroads 629d; Reconstruction Planning 633c; Red Cross 635d; Refugees 635d; Rhineland 640b; Roads 643d; Roman Catholic Church 646a; Rubber 650a; Saar 654c; Shipbuilding 668a; Shipping, Merchant Marine 671a; Socialism 679a; Sociology 684a; Spain 691d; Stettin 698b; Submarine Warfare 704d; Sweden 715d; Switzerland 717d; Syria and Lebanon 719a; Tungsten 742b; Turkey 743c; U.S. S.R. 745d; Unitarian Church 748b; U.N.R.R.A. 776c; United Nations War Crimes Commission 776d; Uruguay 794a; Vatican City State 796c; Venezuela 799d; War Debts 810a; World War II 834c; Yalta Conference 850d; Zinc 855b
- Gerould, Katharine Fullerton** 45
- Gerow, Leonard T.** 46
- Gest, Morris** 43
- Ghormley, Robert Lee** 43
- Gibbs, George** 43
- G.I. Bill of Rights:** *see* Education; Law; Social Security; Veterans' Administration 46, 45. *See* Housing 45
- American Legion 47b; Hospitals 373b; RFC 633a; V.F.W. 802d; WAC 830b
- Gibraltar:** *see* Mediterranean, British Possessions in the, 46, 45, 44, 43. *See* British Possessions in the Mediterranean 42
- Gibson, Charles Dana** 45
- Gilbert and Ellice Islands Colony:** *see* Pacific Islands, British
- Gilmore, John Washington** 43
- Gilroy, Norman** 46
- Gin** 443a
- Ginger:** *see* Spices 46, 44, 43, 42
- Giraud, Henry Honore** 44, 43
- Giraudoux, Hippolyte Jean** 45
- Girl Scouts**
- Glands:** *see* Endocrinology; Medicine
- Glass**
- Architecture 66a; Borates 131d; Business Review 161d; Feldspar 308c; Kyanite Minerals 425a; Law 433d; Lithium Minerals 444b; Munitions of War 500b; Standards, National Bureau of, 697c; Strikes and Lock-outs 703c; Supreme Court of the U.S. 712b; Wages and Hours 807a
- Glassford, William Alexander, II** 44
- Glennon, John Joseph** 46
- Gliding**
- Globulin** 197a
- Glyn, Elinor** 44
- G-Men:** *see* Federal Bureau of Investigation
- Goebbels, Josef** 46, 45
- Germany 344a; Hitler, A. 367c
- Goering, Hermann Wilhelm**
- Germany 344a; Hitler, A. 368a
- Gold**
- Secondary Metals 660d. *See* also under various states and countries
- Gold Coast:** *see* British West Africa
- Gold Standard:** *see* Gold 42
- Golf**
- Golikov, Filip Ivanovich** 45, 44
- Gonads:** *see* Endocrinology 42
- Gonorrhea:** *see* Venereal Diseases
- Goode, Sir William (A. M.)** 45
- Göring, Hermann Wilhelm:** *see* Goering, Hermann Wilhelm
- Gorizia:** *see* Trieste; Yugoslavia 46
- Görtner, Ross Aiken** 43
- Gouveia, Teodosio Clemente de** 46
- Government Departments and Bureaus**
- Government Expenditures:** *see* Budget, National
- Government Printing Office:** *see* Printing Office, U.S. Government
- Government Receipts:** *see* Budget, National
- Governors and Premiers, British:** *see* British Empire
- Govorov, Leonid N.** 45
- Grain:** *see* Barley; Corn; Oats; Rice; Rye; Wheat 46, 45, 44, 43, 42. *See* Cereals 42
- Granger, Walter** 42
- Granite:** *see* Stone
- Grant, Heber J.** 46
- Grapefruit:** *see* Fruit 46, 45. *See* Grapefruit 44, 43, 42
- Grapes:** *see* Fruit 46, 45. *See* Grapes 44, 43, 42
- Graphite**
- Gems and Precious Stones 337c
- Graser, Earle W.** 42
- Grauert, Ulrich** 42
- Gravel:** *see* Sand and Gravel
- Gray, George Kruger** 44
- Great Britain and Northern Ireland, United Kingdom of**
- Advertising 23a; Agriculture 28c; Albania 38b; Allied Commission on Reparations 42d; Allied Military Government 43b; Aluminum 45a; Ambassadors and Envoys 45b; Anthropology 55c; Architecture 67a; Argentina 70a; Art Galleries 76a; Atomic Bomb 79c; Austria 89a; Aviation, Civil 93b; Aviation, Military 100b; Banking 107b; Bank of England 107c; Baptist Church 108b; Berlin Conference 119c; Birth Control 127b; Birth Statistics 127c; Book-collecting and Book Prices 130d; Book Publishing 131c; Botany 134d; Boy Scouts 137d; Bread 142a; Bridges 143c; British Legion 150b; British-U.S. War Boards 151a; Building and Construction Industry 158a; Business Review 164c; Cabinet Members 166a; Camp Fire Girls 170c; Canals and Inland Waterways 179b; Candy 180d; Child Welfare 202d; China 208b; Christian Unity 210a; Church of England 212b; Civilian Defense 213d; Clothing Industry 217a; Coal 217c; Combined Chiefs of Staff, The 225c; Communism 227c; Conservative Party 233b; Co-operative Movement 235a; Cotton 239a; Cricket 240b; Crime 241d; Cuba 243b; Dams 247a; Dance 248b; Death Statistics 250c; Debt, National 253b; Decorations, Medals and Badges 254a; Democracy 256c; Denmark 259a; Diabetes 262b; Diamonds 263c; Disasters 265d; Disciples of Christ 266b; Dodecanese 266c; Dog Racing 266d; Dominican Republic 267b; Drugs 269b; East Prussia 271a; Economics 271c; Education 276d; Egypt 278d; Employment 286b; English Literature 287d; Estonia 291c; Etching 293a; Ethical Culture Movement 293b; Ethiopia 293c; EAC 294b; Exchange Control 296a; Finland 309d; Flour 315b; Food Research 317a; Football 318d; Foreign Investments in the U.S. 321b; Forests 322c; France 325b; Friends, Religious Society of, 332b; Furniture Industry 335b; Furs 335c; Geology 339c; Germany 342c; Government Departments 350b; Greece 355b; Guatemala 358b; Gynecology and Obstetrics 361b; Gypsum 361c; Haiti 362b; Horse Racing 371a; Horticulture 372b; Housing 376c; Iceland 380a; Infant Mortality 391a; Insurance 392c; I.L.O. 397c; International Law 397d; International Trade 399c; Iran 404a; Iraq 404c; Iron and Steel 405c; Italian Colonial Empire 408c; Italy 411d; Japan 413c; Jewish Religious Life 417b; Korea 424b; Labour Party 425a; Labour Unions 426c; Latvia 429a; Law 432a; Leather 437a; Liberal Party 439b; Libraries 441d; Linen and Flax 442b; Liquors, Alcoholic 443c; Lithuania 444d; Lumber 449b; Manchuria 455a; Marriage and Divorce 460c; Mexico 479b; Mineral and Metal Production 483a; Moscow Conference 492d; Motion Pictures 496b; Motor Transportation 498a; Munitions of War 500c; Music 505d; Navies of the World 513c; Netherlands Colonial Empire 519b; Netherlands Indies 520b; Newspapers and Magazines 526d; Nickel 534c; Norway 538a; Paper and Pulp Industry 559c; Parliament, Houses of, 563a; Petroleum 568d; Photography 576b; Poland 587d; Post Office 593c; Power Engineering 596b; Prisoners of War 604d; Prisons 607c; Prizes 607d; Psychiatry 610a; Psychology 611a; Public Opinion Surveys 613c; Radar 617c; Radar Countermeasures 619c; Radio 626b; Railroads 629a; Rayon 631b; RFC 632b; Reconstruction Planning 633c; Refugees 637a; Relief 638a; Rhineland 640c; Rice 642d; Rivers and Harbours 643c; Roads 645b; Roman Catholic Church 646a; Rubber 650d; Rumania 652d; Shipbuilding 668a; Shipping, Merchant Marine 671a; Shows 673b; Siam 673c; Sinking 675c; Soap, Perfumery and Cosmetics 677c; Socialism 678b; Social Security 679c; Societies and Associations 682b; Soil Erosion 686a; Spain 691d; Standards, National Bureau of, 697a; Strikes and Lock-outs 703c; Submarine Warfare 704d; Sugar 710b; Suicide Statistics 710c; Sweden 716a; Swimming 717b; Syria and Lebanon 718d; Table Tennis 719c; Tariffs 720b; Taxation 724a; Tea 725a; Television 727b; Theatre 732c; Tin 733b; Town and Regional Planning 736a; Tunnels 742c; Turkey 743c; U.S.S.R. 746c; Unitarian Church 748b; United Nations Conference 749a; United Nations Monetary and Financial Program 761a; U.N.R.R.A. 776c; United Nations War Crimes Commission 776d; U.S. 779a; U.S. Investments Abroad 785a; Wages and Hours 807c; War Debts 810a; West Indies 823b; Wheat 826b; Wool 831c; World War II 834b; Yalta Conference 850d; Yeast 852d; Yugoslavia 854a; Zinc 855b; Zoology 856d. *See* also under various colonies, dominions, etc.
- Great Lakes Traffic:** *see* Canals and Inland Waterways 46, 45, 44, 43, 42. *See* Water-Borne Commerce of the United States 42
- Greece**
- Agriculture 32a; Albania 38c; Archaeology 60a; Bauxite 115b; Child Welfare 202d; Chromite 210d; Debt, National 253a; Democracy 256c; Dodecanese 266c; Economics 271b; Education 276d; Exchange Control 296b; Italian Colonial Empire 408c; Leather 437a; Mineral and Metal Production 483a; Navies of the World 514c; Prisoners of War 607a; Railroads 629d; Reconstruction Planning 634b; Refugees 637b; Submarine Warfare 708c; Tariffs 720b; United Nations Monetary and Financial Program 761a; U.N.R.R.A. 776a; War Debts 810a; World War II 847b;
- Green, William** 46
- A.F. of L. 47a; U.S. 780c
- Greenland**
- Cryolite 242a; Denmark 259a; Philately 571d
- Gregory, Jackson** 44
- Grenada:** *see* West Indies, British
- Griffin, Bernard William** 46
- Griffith, John Price Crozer** 42
- Grindell-Matthews, Harry** 42
- Grindstones:** *see* Abrasives
- Gromyko, Andrei A.** 46, 45, 44
- Guadalcanal:** *see* Solomon Islands 46, 45, 44, 43. *See* World War II 44, 43. *See* Japan 43
- Guadeloupe:** *see* French Colonial Empire
- Guam**
- Guariglia, Raffaele** 44
- Guatemala**
- Agriculture 33d; Archaeology 64a; British Honduras 150a; Central America 190c; Costa Rica 237d; Exchange Control 295b; Honduras 369c; International Trade 401b; Salvador, El 656a; Soil Erosion 685d; Spain 692b; Spanish-American Literature 693d; Tariffs 720b; United Nations Monetary and Financial Program 761a
- Guayule:** *see* Rubber 45, 44, 43, 42. *See* Chemistry 44, 43, 42
- Guderian, Heinz** 45
- Guedalia, Philip** 45
- Guerrilla Warfare** 46, 45
- Guertner, Franz** 42
- Guevara, Juan Gualberto** 46
- Guggenheim, Simon** 42
- Guggenheim Memorial Foundation:** *see* Societies and Associations 46. *See* Guggenheim Memorial Foundation 45, 44, 43, 42
- Guiana, British:** *see* British Guiana
- Guiana, Dutch:** *see* Surinam
- Guiana, French:** *see* French Colonial Empire
- Guinea:** *see* French Colonial Empire; Portuguese Colonial Empire; Spanish Colonial Empire
- Guinea, New:** *see* New Guinea 46, 45, 44
- Gunther, Franklin Mott** 42
- Gustavus V**
- Gymnastics** 46, 45, 44, 43
- Gynaecology and Obstetrics**
- Gypsum**
- Haakon VII**
- Hacha, Emil** 46
- Hackett, Charles** 43
- Hackett, Horatio Balch** 42
- Haiti**
- Agriculture 33d; Archaeology 64b; Exchange Control 295b; Fruit 333b; Inter-American Affairs, Office of, 393c; Navies of the World 516a; Radio 625a; Soil Erosion 686a; Tariffs 720c; West Indies 823b
- Halder, Franz** 43
- Halifax, Edward F. L. W.** 43, 42
- Hall, Grover Cleveland** 42
- Hall, Radclyffe** 44
- Hall, Sir (William) Reginald** 44
- Halsey, W. F., Jr.** 46, 45, 44, 43
- Boston 133d; Japan 414c; New Guinea 523c
- Hamilton, Cosmo** 43
- Hammerstein-Equord, Kurt von** 44
- Hammer Throw:** *see* Track and Field Sports
- Hand-Ball**
- Hanna, Edward Joseph** 45
- Hannegan, Robert Emmet** 46
- Democratic Party 257c; Elections 281a
- Hanotiaux, Albert Auguste G.** 45
- Harbours:** *see* Rivers and Harbours
- Harding of Penhurst, C. H.** 45
- Harmon, Clifford B.** 46
- Harmon, Millard Fillmore** 46
- Harper, Samuel Northrup** 44
- Harper, William Allen** 43
- Harriman, W. Averell** 44
- Harrington, John Lyle** 43
- Harris, Sir Arthur T.** 46, 45, 44, 43
- Harris, James Rendel** 42
- Harris, Sam H.** 42
- Harrison, Byron Patton** 42
- Hart, Albert Bushnell** 44
- Hart, Lorenz** 44
- Hart, Thomas Charles** 43, 42
- Hartley, Marsden** 44
- Harty, Sir Herbert Hamilton** 42
- Harvard University**
- Education 275b; Libraries 440d; Radar Countermeasures 619c; Town and Regional Planning 736a
- Harwood, Sir Henry Harwood** 43
- Hassani, Mohamed Tageddine el** 44
- Hats for Women:** *see* Fashion and Dress
- Haushofer, Karl** 43
- Hawaii**
- Law 433c; Parents and Teachers, National Congress of, 561c; Sugar 710b
- Hawkes, Herbert Edwin** 44
- Hawley, Willis Chatman** 42
- Hay**
- Agriculture 25b; Livestock 445c. *See* also under various states
- Hayashi, Senjuro** 44
- Hayes, Sir Bertram Fox** 42
- Hazen, Charles Downer** 42
- Health, Industrial:** *see* Industrial Health
- Hearing Aids:** *see* Deafness
- Heart and Heart Diseases**
- Death Statistics 251a; Surgery 713b
- Heckscher, August** 42
- Hejaz:** *see* Arabia 42
- Helicopter:** *see* Aviation, Civil 46, 45, 44, 43
- Helium**
- Atomic Bomb 81a; Chemistry 193d; Indians, American 388c
- Hemp**
- Henderson, Leon** 44, 43, 42
- Henderson, Sir Neville Meyrick** 43
- Henriot, Philippe** 45
- Hepatitis:** Alimentary System, Disorders of, 42a; Medicine 469b
- Herriot, Edouard** 46, 45
- Hershey, Lewis B.** 42
- Hershey, Milton Snavely** 46
- Hertz, Alfred** 43
- Hertzog, James Barry Munnik** 43
- Hess, Rudolf Walther** 42
- Heward, Leslie Hays** 44
- Hewitt, Henry Kent** 46, 45, 44, 43
- Heydrich, Reinhard** 43
- Higashi-Kuni, Naruhiko** 46
- Higginson, Mary Potter Thacher** 42
- Highways:** *see* Roads and Highways
- Hilbert, David** 44
- Hilferding, Rudolf** 42
- Hill, Sir Arthur William** 42
- Hill, Robert Thomas** 42
- Hill, (Red) William** 43
- Hillhouse, Percy Archibald** 43
- Hillman, Sidney** 46, 45, 42
- Himmler, Heinrich** 46, 45, 44, 43
- Germany 344a; Hitler, A. 367c; Sweden 716a
- Hinsley, Arthur** 44
- Hintze, Paul von** 42
- Hirohito** 46
- Japan 413d; World War II 846a
- Hispanic America:** *see* Argentina; Bolivia; Brazil; British Guiana; British Honduras; Chile; Colombia; Costa Rica; Ecuador; French Colonial Empire; Guatemala; Honduras; Nicaragua; Panamá; Paraguay; Peru; Salvador, El; Surinam; Uruguay; Venezuela
- Hispanic America and World War II** 44, 43, 42
- Hispaniola:** *see* Dominican Republic; Haiti; West Indies
- Historical Association, American:** *see* American Historical Association 42
- Hitler, Adolf**
- Atomic Bomb 84b; Denmark 258b; Doenitz, K. 266c; Germany 344a; Newspapers and Magazines 526d; Sweden 715d; World War II 840d
- Hobart, Esther Jane Tuttle** 42
- Hobby, Oveta Culp** 44, 43
- Hobson, Robert Lockhart** 42
- Hockey:** *see* Ice Hockey
- Hodges, Courtney H.** 46, 45
- World War II 836a
- Hodža, Milan** 45
- Hoffman, Paul Gray** 44
- Hogs**
- Agriculture 25b; Bacon 103a; Lard 428c; Livestock 445a; Meat 465a; Veterinary Medicine 803a. *See* also under various states and countries
- Hoke, Michael** 45
- HOLC:** *see* Housing 46, 45. *See* National Housing Agency 44, 43. *See* Home Owners' Loan Corporation 42
- Holland, Charles Thurstan** 42
- Holland:** *see* Netherlands
- Hollins, Alfred** 43
- Holmes, Phillips** 43
- Holt, Sir Herbert Samuel** 42
- Home Building, Federal:** *see* Housing 46, 45, 44, 43, 42. *See* National Housing Agency 44, 43. *See* Federal Home Loan Bank System 42
- Home Economics** 46, 45, 44
- ARA 24a
- Home Loan Bank, Federal:** *see* Housing 46, 45. *See* National Housing Agency 44, 43. *See* Federal Home Loan Bank System 42
- Home Owners' Loan Corporation:**



- see Housing 46, 45. See National Housing Agency 44, 43. See Home Owners' Loan Corporation 42
- Homma, Masaharu** 43
- Honduras**  
Agriculture 33d; Archaeology 64a; British Honduras 150b; Central America 190c; Exchange Control 295a; International Trade 401b; Roads 645a; Silver 674d; Tariffs 720b; United Nations Monetary and Financial Program 761a
- Honduras, British:** see **British Honduras**
- Honey:** see **Beekeeping**
- Hong Kong:** see **British Empire** 46, 45, 44, 43, 42. See **Cancer** 43. See **Biochemistry** 42
- Hoover, Lou Henry** 45
- Hopkins, Harry L.** 45, 44, 43, 42
- Hops**  
Agriculture 25d
- Horgan, Stephen Henry** 42
- Hormones:** see **Endocrinology** 46, 45, 44, 43, 42. See **Cancer** 43. See **Biochemistry** 42
- Allergy** 42b; **Horticulture** 372c; Words and Meanings, New 833c
- Hornblow, Arthur** 43
- Horse Racing**
- Horses**  
Agriculture 30c; Livestock 445a; Veterinary Medicine 803b. See also under various states and countries
- Horse Shows:** see **Shows**
- Horthy, Stephen** 43
- Horticulture**
- Hosiery** 631b
- Hospitalization Insurance:** see **Insurance**
- Hospitals**  
A.M.A. 53a; Architecture 66c; Nursing, War 541a; Societies and Associations 681c; Venereal Diseases 798a; Veterans' Administration 801a
- Houghton, Alanson Bigelow** 42
- Housing**  
A.F. of L. 46d; American Literature 51a; Architecture 64d; Banking 106b; Black Markets 129b; Building and Construction Industry 156c; Business Review 163b; Catholic Rural Life Conference, National 183d; Home Economics 368d; Law 431c; Lumber 448d; Municipal Government 498d; Price Administration, Office of, 600a; Prices 601a; Sociology 684c; Truman, H. S. 739b. See also under various cities, states and countries
- Housing Administration, Federal:** see **Housing** 46, 45. See **National Housing Agency** 44, 43. See **Federal Housing Administration** 42
- Housing Agency, National:** see **Housing** 46, 45. See **National Housing Agency** 44, 43
- Housing Authority, U.S.:** see **Housing** 46, 45. See **National Housing Agency** 44, 43. See **Federal Works Agency** 42
- Hovey, Otis Ellis** 42
- Howard, Leslie** 44
- Howe, Harrison Estell** 43
- Howland Island:** see **Pacific Islands**, U.S. 46, 45, 44. See **South Sea and Equatorial Islands** 42
- Hoxie, Charles A.** 42
- Hrdlicka, Ales** 44
- Hubeney, Maximilian John** 43
- Hull, Cordell**  
Prizes 608c
- Humbert** 46, 45
- Hungary**  
Agriculture 31d; Bauxite 115b; Berlin Conference 119d; Bridges 143d; Coal 218d; Communism 227c; Czechoslovakia 244d; Debt, National 253b; Democracy 256d; Exchange Control 296b; Fascism 300b; Germany 342a; Great Britain 352a; International Trade 399b; Leather 437a; Mineral and Metal Production 483a; Presbyterian Church 598a; Reconstruction Planning 633d; Rumania 652c; Socialism 678d; Sweden 716a; U.S.S.R. 746b; Unitarian Church 748b; United Nations War Crimes Commission 776d; War Debts 810a; World War II 838b
- Huntziger, Charles Léon C.** 42
- Hurdling:** see **Track and Field Sports**
- Hurley, Patrick Jay** 46
- China** 208d
- Hurricanes:** Meteorology 472a; Seismology 662d; Sugar 709c; West Indies 823b; West Indies, British 824c
- Hutchins, Robert Maynard** 46, 45
- Hydrogen:** Atomic Bomb 80c; Chemistry 193b
- Hygiene, Industrial:** see **Industrial Health** 46, 45, 44, 43. See **Industrial Hygiene** 42
- Hymans, Paul** 42
- Hyvern, (E.-X.-L.) Henry** 42
- ICC:** see **Interstate Commerce Commission**
- Ice Cream** 46, 45
- Ice Hockey**
- Iceland**  
Agriculture 33d; Denmark 259a; International Trade 401b; United Nations Monetary Financial Program 761a
- Ice Skating**
- Ickes, Harold L.** 46
- United States** 778c
- Idaho**
- Illinois**
- Illinois, University of**  
Education 275d
- Illiteracy** 45, 42
- See also under various countries
- Illumination:** see **Electrical Industries**
- I.L.O.:** see **International Labour Organization**
- Immigration and Emigration, U.S.**  
Aliens 40a; Census Data 186a
- Imports:** see **International Trade**; Tariffs 46, 45, 44, 43, 42. See **Trade Agreements** 42. See also under various countries
- Incendiary Warfare:** see **Warfare**, Incendiary 46, 45, 44, 43
- Income, U.S. Distribution of:** see **Wealth and Income, U.S. Distribution of**
- Income and Product, U.S. 46, 45.** See **National Income and National Product** 44, 43, 42
- Income Tax:** see **Taxation**
- India**  
Agriculture 28d; Argentina 70a; Aviation, Civil 93b; Beryllium 124c; Birth Control 127c; Chromite 210d; Coal 217c; Coffee 222a; Cotton 238d; Dams 247a; Death Statistics 250d; Debt, National 253a; Diamonds 263c; Drugs 269b; Exchange Control 295d; Famines 299a; Gems 337c; Gold 348a; International Trade 400a; Iron and Steel 405c; Irrigation 407d; Islam 408c; Italian Colonial Empire 408d; Japan 416b; Jute 419b; Kyanite Minerals 425a; Leather 437c; Manganese 456a; Mineral and Metal Production 483a; Moscow Conference 493a; Navies of the World 514b; Railroads 630a; Rice 642d; Roads 645b; Seismology 662d; Silk 674c; Soil Erosion 685a; Spices 695b; Sugar 710b; Titanium 733c; Unitarian Church 748b; United Nations Monetary and Financial Program 761a; United Nations War Crimes Commission 776d; Wheat 826a; World War II 846c; Zirconium 855c
- Indiana**  
Archaeology 63b; Law 432b
- Indium:** see **Metallurgy** 43
- Indo-China, French:** see **French Colonial Empire** 46, 45, 44, 43, 42. See **World War II** 43, 42. See **Chinese-Japanese War**; France; Japan; Thailand 42
- Industrial Health** 46, 45, 44, 43. See **Industrial Hygiene** 42
- Industrial Production:** see **War Production**, U.S. 46, 45, 44, 43. See **Business Review** 46, 45, 44, 43, 42
- Industrial Research** 42
- Infantile Paralysis**  
British East Africa 147b; British West Africa 152b; Medicine 460b
- Infant Mortality**  
Birth Control 127c
- Infantry:** see **Munitions of War**; **World War II** 46, 45, 44, 43, 42. See **Armies of the World** 42
- Inflation:** see **Business Review**; **Consumer Credit**; **Prices**  
Archaeology 60a; Banking 107c; Black Markets 128d; Book-collecting and Book Prices 131a; Budget, National 155d; Exchange Control 294c; Housing 374a; Income and Product, U.S. 384b; Labour Unions 426a; Municipal Government 499a; Price Administration, Office of, 600a; Spices 695c; Stabilization Administrator, Office of, 696b; Stocks and Bonds 699c; Taxation 721b; War Bonds 809d; WLB 812c. See also under various countries
- Influenza:** see **Epidemics and Public Health Control** 42
- Bacteriology 103b; Chemotherapy 197a; Cold, Common 223a; Death Statistics 251a; Epidemics and Public Health Control 291a; Heart and Heart Diseases 365a; Infant Mortality 391a; Medicine 466b; Pneumonia 587a
- Information Organization, United Nations:** see **United Nations Information Organization** 46, 45, 44
- Ingersoll, Royal Eason** 45, 44, 43, 42
- Ingram, William ("Navy Bill")** 44
- Initiative and Referendum** 43, 42
- Inland Waterways:** see **Canals and Inland Waterways**
- Inman, Ondess Lamar** 43
- Inner Mongolia:** see **Mongolia**
- Inöndü, Ismet** 44
- Insecticides:** 'ARA 24a; Botany 134c; Entomology 289b; Fluorspar 316b; Horticulture 372c; Paints and Varnishes 556a; Petroleum 570d
- Insects:** see **Entomology**
- Instalment Selling:** see **Consumer Credit**
- Institute of Pacific Relations:** see **Pacific Relations, Institute of**, 42
- Institutum Divi Thomae** 46, 45
- Insulin:** see **Diabetes** 46, 45, 44, 43, 42. See **Medicine** 42
- Drugs and Drug Traffic** 268d
- Insurance**  
A.M.A. 52d; Aviation, Civil 93d; Banking 107a; Business Review 163c; Consumer Credit 234a; Housing 373d; Industrial Health 389c; Law 434d; RFC 632b; Societies and Associations 681c; Taxation 723d; Veterans' Administration 800d
- Insurance, Crop:** see **Agriculture**
- Insurance, Old Age:** see **Social Security**
- Inter-Allied Debts:** see **War Debts**
- Inter-American Affairs, Office of**, 46, 45, 44
- Anaesthesia** 54c
- Inter-American Conference on Problems of War and Peace** 46
- Child Welfare 203c; Inter-American Defense Board 396a; Newspapers and Magazines 530b; Social Security 679c. See also under various countries
- Inter-American Defense Board** 46, 45, 44
- Inter-American Highway:** see **Roads and Highways**
- Interior, U.S. Department of:** see **Government Departments and Bureaus**
- Interior Decoration**  
International Air Transport Operators Conference 243b
- International Bank for Reconstruction and Development:** see **United Nations Monetary and Financial Program** 46. See **Banking** 46, 45
- International co-operation:** A.L.A. 48d; Anthropology 55c; Atomic Bomb 80d; Aviation, Civil 95b; Inter-American Affairs, Office of, 393c; Inter-American Conference 394a; Inter-American Defense Board 395d; Labour Party 425c; League of Nations 436b; Meteorology 473b; Reconstruction Planning 633d; United Nations Conference 748d; United Nations Monetary and Financial Program 761a. See also under various countries
- International Co-operative Alliance** 235b
- International Court of Justice:** see **United Nations Conference on International Organization** 46
- International Labour Conference:** see **International Labour Organization**
- International Labour Organization**  
A.F. of L. 46d; Child Welfare 202b
- International Law**
- International Monetary Fund:** see **United Nations Monetary and Financial Program** 46
- Democratic Party 257c
- International Stabilization Fund:** see **Banking** 46, 45
- International Trade**
- Interstate Commerce Commission**  
Law 431c; Railroads 628d
- Intestinal Disorders:** see **Alimentary System, Disorders of**
- Intoxication, Alcohol**
- Inventions:** see **Patents**
- Investment Banking:** see **Banking**
- Iodine**
- Iowa**
- Iowa, State University of**
- Iowa State College**
- Iran**  
American Literature 49d; Drugs 269b; Exchange Control 296d; Navies of the World 516b; United Nations Monetary and Financial Program 761a; U.S.S.R. 746c
- Iraq**  
Agriculture 33d; Arabia 59b; Archaeology 60b; Exchange Control 295d; International Trade 401b; Navies of the World 516b; United Nations Monetary and Financial Program 761a
- Ireland:** see **Eire**
- Ireland, Northern**
- Iridium** 586c
- Irish Free State:** see **Eire**
- Iron and Steel**  
Business Review 162c; Coke 222c; Fluorspar 316b; Prices 600c; Societies and Associations 682a; Strikes and Lock-outs 703c; Wages and Hours 807a. See also under various states and countries
- Iron and Steel Institute, American:** see **Societies and Associations** 46. See **American Iron and Steel Institute** 45, 44, 43, 42
- Iron Lung:** see **Infantile Paralysis** 42
- Irrigation**  
Meteorology 475b; Public Utilities 614d; RFC 632b; Soil Erosion 685c
- Islam**
- Isle of Man:** see **British Empire**
- Isotopes:** see **Atomic Bomb**; **Chemistry** 46. See **Physics** 43, 42
- Medicine** 467b
- Istria:** see **Trieste**; **Yugoslavia** 46
- Italian Colonial Empire**
- Italian East Africa:** see **Italian Colonial Empire**
- Italian Literature**
- Italian Somaliland:** see **Italian Colonial Empire**
- Italy**  
Agriculture 31d; Albania 38c; Allied Military Government 43b; Aluminum 45a; Anti-Semitism 58a; Archaeology 59d; Art Galleries 75d; Austria 89c; Bauxite 115b; Berlin Conference 119d; Child Welfare 203a; Clothing Industry 217b; Death Statistics 250d; Debt, National 253d; Disasters 265c; Dodecanese 266c; Drugs 269a; Exchange Control 294d; Fascism 300b; France 328b; Furniture Industry 335b; Greece 355a; Hemp 365d; International Law 399a; International Trade 400a; Iron and Steel 405c; Italian Colonial Empire 408d; Italian Literature 409b; Mercury 470d; Mineral and Metal Production 483a; Moscow Conference 493a; Motion Pictures 493d; Motor Transportation 498c; Music 505c; Navies of the World 513c; Newspapers and Magazines 526d; Paper and Pulp Industry 560b; Presbyterian Church 598a; Prisoners of War 604d; Railroads 629d; Reconstruction Planning 634a; Refugees 637a; Roads 645b; Roman Catholic Church 646a; Shipbuilding 668a; Silk 674c; Socialism 679b; South Tirol 691a; Submarine Warfare 708c; Tariffs 720b; Trieste 733c; U.N.R.R.A. 776c; United Nations War Crimes Commission 776d; Uruguay 794a; War Debts 810a; Wheat 826b; Wines 828c; World War II 838a; Yugoslavia 854c; Zinc 855b
- Ivory Coast:** see **French Colonial Empire**
- Iwo Jima** 46
- World War II** 843c
- Jackson, Robert Houghwout** 46, 42
- United Nations War Crimes Commission** 777b
- Jackson, William Henry** 43
- Jacobs, William W. ("W.W.")** 44
- Jamaica:** see **West Indies, British**
- James, Arthur Curtiss** 42
- James, William Roderick** 43
- Japan**  
Agriculture 32b; Allied Military Government 43a; Aluminum 44d; American Literature 50d; Arabia 59a; Archaeology 60c; Atomic Bomb 79c; Aviation, Military 95d; Birth Control 127b; Chile 205c; Christian Unity 210c; Clothing Industry 217b; Death Statistics 250d; Debt, National 253a; Disasters 265c; Drugs 269b; Ecuador 272a; Fascism 300b; Federal Council of Churches 304d; Foreign Investments in the U.S. 321c; Formosa 323c; Gold 348a; Guerilla Warfare 358d; International Trade 399b; Iron and Steel 405d; Iwo Jima 412d; Manchuria 455a; Marianas Islands 457a; Mexico 477d; Mineral and Metal Production 483a; Moscow Conference 493a; Munitions of War 500c; National Geographic Society 509a; Navies of the World 513c; Netherlands Colonial Empire 519b; Netherlands Indies 520b; New Guinea 523c; Newspapers and Magazines 526d; Okinawa 546a; Paper and Pulp Industry 560b; Peru 567c; Petroleum 568c; Photography 578b; Power Engineering 597b; Prisons of War 604d; Public Opinion Surveys 614a; Radar Countermeasures 620b; Reconstruction Planning 633d; Red Cross 635d; Refugees 636d; Rice 642d; Roman Catholic Church 647a; Shipbuilding 668a; Shipping, Merchant Marine 670d; Silk 674a; Socialism 679b; Solomon Islands 687a; Spain 691d; Submarine Warfare 704d; Sunday Schools 711b; Syria and Lebanon 719a; Turkey 743c; Unfederated Malay States 745a; U.S.S.R. 745d; United Nations War Commission 776d; Uruguay 794a; Vatican City State 796b; Venezuela 799d; WRA 819a; World War II 842a; Zinc 855b
- Japanese-Chinese War:** see **World War II** 46, 45, 44, 43. See **Chinese-Japanese War** 42
- Japanese Relocation, U.S.:** see **War Relocation Authority** 46, 45, 44. See **Aliens** 44, 43
- Janson, Paul Emile** 45
- Jarvis Island:** see **Pacific Islands**, U.S. 46, 45, 44. See **South Sea and Equatorial Islands** 42
- Jastrow, Joseph** 45
- Java:** see **Netherlands Indies** 46, 45, 44. See **Netherlands Colonial Empire** 46, 45, 44, 43, 42. See **Dutch East Indies** 43, 42
- Javelin Throw:** see **Track and Field Sports**

- Jeffers, William M. 44, 43  
 Jesspersen, Jens Otto Harry 44  
 Jesschonnek, Hans 44  
 Jessup, Walter Albert 45  
 Jet Propulsion: see Power Engineering 46  
 Jewish Religious Life  
 Jewish Welfare Board, National  
 Jews, Distribution of, 42  
 Jiménez Oreamuno, Ricardo 46  
 Jinnah, Mohammed Ali 43  
 Jodi, Alfred 46  
   World War II 842a  
 Johns Hopkins University  
 Johnson, Amy 42  
 Johnson, Hiram Warren 46  
 Johnson, Hugh Samuel 43  
 Johnson, John Monroe 45  
 Johnston, Eric A. 46, 45, 44  
   Motion Pictures 493b; U.S. 780c  
 Johnston Island: see Pacific Islands, U.S. 46, 45, 44  
 Joint War Committees (U.S. and Canada): see Canadian-U.S. War Committees 46, 45, 44  
 Jones, Howard Harding 42  
 Jones, Jesse Holman  
 Jones, Marvin 44  
 Jong, Jan de 46  
 Jordana, y Souza, F. G. 45, 44  
 Joseph, Ferdinand 43  
 Joyce, James 42  
 Judaism: see Jewish Religious Life  
 Jugoslavia: see Yugoslavia  
 Juin, Alphonse Pierre 45, 44  
 Juke-Boxes: see Performing Right Societies 44  
 Julius Rosenwald Fund: see Societies and Associations 46. See Rosenwald Fund, The Julius 45, 44, 43, 42  
 Julleville, Pietro Petit de: see Petit de Julleville, Pietro 46  
 Jumping: see Track and Field Sports  
 Junior Colleges: see Universities and Colleges  
 Just, Ernest Everett 42  
 Justice, U.S. Department of: see Government Departments and Bureaus  
 Justo, Agustín P. 44  
 Jute  
 Juvenile Delinquency: see Child Welfare; Crime; Federal Bureau of Investigation 46, 45, 44. See Juvenile Delinquency 43, 42  
   Marriage and Divorce 460d  
 Kahn, Albert 43  
 Kaiser, Georg 46  
 Kaiser, Henry J. 44, 43  
 Kaiser William II: see William II 42  
 Kala-azar 41b  
 Kalish, Max 46  
 Kamerouns: see British West Africa; French Colonial Empire  
 Kaneko, Kentaro 43  
 Kansas  
 Karnebeek, Herman A. van 43  
 Kaspar, Karel 42  
 Keitel, Wilhelm 46, 44, 43, 42  
   World War II 842a  
 Kelly, Colin P., Jr. 42  
 Kelly, Howard Atwood 44  
 Kenney, George C. 46, 45, 44  
   Boston 133d  
 Kenny Treatment: see Infantile Paralysis 44, 43, 42  
 Kent, Duke of, 43  
 Kent, Raymond Asa 44  
 Kentucky  
 Kenya: see British East Africa  
 Keppel, Frederick Paul 44  
 Kern, Jerome David 46  
 Kerri, Hanns 42  
 Kesseler, Albert 46, 45, 44  
   World War II 836c  
 Keyes, R. J. B. 46  
 Kidd, Isaac Campbell 42  
 Kidnapping  
   FBI 303b; Supreme Court of the U.S. 712c  
 Kimmel, Husband Edward 42  
 King, Ernest Joseph  
   Submarine Warfare 706b; Yalta Conference 850d  
 King, William Lyon Mackenzie  
   Atomic Bomb 86d; Attlee, C. R. 87c  
 Kingman Island: see Pacific Islands, U.S. 46, 45, 44  
 Kinkaid, Thomas Cassin 46, 45  
 Kinnick, Nile Clarke, Jr. 44  
 Kirk, Alan Goodrich 45  
 Kisch, Frederick Hermann 44  
 Kiska: see Alaska; World War II 44, 43  
 Kittredge, George Lyman 42  
 Kiwanis International: see Societies and Associations 46. See Kiwanis International 45, 44, 43, 42  
 Kleist, Paul Ludwig von 44, 43  
 Kluge, Guenther von 45  
 Knabenshue, Paul 43  
 Knickerbocker, Cholly: see Paul, Maury H. B. 43  
 Knight, Eric 44  
 Knights of Columbus: see Societies and Associations 46. See Knights of Columbus 45, 44, 43, 42  
 Knowlson, James S. 43  
 Knox, (W.) Franklin 45, 44, 43, 42  
 Knudsen, William S. 44, 43, 42  
 Koenig, Joseph-Pierre 45  
 Koenigsberg 46  
 Koffka, Kurt 42  
 Koga, Mineichi 45, 44  
 Koiso, Kuniaki 46, 45  
 Komorowski, Tadeusz 45  
 Konev, Ivan Stepanovich 46, 45  
   Poland 590a; World War II 838a  
 Konoye, Fumimaro 46, 42  
 Korea 46. See Chosen 45, 44, 43, 42  
   Allied Military Government 43b; International Trade 393b; Moscow Conference 493a; National Geographic Society 509a; Prisoners of War 607b; Reconstruction Planning 634b; Rice 642d; Sunday Schools 711b; U.S.S.R.: 746c; U.N.R.R.A. 776c; World War II 846a  
 Korizis, Alexander 42  
 Kourkoulis, Methodios 42  
 Krause, Allen Kramer 42  
 Krivitsky, Walter G. 42  
 Krueger, Walter 46, 45, 44  
   World War II 843b  
 Krug, Julius Albert 45  
 Kruger-Gray, George: see Gray, George Kruger 44  
 Kuibyshev 42  
 Kure (Ocean) Island: see Pacific Islands, U.S. 46, 45, 44  
 Kurusu, Saburo 42  
 Kuwait: see Arabia  
 Kyanite Minerals  
 Labor, U.S. Department of: see Government Departments and Bureaus  
 Labor Relations Board, National: see National Labor Relations Board  
 Labour: see Employment; National Mediation Board 46, 45, 44. See Child Welfare; War Labor Board, National; War Production, U.S. 46, 45, 44, 43. See Agriculture; American Federation of Labor; Congress of Industrial Organizations; International Labour Organization; Labour Unions; Law; Motion Pictures; National Labor Relations Board; Negroes (American); Radio; Relief; Shipbuilding; Strikes and Lock-outs; Supreme Court of the U.S.; United States; Wages and Hours 46, 45, 44, 43, 42. See Unemployment 43, 42. See Defense Mediation Board, National; Defense, National (U.S.) 42  
   Air Conditioning 33d; Business Review 162c; Census Data 187d; Clothing Industry 216d; Communism 227d; Defense Transportation, Office of, 254c; Democratic Party 257a; Elections 280d; Fruit 333b; Immigration and Emigration U.S. 383a; Interior Decorations 396b; Lumber 448d; Newspapers and Magazines 526c; Paper and Pulp Industry 559c; Plus XII 583d; Prices 601a; Railroads 627c; Sheep 667a; Social Security 679c; Stabilization Administration, Office of, 696b; Sugar 709c; Truman, H.S. 739b. See also under various states and countries  
 Labour-Management conference: Labour Unions 426b; Prices 602a; U.S. 781a  
 Labour Party  
   Attlee, C.R. 87b; Bank of England 107c; Great Britain 351c; London 446a; Newspapers and Magazines 526d; Public Opinion Surveys 613c; Socialism 678b  
 Labour Unions  
   A.F. of L. 46c; C.I.O. 231d; Elections 280d; Law 430d; Mooney, E. 491d; NMB 511c; Negroes (American) 517c; Newspapers and Magazines 530d; Railroads 628c; Reuther, W.P. 640a; St. Louis 654d; Shipbuilding 669b; Strikes and Lock-outs 704a; Supreme Court of the U.S. 712c; Wages and Hours 808b; World Federation of Trade Unions 833d  
 Labrador: see Newfoundland and Labrador  
 Lacrosse  
 Laffoon, Ruby 42  
 La Fontaine, Henri 44  
 La Guardia, Fiorello Henry 43, 42  
 Laigue, René 46  
 Lamb: see Meat  
 Lambertson, Robert Eneas 42  
 Land, Emory S. 46, 45, 44, 43  
 Land Banks: see Federal Land Banks 43, 42  
 Landis, Kenesaw Mountain 45  
 Landsteiner, Karl 44  
 Lang, Cosmo Gordon 46  
 Langdon, Harry 45  
 Langmuir, Arthur Comings 42  
 Lanman, Charles Rockwell 42  
 Laos: see French Colonial Empire  
 Laparra, Raoul 44  
 Lapointe, Ernest 42  
 La Puma, Vincenzo 44  
 Lard  
   Vegetable Oils and Animal Fats 796d  
 Lasker, Emanuel 42  
 Laski, Harold J. 46  
 Latin America: see Argentina; Bolivia; Brazil; British Guiana; British Honduras; Chile; Colombia; Costa Rica; Ecuador; French Colonial Empire; Guatemala; Honduras; International Law; Nicaragua; Panamá; Paraguay; Peru; Salvador, El; Surinam; Uruguay; Venezuela 46, 45, 44, 43, 42. See Hispanic America and World War II 44, 43, 42  
   Advertising 21a; American Literature 52a; Anthropology 56d; Aviation, Civil 94d; Debt, National 253a; Exchange Control 294d; Home Economics 369a; International Law 399a; International Trade 399d; Meteorology 473b; Pan American Union 559a; Public Opinion Surveys 613d; Smithsonian Institution 676d; Spain 692b; Spanish-American Literature 693b; Spanish Literature 694c; Standards, National Bureau of, 697c; Sunday Schools 711b; Tariffs 720b; U.S. 783a  
 Latter Day Saints: see Mormons  
 Latvia  
   Linen and Flax 442b; Paper and Pulp Industry 560b; U.S.S.R. 745d; War Debts 810a  
 Laughlin, Clara Elizabeth 42  
 Laughlin, Irwin Boyle 42  
 Lauri, Lorenzo 42  
 Laval, Pierre  
   France 326a; Paris 562a; Spain 691d  
 Lavery, Sir John 42  
 Law  
   Marriage and Divorce 461b; Societies and Associations 681b  
 Lawn Tennis: see Tennis  
 Lawrence, Ernest Orlando 46  
 Lawrence, William 42  
 Leacock, Stephen Butler 45  
 Lead  
   Secondary Metals 660c. See also under various states and countries  
 League of Nations  
   Bacteriology 103b; Drugs 269a; Mandates 455c  
 Leahy, William Daniel  
   "Lease-Lend" Act (H.R. 1776): see Foreign Economic Administration 46, 45, 44. See Lend-Lease Administration, Office of, 43, 42. See Defense, National (U.S.); Great Britain; International Law; Neutrality 42  
 Leather  
   Interior Decoration 396d; Shoe Industry 671c; Veterinary Medicine 803c; Wages and Hours 807a  
 Lebanon: see Syria and Lebanon 46, 45, 42. See Lebanon 44, 43  
 Lebesgue, Henri 42  
 Leblanc, Gergette 42  
 Leblanc, Maurice 42  
 Leclerc, Jacques 45  
 Ledcoite, Sadi 45  
 Ledochowski, Vladimir 43  
 Ledo road: see Stilwell (Ledo) road  
 Lee, John Clifford Hodges 45  
 Lee, Willis Augustus, Jr. 46  
 Leeb, Wilhelm Joseph F.R. von 42  
 Leech, Margaret Kernochan 42  
 Leese, Sir Oliver W.H. 45  
 Leeward Islands: see West Indies, British  
 Legislation: see Business Review; Law  
 Lehman, Herbert H. 46, 45, 44  
 Leigh-Mallory, Sir Trafford 45  
 Lejeune, John Archer 43  
 Leland Stanford Junior University: see Stanford University  
 LeMay, Curtis E. 45  
   World War II 845a  
 Lemons: see Fruit 46, 45. See Lemons and Limes 44, 43, 42  
   "Lend-Lease" Act: see Foreign Economic Administration 46, 45, 44. See Lend-Lease Administration, Office of, 43, 42. See Defense, National (U.S.); Great Britain; International Law; Neutrality 42  
 Lend-Lease Administration, Office of: see Agriculture; Foreign Economic Administration 46, 45, 44. See Lend-Lease Administration, Office of, 43, 42  
 Leonard, Adna Wright 44  
 Leonard, Eddie 42  
 Leonard, William Ellery 45  
 Leopold III 46  
 Lepidolite 444b  
 Leprosy  
   Chemotherapy 197a  
 Lettuce  
   ARA 24c  
 Levi-Civita, Tullio 43  
 Levinson, Salmon Oliver 42  
 Levitzki, Mischa 42  
 Lewis, Dean De Witt 42  
 Lewis, John Llewellyn 46, 45, 44  
   Democratic Party 257d; U.S. 780c  
 Lewis, Mary Sybil 42  
 Ley, Robert 46  
 Lhévinne, Josef 45  
 Libel: see Law 43, 42  
 Liberal Party 46, 45, 44, 43  
   Great Britain 351c  
 Liberia  
   Agriculture 33d  
 Liberty Ships: see Shipbuilding; Shipping, Merchant Marine 46, 45, 44, 43, 42. See United States 43  
   War Production, U.S. 814c  
 Libraries  
   A.L.A. 48a; A.M.A. 52c; Societies and Associations 681b  
 Libya: see Italian Colonial Empire 46, 45, 44, 43, 42. See World War II 44, 43, 42  
 Lidice: see Bohemia and Moravia 43  
 Liechtenstein  
 Life Insurance: see Insurance  
 Life Span: see Birth Statistics; Death Statistics; Infant Mortality; Suicide Statistics  
 Lighthouse Service: see Coast Guard, U.S. 42  
 Lighting: see Electrical Industries 46, 45, 44, 43, 42. See Motion Pictures 44, 43, 42  
 Lignin: see Chemistry 43  
   Plastics Industry 585a  
 Lillie, Gordon W. 43  
 Lime  
   Limes: see Fruit 46, 45. See Lemons and Limes 44, 43, 42  
 Limestone: see Stone  
 Lincoln, Joseph Crosby 45  
 Lindbergh, Charles A. 42  
 Lindsey, Benjamin Barr 44  
 Linen and Flax  
   Paints and Varnishes 556a. See also under various countries  
 Link, Mrs. Adeline DeSole 44  
 Lin Sen 44  
 Lions Clubs, International Association of: see Societies and Associations 46. See Lions Clubs, International Association of, 45, 44, 43, 42  
 Liquor Control: see Liquors, Alcoholic 46, 45, 44. See Liquor Control 43  
 Liquors, Alcoholic  
   List, Siegmund W. W. 43, 42  
 Literary Prizes: see Prizes 46, 45. See Literary Prizes 44, 43, 42  
 Literature: see Book Publishing 46. See Prizes 46, 45. See American Literature; Canadian Literature; English Literature; French Literature; German Literature; Italian Literature; Russian Literature; Spanish-American Literature; Spanish Literature 46, 45, 44, 43, 42. See Publishing (Book) 45, 44, 43, 42. See Literary Prizes 44, 43, 42. See Portuguese Literature 43  
 Lithium Minerals  
   Atomic Bomb 81a  
 Lithuania  
   Paper and Pulp Industry 560b; U.S. R.R. 745d; War Debts 810a  
 Litvinov, Maxim M. 44, 43, 42  
 Liverpool, Arthur W. de B.S.F. 42  
 Livestock  
   Agriculture 25b; Brewing and Beer 143a; Chemurgy 197c; Leather 437a; Prices 600b. See also under various states, provinces and countries  
 Livestock Shows: see Shows  
 Llewellyn, Sir William 42  
 Lloyd, Lola Maverick 45  
 Lloyd George, David Lloyd G. 46  
 Lloyd of Dolobran, George A. L. 42  
 Local Government: see Municipal Government  
 Loftus, Marie Cecilia 44  
 Lombard, Carole 43  
 London  
   London Conference of Foreign Ministers: see Moscow Conference of Foreign Ministers 46  
 London University  
   "Lone Ranger": see Graser, Earle W. 42  
 Lonsdale, Hugh Cecil Lowther 45  
 Loran Navigation: see Radar 46  
   Coast Guard, U.S. 219d  
 Los Angeles  
 Loudon, Hugo 42  
 Louisiana  
 Love, Nancy Harkness 44, 43  
 Lowden, Frank Orren 44  
 Lowell, Abbott Lawrence 44  
 Lo Wen-kan 42  
 Lozovsky, Solomon Abramovich 42  
 Luce, Clare Boothe 46, 45, 44, 43  
 Lumber  
   Architecture 66c; Black Markets 129b; Forests 322b; Prices 600c; TVA 729b; Wages and Hours 807a. See also under various states and countries  
 Lutherans  
 Lutyns, Sir Edwin Landseer 45  
 Lutz, Frank Eugene 44  
 Lutze, Viktor 44  
 Luxembourg  
   Agriculture 33d; Allied Military Government 43b; Child Welfare 202b; Democracy 256c; Denmark 259b; Education 276d; International Trade 401b; Iron and Steel 405c; Mineral and Metal Production 483a; Philately 571c; Social Security 679c; United Nations Monetary and Financial Program 761a; United Na-

- tions War Crimes Commission 776d  
 Lynching  
 Lyttelton, Oliver 45, 44  
 McAadie, Alexander George 44  
 McAdoo, William Gibbs 42  
 McAfee, Mildred H. 44, 43  
 Macao: see Portuguese Colonial Empire  
 MacArthur, Douglas  
 Acheson, D. G. 20a; Drugs 269b; Guerrilla Warfare 358d; Japan 413d; New Guinea 523c; Philippines 572c; World War II 843a  
 McCain, John Sidney 46  
 McClintic, George Warwick 43  
 McCormack, John 46  
 McCormick, Harold Fowler 42  
 MacDonald, Mrs. Ewan: see Montgomery, Lucy Maud 43  
 McGill, Frank Scholes 44  
 McGuigan, James Charles 46  
 Machado, Bernardino 45  
 Machinery, Farm: see Agriculture 46, 45, 44, 43. See Farm Machinery 42  
 Machinery and Machine Tools  
 Wages and Hours 807a  
 McIntyre, Marvin Hunter 44  
 McKenna, Reginald 44  
 Mackensen, August von 46  
 Mackenzie King, William Lyon: see King, William Lyon Mackenzie  
 McLean, Edward Beale 42  
 McNair, Lesley James 45, 44  
 McNamara, James B. 42  
 McNamee, Graham 43  
 McNarney, Joseph Taggart 46  
 McNary, Charles Linza 45  
 McNaughton, A. G. L. 45, 44, 43, 42  
 McNutt, Paul Vories 46, 44, 43  
 McPherson, Aimee Semple 45  
 MacSwiney, Mary 43  
 Madagascar: see French Colonial Empire  
 Magazines and Periodicals: see Newspapers and Magazines  
 Magee, John Benjamin 44  
 Maglione, Luigi 45  
 Magnesia  
 Magnesium  
 Secondary Metals 660d; Standards, National Bureau of, 697c; Warfare, Incendiary 810c  
 Magni, Alessio 45  
 Maher Pasha, Ahmed 46  
 Mahin, Frank C. 43  
 Mahmud, I. I. Mohammed Pasha 42  
 Maillol, Aristide 45  
 Mail-Order Business: see Business Review  
 Maine  
 Maize: see Corn  
 Malaria: see Epidemics and Public Health Control 44  
 Alimentary System, Disorders of, 41b; A.M.A. 52c; Child Welfare 202d; Entomology 288d; FSA 306d; Inter-American Affairs, Office of, 393c; Medicine 466c  
 Malaya, British: see Federated Malay States; Straits Settlements; Unfederated Malay States 46, 45, 44, 43, 42. See World War II 44, 43, 42  
 Malinovsky, Rodion 46, 45  
 World War II 838b  
 Malinowski, Bronislaw Kasper 43  
 Mallory, Clifford D. 42  
 Mallory, Frank Burr 42  
 Malnutrition: Child Welfare 202c; Food Research 317a; Physiology 582c; Refugees 636b  
 Malta: see Mediterranean, British Possessions in the 46, 45, 44, 43. See British Possessions in the Mediterranean 42  
 Manchuria 46, 45, 44, 43. See Manchukuo 42  
 Communism 227d; Mineral and Metal Production 483a; National Geographic Society 508d; Navies of the World 516b; U.S.S.R. 746b  
 Mandated Pacific Islands: see Pacific Islands, Mandated  
 Mandates  
 Mandel, Georges 44  
 Manganese  
 Manitoba  
 Mann, Tom 42  
 Mannerheim, Carl G. E. von 46, 45  
 Manpower, War: see War Manpower Commission 46, 45, 44, 43  
 Manufacturers, National Association of: see Societies and Associations 46. See National Association of Manufacturers 45, 44, 43  
 Manufacturing: Aviation, Civil 92c; Business Review 161a; Cotton 238a; Employment 285b; Income and Product, U.S. 384c; Machinery 451c; Photography 576b; Prisons 607b; Radio 620b; Societies and Associations 683a; Wages and Hours 806d; War Production, U.S. 814b; Wealth and Income, U.S. 822a. See also under separate industries and under various states and countries  
 Maple Products  
 Agriculture 25d; Sugar 709c  
 Marble: see Stone  
 Marchand, Jean 42  
 Margarine 46, 45. See Oleomargarine 44. See Butter 42  
 Marguerite, Victor 43  
 Marianas Islands 46, 45  
 Marigny, Alfred de: see Oakes, Sir Harry 44  
 Marine Biology  
 Marine Corps  
 American Literature 50b; Coinage 222b; Indians, American 388c; Naval Academy, U.S. 512d; Philately 571b; World War II 843c  
 Marine Insurance: see Insurance  
 Marinetti, Filippo Tommaso 45  
 Market Gardening: see Vegetables 46, 45. See Market Gardening 44, 43, 42  
 Marketing: see Business Review Advertising 23a  
 Marmon, Howard C. 44  
 Marriage and Divorce  
 Census Data 186b; Law 433b; Sociology 684c  
 Marriott, Sir John Arthur R. 46  
 Marshall, George Catlett  
 American Literature 49a; China 208d; Yalta Conference 850d  
 Marshall, Tully 44  
 Marshall Islands 46, 45  
 Martin, Frank Lee 42  
 Martinique: see French Colonial Empire  
 Marvin, Charles Frederick 44  
 Maryland  
 Mascheroni, Edoardo 42  
 Mascagni, Pietro 46  
 Masella, Benedetto Aloisi 46  
 Masonic Fraternity  
 Massachusetts  
 Massachusetts Institute of Technology  
 Meteorology 472c; Radar 618d  
 Material Coordinating Committee (U.S. and Canada): see Canadian-U.S. War Committees 46, 45, 44  
 Mathematics  
 Matheson, Samuel Pritchard 43  
 Mathews, Shailer 42  
 Matsuo, Yosuke 42  
 Matter, Structure of: see Physics  
 Maurice and Laura Falk Foundation, The: see Societies and Associations 46. See Falk Foundation, The Maurice and Laura 45, 44, 43, 42  
 Taxation 722b  
 Mauritania: see French Colonial Empire  
 Mauritius: see British East Africa  
 Mayhew, Kate 45  
 Measles: Chemotherapy 197a; Death Statistics 251a  
 Meat  
 Agriculture 26d; Black Markets 128d; Canning Industry 181a; Cattle 184d; Horses 371d; Livestock 445c; OPA 599b; Prices 601b; Prisons 607b. See also under various states and countries  
 Medals: see Decorations, Medals and Badges—Military, Naval and Civil 46, 45, 44  
 Mediation Board, National: see National Mediation Board 46, 45, 44  
 Medical Association, American: see American Medical Association  
 Medical Research, Committee on: see Scientific Research and Development, Office of  
 Medicine  
 A.M.A. 52b; Atomic Bomb 87a; Chemotherapy 196b; Entomology 288c; Industrial Health 388d; Plastics Industry 586b; Psychiatry 608d; X-Ray 849b  
 Mediterranean, British Possessions in the 46, 45, 44, 43. See British Possessions in the Mediterranean 42  
 Meighen, Arthur 42  
 Mei Lan-fang 44  
 Mello Franco, Afranio de 44  
 Meloney, Marie Mattinly 44  
 Menocal y Deop, Mario Garcia 42  
 Menzies, Robert Gordon 42  
 Merchant Marine: see Shipping, Merchant Marine  
 Mercury  
 Meretskov, Kirill Afanasjevich 46  
 World War II 846a  
 Merezkovsky, Dmitri S. 42  
 Merit System: see Civil Service, U.S.  
 Merriam, Clinton Hart 43  
 Merrill, Frank Dow 45  
 Messotrons: see Physics 46, 45, 44, 42  
 Metallurgy  
 Motor Transportation 497d; Societies and Associations 682a  
 Metal Prices and Production: see Mineral and Metal Production and Prices  
 Metaxas, John 42  
 Meteorology  
 Methodist Church  
 Religion 638b  
 Metropolitan Museum of Art: see Art Exhibitions; Art Galleries and Art Museums  
 Painting 555d  
 Mexico  
 Agriculture 31a; American Literature 51c; Antimony 57b; Archaeology 63d; Arsenic 72d; Aviation, Civil 94d; Bismuth 128c; British Honduras 150b; Cadmium 166d; Child Welfare 204b; Coco-Nuts 221d; Copper 235d; Dams 246c; Dance 248b; Debt, National 253a; Disasters 265a; Etching 293b; Exchange Control 295a; Exchange Stabilization Funds 297a; Fluorspar 316b; Fruit 333b; Gas, Natural 336c; Geology 340a; Gold 348a; Guatemala 358a; Infant Mortality 391b; Inter-American Affairs, Office of, 394a; International Trade 400a; Irrigation 406b; Lead 435d; Leather 437a; Mercury 470d; Meteorology 473b; Mineral and Metal Production 483a; Motion Pictures 496b; National Geographic Society 508d; Navies of the World 516a; Panama 558d; Pan American Union 559a; Paper and Pulp Industry 560b; Petroleum 570c; Philately 571d; Polo 591a; Public Utilities 614c; Radio 625a; Roads 645a; Roman Catholic Church 646d; Silver 674d; Smithsonian Institution 676d; Soil Erosion 685c; Spain 692b; Spanish-American Literature 693d; Spanish Literature 694b; Spices 695d; Tariffs 720b; United Nations Monetary and Financial Program 761a; Wheat 826a; World War II 848b; Zinc 855b  
 Mexico City Conference: see Inter-American Conference on Problems of War and Peace; Pan American Union 46  
 Mica  
 Micra, Clemente 46  
 Michigan  
 Michigan, University of  
 Archaeology 62d  
 Microphotography: see Photography 46, 45, 44, 43  
 Microscope, Electron: see Photography 44, 43  
 Middleton, William St. J. F. B. 43  
 Midway, Battle of: see Japan; World War II 43  
 Midway Islands: see Pacific Islands, U.S. 46, 45, 44. See Midway Islands 43, 42  
 Mikell, Henry Judah 43  
 Mikhailovitch, Draja 44, 43  
 Mikolajczyk, Stanislaw 46, 45, 44  
 Poland 587d  
 Military Academy, U.S. 46  
 Milk  
 ARA 25a; Agriculture 25b; Butter 165b; Candy 181a; Canning Industry 181a; Dairying 245d; Food Research 316c; Glass 346b; Prices 601b. See also under various states and countries  
 Millard, Thomas Franklin F. 43  
 Miller, Alice Duer 43  
 Miller, Dayton C. 42  
 Miller, Glenn 45  
 Millerand, Alexandre 44  
 Millstones: see Abrasives  
 Milyukov, Paul Nikolayevich 44  
 Mindszenty, Joseph 46  
 Mineral and Metal Production and Prices  
 See also under various states and countries  
 Mineralogy  
 Miniature Photography: see Photography 44, 43, 42  
 Mining: see Mineral and Metal Production and Prices  
 Employment 285c; Income and Products, U.S. 384c; Societies and Associations 682a; Strikes and Lock-outs 703c; Wages and Hours 807a; Wealth and Income, U.S. 822a. See also under separate minerals and under various states, provinces and countries  
 Minnesota  
 Minnesota, University of  
 Minor, Robert 42  
 Minor League Baseball: see Baseball  
 Mint, United States: see Coinage  
 Miquelon: see French Colonial Empire  
 Missions, Foreign 46, 45, 44. See Foreign Missions 43, 42  
 Mississippi  
 Missouri  
 Mitchell, Charles Hamilton 42  
 Mitscher, Marc Andrew 46, 45  
 World War II 844c  
 Mochizuki, Keisuke 42  
 Moelders, Werner 42  
 Mohammedanism: see Islam  
 Molasses: see Sugar 46, 45, 44, 42  
 Molotov, Vyacheslav Mikhailovich  
 Berlin Conference 119c; Italian Colonial Empire 408d; Truman, H. S. 739c; U.S.S.R. 745b  
 Moltke, Hans Adolf von 44  
 Molybdenum  
 Monaco  
 Monazite  
 Mondrian, Piet 45  
 Monetary Units: see Exchange Control and Exchange Rates  
 Money, Sir Leo George Chiozza 45  
 Mongolia  
 National Geographic Society 508d; U.S.S.R. 745d  
 Monivong, Sisowath 42  
 Montana  
 Montenegro: see Yugoslavia 46, 45. See Montenegro 44, 43, 42  
 Montgomery, Sir B. L. 46, 45, 44, 43  
 Denmark 258d; Oxford University 550c; World War II 834c  
 Montgomery, Lucy Maud 43  
 Montreal  
 Montserrat: see West Indies, British  
 Mooney, Edward 46  
 Mooney, Thomas J. 43  
 Morale, National 43  
 Moran, (John) Léon 42  
 Moravia: see Bohemia and Moravia 45, 44, 43, 42  
 Mordacq, Jean-Jules-Henri 44  
 Morgan, Helen 42  
 Morgan, John Pierpont 44  
 Mormons  
 Morocco: see French Colonial Empire; Spanish Colonial Empire  
 Morris, Ira Nelson 43  
 Morrison, Herbert S. 46, 45, 44  
 Mortgages, Farm: see Farm Credit Administration 46, 45, 44. See Agriculture 46, 45, 44, 43. See Farm Mortgages 42  
 Mortgages, Home: see Housing 46, 45. See National Housing Agency 44, 43. See Federal Housing Administration; Home Owners' Loan Corporation 42  
 Mosca, Gaetano 42  
 Moscow  
 Moscow, Pact of: see Union of Soviet Socialist Republics 44  
 Moscow Conference of Foreign Ministers 46  
 Allied Military Government 44b; Finland 310c; France 328b; Italy 412a; Japan 413c; Korea 424b; Manchuria 455c  
 Mosquito: ARA 24b; Entomology 289a; Medicine 466c  
 Motion Pictures  
 Accidents 19b; Advertising 23b; American Dental Association 46c; American Literature 49a; Civil Liberties 214d; Home Economics 368d; Inter-American Affairs, Office of, 393c; Munitions of War 500d; Photography 577d; Pius XII 583c; Supreme Court of the U.S. 712a; War Information, Office of, 812a  
 Motor-Boat Racing  
 Motor Buses: see Automobile Industry 46, 45, 44, 43. See Motor Transportation 46, 45, 44, 43, 42. See Motor Vehicles 42  
 Motor Cars: see Automobile Industry 46, 45, 44, 43. See Motor Vehicles 42  
 Motor Racing: see Automobile Racing 43, 42  
 Motor Transportation  
 See also under various states and countries  
 Motor Vehicles: see Federal Bureau of Investigation 46, 45, 44. See Automobile Industry 46, 45, 44, 43. See Motor Vehicles 42  
 Taxation 723d  
 Mottas, Carlo Carmelo de Vasconcellos: see Vasconcellos Mottas, Carlo Carmelo de 46  
 Mountbatten, Lord L. 46, 45, 44, 43  
 Netherlands Colonial Empire 519b  
 Mount Holyoke College  
 Mowat, Robert Balmain 42  
 Mowinkel, Johan Ludwig 44  
 Moyne, Walter Edward Guinness 45  
 Mozambique: see Portuguese Colonial Empire  
 Muang Thai: see Siam 46. See Thailand 45, 44, 43, 42  
 Muir, John Ramsay Bryce 42  
 Mules: see Horses  
 Mulock, Sir William 45  
 Multiple Shop: see Business Review  
 Munch, Edward 45  
 Municipal Government  
 See also under various cities and states  
 Munitions Assignment Board (U.S. and Great Britain): see British-U.S. War Boards 46, 45, 44  
 Munitions of War  
 Atomic bomb 79c; Automobile Industry 90d; International Trade 400b; Liquors, Alcoholic 443a; Navies of the World 513a; Plastics Industry 586a; Power Engineering 597b; Warfare, Incendiary 810b; War Production, U.S. 814c; World War II 834b  
 Murphy, J. Harvey 42  
 Murphy, Robert D. 46, 45, 44, 43  
 Murray, Charlie 42  
 Murray, Philip  
 Democratic Party 257d; Labour Unions 426b; Truman, H.S. 740a; U.S. 780c  
 Murray, Samuel 42  
 Museums of Art: see Art Galleries and Art Museums  
 Museum of Modern Art: Art Exhibi-



- tions 73b; Painting 555b; Photography 578a  
 Museum of Non-Objective Paintings: Architecture 67a; Art Exhibitions 73c; Art Galleries 75a; Painting 555c  
**Music**  
 Societies and Associations 683a  
**Music in Industry:** *see* Music 46. *See* Performing Right Societies 45  
**Music Library Association:** *see* Societies and Associations 46. *See* Music Library Association 45, 44  
**Mussolini, Benito**  
 Italy 410c; Newspapers and Magazines 526d; Pius XII 583c; World War II 840d  
**Mussolini, Bruno** 42  
**Mustard Seed:** *see* Spices  
**Muti, Ettore** 44  
**Mutton:** *see* Meat  
**Nagano, Osami** 45, 44  
**Nagayo, Matao** 42  
**Nagumo, Chuichi** 45  
**Narcotics:** *see* Drugs and Drug Traffic  
**Nash, Patrick A.** 44  
**Nast, Condé** 43  
**Natal** 688a  
**Natalie** 42  
**National Academy of Sciences:** *see* Societies and Associations 46. *See* National Academy of Sciences 45, 44, 43, 42  
**National Archives:** *see* Archives, National  
**National Association of Evangelicals** 46  
**National Association of Manufacturers:** *see* Societies and Associations 46. *See* National Association of Manufacturers 45, 44, 43  
**National Association of State Libraries** 44  
**National Budget:** *see* Budget, National  
**National Catholic Community Service:** *see* Societies and Associations 46. *See* National Catholic Community Service 45, 44  
**National Catholic Rural Life Conference:** *see* Catholic Rural Life Conference, National  
**National Catholic Welfare Conference:** *see* Catholic Welfare Conference, National  
**National Congress of Parents and Teachers:** *see* Parents and Teachers, National Congress of  
**National Debt:** *see* Debt, National  
*See also* under various countries  
**National Defense (U.S.):** *see* Aviation, Military 45. *See* War Production, U.S. 45, 44, 43. *See* National Guard; Navies of the World 45, 44, 43, 42. *See* Air Forces of the World 44, 43, 42. *See* Armies of the World; Defense, National (U.S.) 42  
**National Defense Mediation Board:** *see* War Labor Board, National 43. *See* Defense Mediation Board, National 42  
**National Defense Research Committee:** *see* Scientific Research and Development, Office of  
**National Education Association** Education 273b  
**National Foundation for Infantile Paralysis:** *see* Infantile Paralysis  
**National Gallery of Art:** *see* Art Galleries and Art Museums; Smithsonian Institution  
**National Geographic Society** Archaeology 63d  
**National Guard**  
**National Housing Agency:** *see* Housing 46, 45. *See* National Housing Agency 44, 43  
**National Income and National Product:** *see* Income and Product, U.S. 46, 45. *See* National Income and National Product 44, 43, 42  
**National Insurance:** *see* Social Security  
**National Labor Relations Board**  
**National Lawyers Guild:** *see* Societies and Associations 46. *See* National Lawyers Guild 45, 44, 43, 42  
**National League of Women Voters:** *see* Societies and Associations 46. *See* National League of Women Voters 45  
**National Mediation Board** 46, 45, 44  
**National Monuments:** *see* National Parks and Monuments  
**National Museum:** *see* Smithsonian Institution  
**National Parks and Monuments**  
**National Railway Labor Panel:** *see* National Mediation Board 46, 45, 44  
**National Safety Council:** Accidents 18a; Advertising 21a  
**National Science Fund:** *see* National Academy of Sciences 42  
**National War Fund:** *see* War Relief, U.S. 46, 45, 44  
**National War Labor Board:** *see* War Labor Board, National 46, 45, 44, 43. *See* Defense Mediation Board, National 42  
**National Wealth:** *see* Wealth and Income, U.S. Distribution of  
**National Youth Administration** 44, 43, 42  
**Natural Gas:** *see* Gas, Natural  
**Nauru:** *see* Mandates; Pacific Islands, Mandated  
**Naval Academy, U.S.** 46  
 Aviation, Military 96d  
**Navies of the World**  
*See also* under various countries  
 Navy, U.S.: American Dental Association 46c; Aviation, Military 96b; Coast Guard, U.S. 219c; Coinage 222b; Death Statistics 250d; Forestry, J. 324b; Indians, American 388c; Marine Corps 459c; Medicine 469a; Meteorology 472a; Munitions of War 503b; Naval Academy, U.S. 512d; Navies of the World 513b; Negroes 517b; Philately 571b; Psychology 612a; Seabees 659b; Shipbuilding 668b; Shipping, Merchant Marine 670d; Smithsonian Institution 676c; Standards, National Bureau of, 697a; Submarine Warfare 704d; U.S.O. 777d; Venereal Diseases 799a; WAVES 830b; World War II 843a  
**Navy, U.S. Department of:** *see* Government Departments and Bureaus  
**Naylor, William Keith** 43  
**Nazimova, Alla** 46  
**Nazis:** *see* Anti-Semitism; Germany 46, 45, 44, 43, 42. *See* Fascism 45, 44, 43, 42. *See* Argentina; South Africa, Union of, 42  
**NDMB:** *see* War Labor Board, National 43. *See* Defense Mediation Board, National 42  
**N.E.A.:** *see* National Education Association  
**Nebraska**  
**Necrology:** *see* Obituaries  
**Negroes (American)**  
 American Literature 51a; Art Exhibitions 73c; Baptist Church 108b; Baseball 114b; Birth Control 127a; Child Welfare 204d; Civil Liberties 214c; Death Statistics 251c; Infant Mortality 391a; Law 431a; Painting 553d; Prizes 607d; Relief 637c; Supreme Court of the U.S. 712c. *See also* under various states  
**Nehru, Jawaharlal** 44, 43  
**Nelson, Byron** 348b  
**Nelson, Donald Marr** 45, 44, 43, 42  
 Neoprene 650c  
 Neostibosan 41c  
 Neostigmine 76c  
**Nepal**  
 Neptunium: Chemistry 194b; Physics 581c; Words and Meanings, New 833a  
**Nernst, Walter** 42  
**Nervous System**  
 Physiology 582b  
**Netherlands**  
 Agriculture 33d; Allied Military Government 43b; Anthropology 55d; Anti-Semitism 57c; Aviation, Civil 94c; Banking 107c; Canada 174d; Child Welfare 202b; China 208d; Coal 217c; Debt, National 253b; Democracy 256c; Denmark 259b; Drugs 269a; Education 276d; Exchange Control 296b; Horticulture 372a; Infant Mortality 391b; International Trade 400a; Japan 415b; Jewish Religious Life 417b; Leather 437a; Moscow Conference 493a; Navies of the World 514c; Paper and Pulp Industry 560b; Petroleum 570c; Presbyterian Church 597d; Prisoners of War 604d; Psychiatry 610b; Railroads 629d; Rayon 631d; Refugees 637a; Roads 645b; Roman Catholic Church 646b; Rubber 650d; Socialism 679b; Sweden 716a; Tariffs 720c; Unitarian Church 748b; United Nations Monetary and Financial Program 761a; United Nations War Crimes Commission 776d; Uruguay 794c; U.S. Investments Abroad 785a; World War II 836a; Zinc 855b. *See also* under various colonial possessions  
**Netherlands Colonial Empire**  
**Netherlands Indies**  
 Bauxite 115b; Canada 174d; International Trade 400a; Minerals and Metal Production 483a; Netherlands Colonial Empire 519b; Spices 695b; Tin 733b; World War II 843a  
**Neutrality:** *see* International Law 46, 45, 44, 43. *See* Neutrality 42. *See also* under various countries  
**Neutrons:** *see* Atomic Bomb; Chemistry 46  
**Nevada**  
**Nevinson, Henry Woodd** 42  
**New Brunswick**  
**New Caledonia:** *see* French Colonial Empire  
**New Deal:** *see* United States 44, 43, 42  
**Newfoundland and Labrador**  
 Fluorspar 316b; Iron and Steel 405c; Paper and Pulp Industry 560b; Radio 625a; Roman Catholic Church 646b; Silver 674d  
**New Guinea** 46, 45, 44. *See* Japan; World War II 43. *See* Dutch East Indies; Mandates; Pacific Islands, Mandated 43, 42  
**New Hampshire**  
**New Hebrides:** *see* French Colonial Empire; Pacific Islands, British  
**New Jersey**  
**Newkirk, John Van Kuren** 43  
**Newlon, Jesse Homer** 42  
**New Mexico**  
**New South Wales**  
**Newspapers and Magazines**  
 Advertising 20b; Birth Control 127b; Civil Liberties 214d; German Literature 341c; Home Economics 368d; Inter-American Affairs, Office of, 393c; Italian Literature 409b; Law 435a; Paper and Pulp Industry 560c; Photography 576b; Printing 603c; Supreme Court of the U.S. 712a; U.S.S.R. 747a; War Information, Office of, 812a  
**New York**  
**New York City**  
**New York University**  
 Meteorology 472c  
**New Zealand, Dominion of**  
 Agriculture 28d; Baptist Church 108c; Death Statistics 250d; Debt, National 253b; Disciples of Christ 266b; Exchange Control 295d; Forests 323b; Infant Mortality 391b; International Trade 400a; Japan 415b; Linen and Flax 442b; Moscow Conference 493a; Motor Transportation 498b; Philately 571d; Socialism 678b; Soil Erosion 686c; United Nations Monetary and Financial Program 761b; Wool 831b; World War II 846c  
**NHA:** *see* Housing 46, 45. *See* National Housing Agency 44, 43  
**Nicaragua**  
 Agriculture 33d; Central America 190c; Diabetes 262b; Exchange Control 295a; Fruit 333b; Infant Mortality 391b; Navies of the World 516a; Spanish-American Literature 693c; Tariffs 720b  
**Nichols, Robert Malise Bowyer** 45  
**Nickel**  
 Secondary Metals 660d  
**Nickel (5 cent piece):** *see* Chemistry; Coinage 43  
**Nielsen, Alice** 44  
**Niger:** *see* French Colonial Empire  
**Nigeria:** *see* British West Africa  
**Night Club** 45  
**Nimitz, Chester William**  
 Submarine Warfare 706a  
**Nitrogen, Chemical**  
 ARA 24d; Fertilizers 309a  
**NLRB:** *see* National Labor Relations Board  
**NMB:** *see* National Mediation Board 46, 45, 44  
**Nobel Prizes:** *see* Prizes 46, 45  
**Noel, Carlos Martin** 42  
**Noel, Conrad le Despenser Roden** 43  
**Nogués, Auguste** 44  
**Nordström, Ludvig Anselm** 43  
**Norris, George William** 45  
**North Borneo:** *see* Borneo 46, 42. *See* British Empire 45, 44, 43  
**North Carolina**  
**North Dakota**  
**Northern Ireland:** *see* Ireland, Northern  
**Northern Rhodesia:** *see* Rhodesia  
**Northern Territory**  
**Northwestern University**  
**Northwest Territories**  
**Norway**  
 Agriculture 31c; Aluminum 45b; Anthropology 56a; Anti-Semitism 57d; Aviation, Civil 94c; Canada 174d; Child Welfare 202b; Debt, National 253b; Democracy 256c; Denmark 259b; Drugs 269a; Education 276d; Exchange Control 295b; Forests 322c; Guerrilla Warfare 358d; International Trade 400d; Jewish Religious Life 417b; Mineral and Metal Production 483a; Navies of the World 514c; Nickel 534c; Paper and Pulp Industry 560b; Public Opinion Surveys 613d; Railroads 629d; Shipping, Merchant Marine 671b; Socialism 679a; Social Security 679c; Sweden 715d; Tariffs 720c; Unitarian Church 748b; United Nations Monetary and Financial Program 761a; Uruguay 794c; U.S. Investments Abroad 785a; World War II 847b; Zinc 855b  
**Nose:** *see* Ear, Nose and Throat, Diseases of  
**Notre Dame, University of**  
**Nova Scotia**  
**Novikov, Alexandr A.** 45  
**Noyes, William Albert** 42  
**Nursery Schools:** *see* Education  
**Nursing, War** 46, 45, 44  
**Nutmegs:** *see* Spices  
**Nutrition:** *see* Food Research 46, 45, 44. *See* Dietetics; Medicine; Vitamins 46, 45, 44, 43, 42  
 Agriculture 33c; Alimentary System, Disorders of, 41d; Child Welfare 204a; Flour 315b; Home Economics 369a; Infant Mortality 391b; Medicine 467a; Red Cross 635a; Soil Erosion 685a  
**Nutrition and Home Economics, Bureau of:** *see* Agricultural Research Administration 46, 45, 44  
**Nuts**  
 Agriculture 25b; Candy 181a  
**NWLB (National War Labor Board):** *see* War Labor Board, National 46, 45, 44, 43. *See* Defense Mediation Board, National 42  
**NYA:** *see* National Youth Administration 44, 43, 42  
**Nyasaland:** *see* British East Africa  
**Nye, Archibald Edward** 42  
**Nylon:** *see* Rayon and Other Synthetic Fibres  
**Oakes, Sir Harry** 44  
**Oats**  
 ARA 24c; Agriculture 25d. *See also* under various states and countries  
**Obituaries**  
 O'Brien, Edward J. H. 42  
 O'Brien, Frank Michael 44  
**Obstetrics:** *see* Gynaecology and Obstetrics  
**Occupational Therapy for the Wounded:** *see* Physical Medicine and Occupational Therapy for the Wounded 46, 45  
**ODC (Office of Civilian Defense):** *see* Civilian Defense  
**Oceanography:** *see* Marine Biology 46, 45, 44. *See* Oceanography 43, 42  
**Ocker, William C.** 43  
**O'Connell, William Henry** 45  
**O'Connor, Andrew** 42  
**O'Day, Caroline Goodwin** 44  
**O'Duffy, Eoin** 45  
**ODT:** *see* Defense Transportation, Office of, 46, 45, 44, 43  
**OEM:** *see* Emergency Management, Office for, 45, 44, 43, 42  
**OEWF:** *see* Foreign Economic Administration 46, 45, 44  
**Office for Emergency Management:** *see* Emergency Management, Office for, 45, 44, 43, 42  
**Office of Civilian Defense:** *see* Civilian Defense  
**Office of Contract Settlement:** *see* War Mobilization and Reconversion, Office of, 46, 45  
**Office of Defense Transportation:** *see* Defense Transportation, Office of, 46, 45, 44, 43  
**Office of Economic Stabilization:** *see* Stabilization Administrator, Office of, 46. *See* Economic Stabilization, Office of, 45, 44  
**Office of Education, U.S.:** *see* Federal Security Agency 46, 45, 44. *See* Education 46, 45, 44, 43, 42  
**Office of Petroleum Coordination:** *see* Petroleum 43  
**Office of Price Administration:** *see* Price Administration, Office of  
**Office of Production Management:** *see* Production Management, Office of, 42  
**Office of Production Research and Development:** *see* Production Research and Development, Office of, 43  
**Office of Scientific Research and Development:** *see* Scientific Research and Development, Office of  
**Office of the Coordinator of Inter-American Affairs:** *see* Inter-American Affairs, Office of, 46, 45, 44  
**Office of Transit Controller:** *see* Electric Transportation 43  
**Office of War Information:** *see* War Information, Office of, 46, 45, 44, 43  
**Office of War Mobilization and Reconversion:** *see* War Mobilization and Reconversion, Office of, 46, 45, 44  
**O'Flanagan, Michael** 43  
**O'Hare, Edward Henry** 44  
**Ohio**  
**Ohio State University**  
**Oil:** *see* Petroleum  
**Oils and Fats, Vegetable and Animal:** *see* Vegetable Oils and Animal Fats  
**Okamura, Yasuji** 46  
**Okinawa** 46  
 Submarine Warfare 706c; World War II 824a  
**Oklahoma**  
**Old-Age Insurance:** *see* Social Security  
**Old-Age Pension:** *see* Relief; Social Security. *See also* under various states  
**Olds, Robert** 44  
**Oleomargarine:** *see* Margarine 46, 45. *See* Oleomargarine 44. *See* Butter 42  
**Olive Oil:** *see* Vegetable Oils and Animal Fats 46, 45, 44, 43  
**Oliver, Edna May** 43  
**Oliver, Sir Thomas** 43  
**Olives:** *see* Fruit 46, 45

Olivier, Sydney Olivier 44  
 Oman and Muscat: *see* Arabia  
 Onegin, Sigrid 44  
 O'Neill, Rose Cecil 45  
 Ontario  
 OPA: *see* Price Administration,  
 Office of  
 Opera: *see* Music  
 Opium: *see* Drugs and Drug Traffic  
 OPM: *see* Production Management,  
 Office of, 42  
 Oppenheimer, Franz 44  
 Oppenheimer, J. Robert 46  
 Orange Free State 688a  
 Oranges: *see* Fruit 46, 45.  
*See* Oranges 44, 43, 42  
 Oregon  
 Orlebar, Augustus H. 44  
 Ornithosis 587b  
 Ortho-dichlorobenzene 290b  
 Ortiz, Roberto M. 43  
 Osmeña, Sergio 46, 45  
 Secret Service, U.S. 661a  
 Osmium 586c  
 OSRD: *see* Scientific Research and  
 Development, Office of  
 Osteopathy  
 Ostland: *see* U.S.S.R. 46. *See* Ostland  
 45. *See* Estonia; Latvia; Lithuania:  
 Poland 42  
 Osobka-Morawski, Edward B. 46  
 Osumi, Mineo 42  
 Ottawa  
 Oumansky, Constantine A. 46  
 Outdoor Advertising: *see* Adver-  
 tising  
 Outer Mongolia: *see* Mongolia  
 OWM: *see* War Mobilization and  
 Reconversion, Office of, 46, 45, 44  
 OWMR: *see* War Mobilization and  
 Reconversion, Office of, 46, 45  
 Oxenham, John 42  
 Oxford and Asquith, Margot 46  
 Oxford University  
 Pacific Islands, British  
 Pacific Islands, French  
 Pacific Islands, Mandated  
 Pacific Islands, U.S. 46, 45, 44  
 Pacific Relations, Institute of, 42  
 Pacifism  
 Religion 638c  
 Packard, Frank Lucius 43  
 Paddock, Charles William 44  
 Paderewski, Ignace Jan 42  
 Padilla, Ezequiel 43  
 Page, Irvine H. 42  
 Paget, Bernard Charles Tolver 42  
 Pahlavi, Mohammed Reza 42  
 Painting  
 Paints and Varnishes  
 Prices 601a  
 Pakistan: *see* India 45, 44, 43, 42  
 Palaeontology  
 Paléologue, Maurice Georges 45  
 Palestine  
 Archaeology 61d; Diamonds 263c;  
 Exchange Control 295d; Fertilizers  
 309b; Jewish Religious Life 417b;  
 Refugees 637a; Shipping, Merchant  
 Marine 671c; Silk 674c; Trans-Jor-  
 dan 737d  
 Palladium 586c  
 Palmyra Island: *see* Pacific Islands,  
 U.S. 46, 45, 44  
 Panama  
 Agriculture 33d; Central America  
 190c; Dance 248b; Exchange Control  
 295b; Meteorology 473b; Roads  
 645a; Spain 692b  
 Panama Canal and Canal Zone 42  
 Pan American Congress of Social Ser-  
 vice 203c  
 Pan-American Highway: *see* Roads  
 and Highways  
 Pan American Union  
 Argentina 68c; Inter-American Con-  
 ference 394a  
 Papandreu, George 45  
 Paper and Pulp Industry  
 Business Review 161d; Newspapers  
 and Magazines 526c; Wages and  
 Hours 807a  
 Papi, Gennaro 42  
 Papua: *see* New Guinea 46, 45, 44.  
*See* British Empire; Pacific Is-  
 lands, British 46, 45, 44, 43, 42  
 Paraguay  
 Agriculture 31b; Brazil 140c; Ex-  
 change Control 295a; Inter-Ameri-  
 can Affairs, Office of, 393c; Inter-  
 national Trade 401b; Navies of the  
 World 516a; Pan American Union  
 559a; Tariffs 720b; United Nations  
 Monetary and Financial Program  
 761a  
 Parents and Teachers, National  
 Congress of  
 Paris  
 Parity Farm Prices: *see* Agriculture  
 42  
 Park, Robert Ezra 45  
 Parker, John Henry 43  
 Parker, Louis N. 45  
 Parks and Monuments: *see* National  
 Parks and Monuments  
 Parliament, Houses of  
 Parmoor, Charles Alfred Cripps 42  
 Parr, Sir (Christopher) James 42  
 Parrado y Garcia, Augustin 46  
 Parri, Ferruccio 46  
 Parseval, August von 43  
 Partridge, Sir Bernard 46

Patch, Alexander M., Jr. 46, 45, 44  
 World War II 836a  
 Patents  
 Patrick, Edwin Davies 46  
 Patrick, Mason Mathews 43  
 Patten, George W. (Gilbert) 46  
 Patterson, Robert Porter 46, 45, 44  
 Law 433d; Prisons 607c  
 Patton, George S., Jr. 46, 45, 44, 43  
 Boston 133d; World War II 834c  
 Paul, Maury Henry Biddle 43  
 Pavlovich, Dimitri 43  
 Paxton, William McGregor 42  
 "Pay-as-you-earn" System: *see* Tax-  
 ation 46, 45, 44  
 Peace: American Literature 49c; Berlin  
 Conference 119d; Catholic Welfare  
 Conference, National 184a; Civil  
 Liberties 214d; Commission on a  
 Just and Durable Peace 225d; Four-  
 H Clubs 324d; Friends, Religious  
 Society of, 332b; Hull, C. 377a; In-  
 ter-American Conference 394a; In-  
 ternational Trade 399b; Law 429d;  
 Pacifism 553a; Parents and Teach-  
 ers, National Congress of, 561c; Pius  
 XII 583c; Prizes 608c; Psychology  
 612a; Reconstruction Planning 633d;  
 Roosevelt, F. D. 648c; Socialism  
 678b; Sunday Schools 711b  
 Peace Treaties: Berlin Conference 119d;  
 Italy 412a; Moscow Conference 493a;  
 Prisoners of War 606c; Reconstruc-  
 tion Planning 634a; Trieste 738c;  
 Truman, H.S. 739c  
 Peaches: *see* Fruit 46, 45. *See* Peach-  
 es 44, 43, 42  
 Peanuts  
 ARA 25a; Agriculture 25d; Candy  
 181a; Hay 364c; Prices 601b; Soil  
 Erosion 685b; Vegetable Oils and  
 Animal Fats 796d  
 Pearl Harbor: *see* Hawaii; Japan;  
 United States; World War II 42  
 Pears: *see* Fruit 46, 45. *See* Pears 44,  
 43, 42  
 Peat  
 Pecans: *see* Nuts  
 Peek, George Nelson 44  
 Pellagra 42  
 Pellegrinetti, Ermenegildo 44  
 Pemba: *see* British East Africa  
 Pendergast, Thomas Joseph 46  
 Penicillin: *see* Dentistry; Urology 46.  
*See* Agricultural Research Admin-  
 istration; Chemotherapy; Derm-  
 atology; Medicine; Surgery 46, 45.  
*See* Eye, Diseases of; Heart and  
 Heart Diseases 45. *See* Penicillin  
 44  
 Alimentary System, Disorders of  
 41b; Allergy 42b; A.M.A. 52c; Ar-  
 thritis 76c; Bacteriology 103a; Bio-  
 chemistry 126b; Botany 134b; Can-  
 cer 179d; Chemistry 195d; Cold,  
 Common 223a; Drugs 268d; Ear,  
 Nose and Throat, Diseases of, 270b;  
 Epidemics and Public Health Con-  
 trol 290c; Gynaecology and Obstet-  
 rics 360d; Leprosy 438c; Nervous  
 System 518b; Physical Medicine and  
 Occupational Therapy 580a; Plague  
 584b; Pneumonia 587a; Prizes 608c;  
 Radio 625c; Tuberculosis 741a; Ven-  
 eral Diseases 798a  
 Penner, Joe 42  
 Pennsylvania  
 Pennsylvania, University of  
 Pension, Old-Age: *see* Relief; Social  
 Security. *See* also under various  
 states  
 Pensions, Army and Navy: *see* Vet-  
 erans' Administration  
 Pepper: *see* Spices  
 Péret, Raoul 43  
 Performing Right Societies: *see* Socie-  
 ties and Associations 46. *See*  
 Performing Right Societies 45, 44,  
 43, 42  
 Perfume: *see* Soap, Perfumery and  
 Cosmetics  
 Perkins, Milo Randolph 44, 43  
 Permanent Joint Board on Defense  
 (U.S. and Canada): *see* Canadian-  
 U.S. War Committees 46, 45, 44  
 Perón, Juan Domingo 46, 45  
 Argentina 68c; Fascism 300d  
 Perrin, Jean 43  
 Persia: *see* Iran  
 Peru  
 Agriculture 31b; Antimony 57b;  
 Argentina 70a; Arsenic 72d; Bismuth  
 128c; Child Welfare 204b; Copper  
 235d; Debt, National 253a; Ecuador  
 272a; Exchange Control 295a; Inter-  
 American Affairs, Office of, 393c;  
 Mineral and Metal Production 483a;  
 Navies of the World 514c; Railroads  
 630b; Rayon 631d; Silver 674d;  
 Smithsonian Institution 676d; So-  
 cialism 678b; Spanish-American Lit-  
 erature 693d; Tariffs 720b; Tung-  
 sten 742b; United Nations Monetary  
 and Financial Program 761a; Vanad-  
 ium 795c  
 Pessoa, Epitacio da Silva 43  
 Pétain, Henri Philippe  
 France 326a; Paris 562a  
 Peter II 46, 45, 42  
 Petit de Julléville, Pietro 46  
 Petrie, Sir (W.M.) Flinders 43  
 Petroleum

Bacteriology 103c; Black Markets  
 128d; Business Review 162d; Chem-  
 istry 194c; FEA 319d; Gas, Natural  
 336c; International Law 398c; Plas-  
 tics Industry 584d; Rubber 650b;  
 Shipping, Merchant Marine 670d;  
 Standards, National Bureau of, 697b;  
 Taxation 723c; Wages and Hours  
 807a; Warfare, Incendiary 810c. *See*  
 also under various states and coun-  
 tries  
 Peyrouton, Marcel 44  
 Phelps, William Lyon 44  
 Phenothiazine 290c  
 Philadelphia  
 Philately  
 Philippines, Commonwealth of the  
 Agriculture 32c; Allied Military  
 Government 43d; Anthropology 55d;  
 Boy Scouts 137b; Catholic Welfare  
 Conference, National 184c; Child  
 Welfare 202b; Chromite 210d; Com-  
 munist 227d; Foreign Investments  
 in the U.S. 322a; Gold 348a; Guer-  
 rilla Warfare 358d; Infantile Paraly-  
 sis 389d; International Trade 401b;  
 Iron and Steel 405c; Japan 413d;  
 Mexico 477d; Mineral and Metal  
 Production 483a; Moscow Con-  
 ference 493a; National Geographic So-  
 ciety 508d; Roman Catholic Church  
 646d; Rubber 650c; Spair 691d; Sub-  
 marine Warfare 706c; Sugar 710b;  
 Unitarian Church 748b; United Na-  
 tions Monetary and Financial Pro-  
 gram 761a; World War II 843a  
 Phillips, Sir Tom Spencer V. 42  
 Philoff, Bogdan Dimitrov 42  
 Philosophy  
 Phoenix Islands: *see* Pacific Islands,  
 British  
 Phosphates  
 Photography  
 Newspapers and Magazines 527b  
 Physical Medicine and Occupa-  
 tional Therapy for the Wounded 46,  
 45. *See* Rehabilitation and Occu-  
 pational Therapy for Wounded  
 Soldiers 44  
 Photography 577d; Psychiatry 608d  
 Physics  
 Physiology  
 Pigeons: Medicine 466d; Pneumonia  
 587b  
 Pig Iron: *see* Iron and Steel  
 Pigs: *see* Hogs; Livestock  
 Pineapples: *see* Fruit 46. *See* Pine-  
 apples 42  
 Pittsburgh  
 Pius XII  
 Plague, Bubonic and Pneumonic  
 Plant Industry, Bureau of, 43  
 Plant Industry, Soils and Agricul-  
 tural Engineering, Bureau of: *see*  
 Agricultural Research Adminis-  
 tration 46, 45, 44  
 Plasma, Blood: *see* Medicine 46, 45,  
 44, 43, 42. *See* Surgery 46, 45, 44,  
 43. *See* Physiology 46, 45, 43, 42  
 Plastics Industry  
 Architecture 66d; Forests 322d;  
 Munitions of War 500b; Petroleum  
 570d; Rubber 651c; Shoe Industry  
 672b  
 Platinum Group Metals  
 Secondary Metals 660d  
 Pla y Deniel, Enrico 46  
 Plums: *see* Fruit 46, 45. *See* Plums  
 and Prunes 44, 43, 42  
 Plutonium: *see* Atomic Bomb;  
 Chemistry; Metallurgy 46  
 Chicago, University of, 200b; Phys-  
 ics 581b; Words and Meanings,  
 New 833a  
 Pneumonia  
 Death Statistics 251a; Epidemics  
 and Public Health Control 290d;  
 Infant Mortality 391a  
 Pneumonitis: *see* X-Ray 43  
 Poetry: *see* Book Publishing 46. *See*  
 Prizes 46, 45. *See* American Liter-  
 ature; Canadian Literature; Eng-  
 lish Literature; French Litera-  
 ture; Russian Literature; Span-  
 ish-American Literature; Span-  
 ish Literature 46, 45, 44, 43, 42.  
*See* Publishing (Book) 45, 44, 43,  
 42. *See* Literary Prizes 44, 43, 42.  
*See* Portuguese Literature 43  
 Poiret, Paul 45  
 Poison Gas: *see* Chemical Warfare;  
 Munitions of War 42  
 Poland  
 Agriculture 32a; Anti-Semitism 57c;  
 Berlin Conference 119d; Child Wel-  
 fare 203c; Coal 217c; Czechoslovakia  
 244d; Danzig 249b; Debt, National  
 253b; Denmark 259b; Disciples of  
 Christ 266b; East Prussia 270d;  
 Economics 271b; Education 276d;  
 Exchange Control 296b; Fertilizers  
 309b; Germany 341d; Guerrilla War-  
 fare 358d; International Trade 400d;  
 Iron and Steel 406a; Jewish Reli-  
 gious Life 417a; Leather 437a; Mexico  
 478b; Mineral and Metal Production  
 483a; Navies of the World 514c;  
 Paper and Pulp Industry 560b; Pot-  
 ash 594a; Prisoners of War 606a;  
 Railroads 629d; Reconstruction Plan-  
 ning 634b; Refugees 637a; Roman  
 Catholic Church 646b; Silesia 674a;

## INDEX

869

Socialism 678d; Stettin 698b; Sweden  
 716a; Tariffs 720c; Teschen 729c;  
 Ukraine 744c; U.S.S.R. 745d; United  
 Nations Monetary and Financial  
 Program 761a; U.N.R.R.A. 776b;  
 United Nations War Crimes Com-  
 mission 776d; War Debts 810b;  
 World War II 847b; Yalta Confer-  
 ence 850d; Zinc 855b  
 Polar Regions: *see* Exploration and  
 Discovery 43, 42  
 Pole Vaulting: *see* Track and Field  
 Sports  
 Police  
 Poliomyelitis: *see* Infantile Paraly-  
 sis 46, 45, 44, 43, 42. *See* Nervous  
 System 43, 42  
 Political Action Committee: Detroit  
 261d; Elections 281a; Hillman, S.  
 366c  
 Political Parties, Great Britain: *see*  
 Liberal Party 46, 45, 44, 43. *See*  
 Communism; Conservative Par-  
 ty; Labour Party 46, 45, 44, 43, 42  
 Political Parties, U.S.: *see* Com-  
 munist; Democratic Party; Elec-  
 tions; Republican Party; Social-  
 ism  
 Politis, Nicolas Socrate 43  
 Polo  
 Poorten, Hein Ter 43, 42  
 Popham, Sir Robert Brooke: *see*  
 Brooke-Popham, Sir Robert 42  
 Poppy Seed: *see* Spices  
 Popular Music: *see* Music  
 Population, Movements of: *see*  
 Refugees  
 Populations of the Countries of the  
 World: *see* Areas and Populations  
 of the Countries of the World  
 Porras, Belisario 43  
 Porter, Edwin S. 42  
 Porto Rico: *see* Puerto Rico  
 Portugal  
 Agriculture 31d; Debt, National  
 253b; Exchange Control 294d; Infant  
 Mortality 391b; Mineral and Metal  
 Production 483a; Navies of the  
 World 514c; Portuguese Colonial  
 Empire 591d; Railroads 629d; Tin  
 733b; Tungsten 742b; Uruguay 794a  
 Portuguese Colonial Empire  
 Portuguese East Africa: *see* Portu-  
 guese Colonial Empire  
 Portuguese Guinea: *see* Portuguese  
 Colonial Empire  
 Portuguese Literature 43  
 Portuguese West Africa: *see* Portu-  
 guese Colonial Empire  
 Positron 81c  
 Post Office  
 Postwar Planning: *see* Reconstruc-  
 tion Planning 46. *See* Postwar  
 Planning 45, 44  
 Potash  
 Fertilizers 309b  
 Potatoes  
 ARA 24c; Agriculture 25d; Chem-  
 istry 197c; Prices 601b. *See* also  
 under various states and countries  
 Potsdam Conference: *see* Berlin  
 Conference 46  
 Poulsen, Valdemar 43  
 Poultry  
 ARA 24d; Agriculture 25b; Black  
 Markets 129b; Chemistry 198a;  
 Eggs 277d; Livestock 445a; Prices  
 600b; Veterinary Medicine 802d.  
*See* also under various states and  
 countries  
 Pound, Sir (A.) Dudley (P. R.) 44  
 Power, Sir D'Arcy 42  
 Power Engineering 46  
 American Literature 49b; Aviation,  
 Military 96d; Civilian Defense 213c;  
 Electrical Industries 283d; Mun-  
 itions of War 500a; Navies of the  
 World 513b; Warfare, Incendiary  
 810c  
 Pownall, Sir Henry Royds 42  
 Prajadhipok 42  
 Pratt, James Bisset 45  
 Precious Stones: *see* Gems and  
 Precious Stones  
 Prefabricated Buildings; Architecture  
 66c; Building and Construction In-  
 dustry 158b; Great Britain 353b;  
 Norway 538c  
 Presbyterian Church  
 Christian Unity 210c  
 Presidents, Sovereigns and Rulers  
 Preysing, Conrad von 46  
 Prevost, Eugène Marcel 42  
 Price Administration, Office of  
 Clothing Industry 217a; Prices 600c  
 Prices  
 Advertising 21c; Agriculture 28d;  
 Bread 141d; Building and Construc-  
 tion Industry 158a; Business Re-  
 view 161d; Cotton 239b; Dairying  
 245d; Economics 271b; Eggs 278b;  
 Fruit 333a; Hogs 368c; Horses 371c;  
 Housing 374a; Income and Product,  
 U.S. 384b; International Trade  
 400b; Labour Unions 426a; Law  
 430a; Lettuce 438d; Linen and Flax  
 442b; Newspapers and Magazines

- 530a; Paper and Pulp Industry 559c; Peanuts 565b; Potatoes 594d; Poultry 595b; OPA 599b; Puerto Rico 615b; Sheep 667a; Silk 674b; Silver 675a; Stocks and Bonds 699b; Supreme Court of the U.S. 712b; Tobacco 734c; Tomatoes 735a; Truman, H. S. 739d; Vegetable Oils and Animal Fats 796d; Vegetables 797c; Wages and Hours 807d; WLB 812d; Wheat 825d
- Prien, Guenther** 42
- Primary Education:** *see* Education
- Prince Edward Island**
- Princeton University**  
Education 275d; Libraries 440c
- Principe:** *see* Portuguese Colonial Empire
- Printing** 46, 44, 43, 42  
Business Review 161d; Wages and Hours 807a
- Printing Office, U.S. Government**  
Priorities and Allocations
- Prisoners of War and Displaced Persons** 46, 45, 44, 43  
Agriculture 30d; Aliens 41a; Allied Military Government 43c; Arizona 71c; Building and Construction Industry 158b; Child Welfare 202b; Death Statistics 250d; FBI 303b; Netherlands Colonial Empire 519d; Ohio 545c; Paper and Pulp Industry 559c; Public Opinion Surveys 614a; Red Cross 635d; Refugees 635d; Sweden 716a; Utah 795a
- Prisons**  
Crime 242a  
*See also* under various states
- Private Schools:** *see* Education
- Prizes** 46, 45. *See* Literary Prizes 44, 43, 42  
Accidents 19a; A.L.A. 48b; Canadian Literature 176b; Medicine 468b; Meteorology 473b; Mineralogy 485a; National Geographic Society 509a; North Carolina 535c; Prisoners of War 606d; Red Cross 635d; Roman Catholic Church 647a; Societies and Associations 681a; Spanish-American Literature 693b; Stanford University 697d
- Production, Industrial:** *see* War Production, U.S. 46, 45, 44, 43. *See* Business Review 46, 45, 44, 43, 42
- Production Management, Office of,** 42
- Production Research and Development, Office of,** 43
- Profits, Company:** *see* Business Review; Taxation  
Detroit 261d; Labour Unions 426a; Law 429d; Radio 622c
- Progressive Education:** *see* Education
- Promin:** Chemotherapy 197a; Leprosy 438b; Tuberculosis 741a
- Propaganda** 42
- Proportional Representation:** *see* Municipal Government 46, 45, 44. *See* Proportional Representation 43, 42
- Proteins:** ARA 25a; Alimentary System, Disorders of, 41d; Anaemia 53d; Biochemistry 125d; Chemotherapy 197b; Dietetics 264c; Endocrinology 286d; Physiology 582c; Vitamins 806a; Yeast 852d
- Protestant Episcopal Church**  
Prottons: *see* Atomic Bomb; Physics 46
- Prunes:** *see* Fruit 46, 45. *See* Plums and Prunes 44, 43, 42
- Pryor, Arthur** 43
- Psychiatry**  
Industrial Health 389c
- Psychology**  
Public Assistance: *see* Child Welfare; Relief; Social Security
- Public Buildings Administration:** *see* Federal Works Agency
- Public Health Engineering**  
Bacteriology 103b; Inter-American Affairs, Office of, 393c
- Public Health Service:** *see* Epidemics and Public Health Control 46. *See* Federal Security Agency 46, 45, 44. *See* Venereal Diseases 46, 45, 44, 43, 42. *See* Medicine 44, 43, 42. *See* Hospitals 43, 42
- American Dental Association** 46b; Tuberculosis 741d
- Public Housing Authority, Federal:** *see* Housing 46, 45. *See* National Housing Agency 44, 43
- Public Libraries:** *see* American Library Association; Libraries 46
- Public Opinion Surveys** 46, 45
- Public Roads Administration:** *see* Federal Works Agency; Roads and Highways
- Public Utilities**  
Stocks and Bonds 699c; Taxation 724a; Tunnels 742c; U.S. 780d; Wages and Hours 807d
- Public Works Administration (PWA):** *see* Federal Works Agency
- 45, 44, 43, 42
- Publishing (Book):** *see* Book Publishing 46. *See* Publishing (Book) 45, 44, 43, 42
- Puerto Rico**  
Alimentary System, Diseases of, 41c; Diamonds 263c; Soil Erosion 686a; West Indies 823a
- Pugilism:** *see* Boxing
- Pulitzer Prizes:** *see* Prizes 46, 45. *See* Pulitzer Prizes 44, 43. *See* Literary Prizes: Theatre 42
- Pulp Industry:** *see* Paper and Pulp Industry
- Pulpstones:** *see* Abrasives
- Pumice:** *see* Abrasives
- Purdue University**
- PWA:** *see* Federal Works Agency
- 45, 44, 43, 42
- Pyle, Ernest Taylor** 46
- New Mexico 526a; Newspapers and Magazines 527c
- Pyrethrum:** Entomology 289b; Horticulture 372c
- Pyrite**
- Quakers:** *see* Friends, Religious
- Society of Quebec**
- Queensland**
- Quezon, Manuel Luis** 45
- Quicksilver:** *see* Mercury
- Quidde, Ludwig** 42
- Quiller-Couch, Sir Arthur T.** 45
- Quinine 134c
- Quisling, Vidkun Abraham** 46
- Rachmaninoff, Sergei V.** 44
- Racing and Races:** *see* Dog Racing; Horse Racing; Track and Field Sports 46, 45, 44, 43, 42. *See* Air Races; Automobile Racing 43, 42
- Racon stations** 219c
- Radar** 46. *See* Radio Detection 45, 44  
Airports 34d; Marine Biology 458b; Meteorology 472a; Navies of the World 513a; Photography 576c; Physiology 582d; Plastics Industry 586a; Radar Countermeasures 619c; Submarine Warfare 708c
- Radar Countermeasures** 46
- Radio**  
Advertising 20b; A.M.A. 52c; Birth Control 127b; Business Review 161b; Civil Liberties 214d; English Literature 288a; FCC 304b; Home Economics 368d; Inter-American Affairs Office of, 393c; Law 430b; Munitions of War 502c; Navies of the World 513b; Newspapers and Magazines 526d; Pius XII 583d; Radar Countermeasures 620b; Standards, National Bureau of, 697a; War Information, Office of, 812a. *See also* under various states and countries
- Radio Detection:** *see* Radar 46. *See* Radio Detection 45, 44
- Radiology**  
X-Ray 849b
- Radium**  
Chemistry 194a; Northwest Territories 537d
- Radziwill, Princess Catherine** 42
- Railroad Accidents:** *see* Disasters
- Railroad Retirement Act:** *see* Social Security
- Railroads**  
American Literature 51a; Banking 106d; Business Review 162c; Civil Liberties 214c; Defense Transportation, Office of, 254b; Disasters 266a; ICC 401c; NMB 511b; Power Engineering 596a; RFC 632b; Stocks and Bonds 699c. *See also* under various states and countries
- Rainfall:** *see* Meteorology 46, 45, 44, 43, 42. *See* Floods and Flood Control 42
- Raisins:** *see* Fruit 46, 45. *See* Grapes 44, 43, 42
- Ramey, Howard Knox** 44
- Ramie** 197c
- Ramirez, Pedro Pablo** 44
- Ramsay, Sir Bertram Home** 45
- Randall-Maclver, David** 46
- "Rangers" 249c
- Rapid Transit:** *see* Electric Transportation
- Rates of Exchange:** *see* Exchange Control and Exchange Rates
- Rationing:** *see* Price Administration, Office of, 46, 45. *See* Rationing 44, 43  
Black Markets 128d; Butter 165b; Canning Industry 181b; Home Economics 369a; Income and Product, U.S. 384b; Law 430a; Leather 436d; Meat 465b; Milk 482c; Rayon 631d; Rubber 650a; Shoe Industry 671d; Sugar 710a
- Ray, Charles** 44
- Ray, Edward (Ted)** 44
- Rayon and Other Synthetic Fibres**  
Clothing Industry 217a; Interior Decoration 396d; Linen and Flax 442c; Marine Biology 458d
- Receipts, Government:** *see* Budget, National
- Reciprocal Trade Agreements:** *see* International Trade 46, 45, 44, 43. *See* Trade Agreements 42
- United States 778d
- Reclamation:** *see* Canals and Inland Waterways; Floods and Flood Control; Forests; Irrigation; Soil Erosion and Soil Conservation
- Reconstruction Finance Corporation**
- Reconstruction Planning** 46
- Economics 271b. *See also* under various countries
- Reconversion:** *see* Business Review; Law; War Production, U.S. 46, 45
- Advertising 20b; Alcohol, Industrial 39a; A.F. of L. 46d; Architecture 64d; Automobile Industry 89d; Bank for International Settlements 105b; Budget, National 155b; Chambers of Commerce 192a; Clothing Industry 217a; Coal 217c; C.I.O. 232a; Contract Terminations 235a; Democratic Party 257a; Dyestuffs 269c; Electrical Industries 283b; Fair Employment Practice, Committee on, 298d; FCC 304a; Federal Reserve System 306a; Fisheries 312c; Great Britain 352d; Income and Product, U.S. 384c; Interior Decoration 396b; International Trade 400c; Labour Unions 425d; Machinery 452a; NLRB 510d; Negroes (American) 517c; Newspapers and Magazines 526c; Paints and Varnishes 555d; Plastics Industry 584d; Price Administration, Office of, 599c; Prices 602c; Priorities and Allocations 604c; Public Utilities 614c; Radio 626b; RFC 633a; Rubber 650a; Selective Service, U.S. 664b; Shoe Industry 671d; Snyder, J.W. 677a; Stocks and Bonds 699d; Taxation 721b; Textile Industry 730d; Tin 733c; Truman, H.S. 739d; OWMR 813c
- Red Cross**  
Advertising 21c; Afghanistan 23b; Baseball 111a; Chemotherapy 197a; Child Welfare 203c; Medicine 466b; Philately 571d; Prisoners of War 606a; Prisons 607b; Relief 638a; Sweden 716a
- Reed, James A.** 45
- Re-Employment of War Veterans:** *see* Selective Service, U.S. 46, 45, 44
- Reeves, Jesse Siddall** 43
- Referendum:** *see* Initiative and Referendum 43, 42
- Reforestation:** *see* Forests 46
- Reformed Church:** *see* Presbyterian Church
- Refugees**
- Regnault, Jeanne Julia:** *see* Bartet, Jeanne Julia 42
- Rehabilitation of the Wounded:** *see* Physical Medicine and Occupational Therapy for the Wounded 46, 45. *See* Rehabilitation and Occupational Therapy for Wounded Soldiers 44
- Reichenau, Walter von** 43
- Reid, Harry Fielding** 45
- Reinhardt, Max** 44
- Reisner, George Andrew** 43
- Relander, Lauri Kristian** 43
- Relay Racing:** *see* Track and Field Sports
- Relief**  
*See also* under various cities and states
- Relief, War:** *see* War Relief, U.S.
- Relief and Rehabilitation Administration, United Nations:** *see* United Nations Relief and Rehabilitation Administration 46, 45, 44
- Religion**  
Birth Control 127b
- Religious Denominations:** *see* Church Membership
- Relocation, Japanese:** *see* War Relocation Authority 46, 45, 44. *See* Aliens 44
- Rennell, James Rennell Rodd** 42
- Reparations:** Allied Commission on Reparations 42d; Berlin Conference 119d; Finland 309d; Lumber 449c; Luxembourg 450a; Truman, H.S. 739d; Yalta Conference 851c
- Representatives, House of:** *see* Congress, U.S.; Elections
- Republican Party**  
Democratic Party 257a; Elections 281a
- Research Libraries, Association of:** *see* Societies and Associations 46. *See* Research Libraries, Association of, 45. *See* Association of Research Libraries 44
- Resins:** *see* Paints and Varnishes; Plastics Industry
- Respirators:** *see* Infantile Paralysis 42
- Retail Sales:** *see* Business Review
- Réunion:** *see* French Colonial Empire
- Reuther, Walter Philip** 46
- RFC:** *see* Reconstruction Finance Corporation
- Rheumatic Fever:** *see* Epidemics and Public Health Control 42
- Heart and Heart Diseases** 365a
- Rheumatism:** *see* Arthritis
- Rh Factor:** A.M.A. 52c; Genetics 338a
- Rhineland** 46
- France 325b
- Rhode Island**
- Rhode Island School of Design:** Art Exhibitions 73b; Art Galleries 75b
- Rhodes, Edgar Nelson** 43
- Rhodesia**  
Asbestos 77a; Chromite 210d; Cobalt 221b; Copper 235d; Gold 348a; Mineral and Metal Production 483a; Roman Catholic Church 646d; Soil Erosion 686b; Vanadium 795c; Zinc 855b
- Rhodium** 586c
- Ribbentrop, Joachim von**
- Ribeiro, Manoel** 42
- Rice, Alice Caldwell Hegan** 43
- Rice, Cate Young** 44
- Rice**  
Agriculture 25d. *See also* under various countries
- Richards, Laura Elizabeth** 44
- Rickenbacker, Edward Vernon** 43
- Rickert, Thomas A.** 42
- Rickets:** *see* Medicine 42
- Riddle, John Wallace** 42
- Ridge, Lola** 42
- Rio de la Plata Conference:** *see* Uruguay 42
- Rio de Oro:** *see* Spanish Colonial Empire
- Rio Muni:** *see* Spanish Colonial Empire
- Rios Morales, Juan Antonio** 43
- Ripley, William Zebina** 42
- Ritchie, Neil Methuen** 43, 42
- Rivers and Harbours**  
Budget, National 155b; Canals and Inland Waterways 179a
- Rivets, Explosive:** *see* Metallurgy 42
- Riza Khan Pahlavi** 45
- Roads and Highways**  
Accidents 19c; Budget, National 155b; Canadian-U.S. War Committees 177b; FWA 307c; Municipal Government 499d. *See also* under various states and countries
- Robert, Georges Achille M.-J.** 44
- Roberts, Sir Charles George D.** 44
- Roberts, Elizabeth Madox** 42
- Robinson, Frederick Bertrand** 42
- Robinson, William Heath** 45
- Robots:** *see* Rockets 45
- Robson, May** 43
- Roca, Julio Argentino** 43
- Rockefeller Foundation:** *see* Societies and Associations 46. *See* Rockefeller Foundation 45, 44, 43, 42
- Rockets:** *see* Power Engineering 46. *See* Rockets 45
- Rodriguez, Jose Marie Caro** 46
- Roentgen Ray:** *see* Radiology 46, 45, 44
- Rokossovsky, Konstantin** 46, 45, 44  
World War II 838c
- Roleo:** *see* Birling 43
- Rolland, Romain** 45
- Roman Catholic Church**
- Rome** 45, 44
- Rommel, Erwin** 45, 44, 43, 42
- Roosevelt, Franklin Delano**  
Arabia 58d; Archives, National 67c; Atomic Bomb 83b; Australia 88b; Bridges 145c; Byelorussia 165c; Churchill, W.L.S. 211c; Coinage 222c; C.I.O. 231d; Democratic Party 257a; Egypt 278c; Elections 280c; Ethiopia 293d; Fascism 300c; Manchuria 455a; Munitions of War 503b; Newspapers and Magazines 526d; Palestine 557a; Osmeña, S. 549a; Philately 571b; Pius XII 583d; Poland 587d; Psychology 611b; Radio 621c; Roman Catholic Church 646c; Secret Service, U.S. 661a; Stalin, J. V. 696d; Turkey 743c; U.S.S.R. 746d; U.S. 778c; Vatican City State 796b; War Bonds 809b; World War II 845c; Yalta Conference 850d
- Roosevelt, Gracie Hall** 42
- Roosevelt, Kermit** 44
- Roosevelt, Sara Delano** 42
- Roosevelt, Theodore, Jr.** 45
- Roper, Daniel Calhoun** 44
- Roquer, Emma de:** *see* Calvé, Emma 43
- Roques, Emile** 46
- Rose, Maurice** 46
- Rosenfeld, Kurt** 44
- Rosenwald Fund, The Julius:** *see* Societies and Associations 46. *See* Rosenwald Fund, The Julius 45, 44, 43, 42
- Rotary International:** *see* Societies and Associations 46. *See* Rotary International 45, 44, 43, 42
- Rotenone:**  
ARA 24b; Entomology 289b; Horticulture 372c; Veterinary Medicine 803c
- Rothenstein, Sir William** 46
- Rottenstone:** *see* Abrasives 43, 42
- Rourke, Constance Mayfield** 42
- Rowan, Andrew Summers** 44
- Rowell, Newton Wesley** 42
- Roving**
- Royal, Forrest** 46
- Ruanda and Urundi:** *see* Belgian Colonial Empire; Mandates
- Rubber**  
Alcohol, Industrial 39a; Botany



134c; Carbon Black 181d; Chemistry 194d; F.E.A. 319d; Liquors, Alcoholic 443a; Munitions of War 503a; Petroleum 570d; Wages and Hours 807a. *See also* under various countries

Rubens, Horatio Seymour 42  
 Ruffini, Ernesto 46  
 Ruckstull, Frederick Wellington 43  
 Ruff, Robert Hamric 43  
 Rugby: *see* Football  
 Rugh, James Torrance 43  
 Ruhr: *see* Rhineland 46  
 Rulers: *see* Presidents, Sovereigns and Rulers  
 Rum 443b  
 Rumania  
 Agriculture 31d; Berlin Conference 119d; Communism 227c; Debt, National 253b; Economics 271b; E.A.C. 294a; Exchange Control 296b; Great Britain 352a; International Trade 399b; Leather 437a; Moscow Conference 493a; Navies of the World 514c; Paper and Pulp Industry 560b; Reconstruction Planning 633d; Socialism 678d; Ukraine 744c; U.S.S.R. 745d; Unitarian Church 748b; United Nations War Crimes Commission 776d; War Debts 810b  
 Rumbold, Sir Horace George M. 42  
 Ruml Plan: *see* Taxation 44, 43  
 Rundstedt, Karl Rudolf Gerd von World War II 834c  
 Running: *see* Track and Field Sports  
 Rupertus, William Henry 46  
 Rural Electrification  
 Rural Rehabilitation Loans: *see* Farm Security Administration 46, 45  
 Russell, Lady Mary Annette 42  
 Russell Sage Foundation: *see* Societies and Associations 46. *See* Russell Sage Foundation 45, 44, 43, 42  
 Russia: *see* Union of Soviet Socialist Republics  
 Russian Literature  
 Russian Orthodox Church: Communism 226d; U.S.S.R. 747d  
 Russian S.F.S.R.: *see* Union of Soviet Socialist Republics  
 Ruthenia: *see* Carpatho-Ukraine 46. *See* Ruthenia 45, 42  
 Ruthenium 586c  
 Rutledge, Wiley Blount, Jr. 44  
 Ryder, Charles W. 44, 43  
 Rye  
 Agriculture 26b; *See also* under various states and countries  
 Saar 46  
 France 328a  
 Sabatier, Paul 42  
 Sabotage: *see* Federal Bureau of Investigation 46, 45, 44, 43, 42. *See* International Law 43  
 Sackett, Frederic Moseley 42  
 Safety: *see* Accidents  
 Sage: *see* Spices  
 St. Christopher: *see* West Indies, British  
 St. Croix: *see* Virgin Islands  
 Saint Exupéry, Antoine de 45  
 St. Helena and Ascension Islands: *see* British West Africa  
 St. John: *see* Virgin Islands  
 St. Kitts-Nevis: *see* West Indies, British  
 St. Louis  
 St. Lucia: *see* West Indies, British  
 St. Pierre and Miquelon: *see* French Colonial Empire  
 St. Thomas: *see* Virgin Islands  
 St. Vincent: *see* West Indies, British  
 Sakatani, Yoshiro 42  
 Salazar, Antonio de O. 46, 45, 44, 43  
 Sales, Retail and Wholesale: *see* Business Review  
 Sallege, Jules-Geraud 46  
 Salt  
 Dietetics 264b  
 Salten, Felix 46  
 Salvador, El  
 Central America 190c; Costa Rica 237d; Exchange Control 295a; Guatemala 358b; Infant Mortality 391b; Soil Erosion 685d; Tariffs 720c  
 Salvage Drives, U.S. 45, 44, 43  
 Salvation Army  
 Samara: *see* Kuibyshev 42  
 Samoa, American  
 Samoa, Western: *see* Mandates; Pacific Islands, Mandated  
 Sanborn, John Pitts 42  
 Sand and Gravel  
 Abrasives 17b. *See also* under various states  
 Sand Island: *see* Pacific Islands, U.S. 46, 45, 44. *See* Midway Islands 43, 42  
 Sandstone: *see* Stone  
 San Francisco  
 San Francisco Conference: *see* United Nations Conference on International Organization 46  
 San Marino  
 Santo Domingo: *see* Dominican Republic  
 São Tomé: *see* Portuguese Colonial Empire  
 Sapieha, Adam Stefan 46

Sapphires 337c  
 Sapru, Sir Tej Bahadur 43  
 Saracoglu, Shukru 45, 44, 43  
 Sarawak: *see* Borneo 46, 42. *See* British Empire 45, 44, 43  
 Sarg, Tony (Anthony Frederick) 43  
 Saskatchewan  
 Saudi Arabia: *see* Arabia  
 Sauer, Emil von 43  
 Savings and Loan Insurance Corporation, Federal: *see* Housing 46, 45. *See* National Housing Agency 44, 43  
 Savings Banks: *see* Banking 46, 45, 44, 43. *See* Savings Banks, Mutual 42  
 Saydam, Refik 43  
 Schistosomiasis 41b  
 Schizophrenia: *see* Psychiatry 44, 43, 42  
 Schlesinger, Frank 44  
 Schneider, Eugene 43  
 Schober, Eugen Ritter von 42  
 Schofield, Frank Herman 43  
 Schroeder, Ludwig von 42  
 Schulte, Karl Josef 42  
 Schuman, William Howard 42  
 Schurman, Jacob Gould 43  
 Schwellenbach, Lewis Baxter 46  
 Science and World Order, British Association Conference on, 42  
 Scientific Research and Development, Office of  
 Atomic Bomb 84b; Education 276a; Munitions of War 503d; Psychology 610d; Standards, National Bureau of, 697a  
 Scotland: *see* Great Britain and Northern Ireland, United Kingdom of  
 Scott, Norman 43  
 Scrap: *see* Secondary Metals 46, 45, 44, 43, 42. *See* Salvage Drives, U.S. 45, 44, 43  
 Sculpture  
 Seabees 46, 45  
 Sea Blockade: *see* Blockade 43, 42  
 Seabrook, William Buehler 46  
 SEC: *see* Securities and Exchange Commission  
 Secondary Education: *see* Education  
 Secondary Metals  
 Second World War: *see* World War II  
 Secret Service, U. S.  
 Securities: *see* Business Review; Stocks and Bonds 46, 45, 44, 43, 42. *See* Law 42  
 Securities and Exchange Commission  
 Stocks and Bonds 701b  
 Sedition: *see* Federal Bureau of Investigation 45, 44  
 Seeing Eye, The  
 Seignobos, Charles 43  
 Seismology  
 Coast and Geodetic Survey, U.S. 219b  
 Selective Service, U.S.  
 FBI 303a; Law 430a  
 Selenium  
 Selincourt, Ernest de 44  
 Senate: *see* Congress, U.S.; Elections  
 Senegal: *see* French Colonial Empire  
 Serbia: *see* Yugoslavia  
 Serédi, Justinian George 46  
 Sergei 45  
 Serrano Suárez, Ramón 43, 42  
 Serum Therapy: *see* Medicine 46, 45. *See* Serum Therapy 44, 43, 42  
 Service Organizations, United: *see* United Service Organizations  
 Sesame Seed: *see* Spices  
 Seventh Day Adventists 46  
 Sewage: *see* Public Health Engineering  
 Seychelles: *see* British East Africa  
 Sforza, Carlo 45, 44  
 Shaposhnikov, B. M. 46, 44, 43, 42  
 Sharpening Stones: *see* Abrasives  
 Shaw, Mrs. George Bernard 44  
 Sheehan, Winfield R. 46  
 Sheep  
 Agriculture 26d; American Literature 51a; Leather 437b; Livestock 445a; Meat 465a; Wool 831a. *See also* under various states and countries  
 Sheppard, Morris 42  
 Shidehara, Kijuro 46  
 Shigemitsu, Mamoru 46, 44  
 Shimada, Shigetaro 45  
 Shinwell, Emanuel 46  
 Shipbuilding  
 Business Review 162c; Lumber 448d; Munitions of War 503b; Oregon 548b; Shipping, Merchant Marine 670a; Strikes and Lock-outs 703c; Wages and Hours 807d; War Production, U.S. 814d  
 Shipping, Merchant Marine  
 Shipping Administration, War: *see* War Shipping Administration 46, 45, 44  
 Shipyard Conjunctivitis: *see* Eye, Diseases of, 43  
 Shock Treatment: *see* Psychiatry 44, 43, 42. *See* Nervous System 43. *See* Medicine 42

Shoe Industry  
 Home Economics 369b; Plastics Industry 586b  
 Short, Walter Campbell 42  
 Shows  
 Horticulture 372d  
 Siam 46. *See* Thailand 45, 44, 43, 42  
 Agriculture 32c; Gems 337c; Mineral and Metal Production 483a; Navies of the World 514c; Rubber 650d; Tin 733b; Unfederated Malay States 745a  
 Sickert, Walter Richard 43  
 Sidi Ahmed II: *see* Ahmed II, Sidi 43  
 Siemens, Carl Friedrich von 42  
 Sierra Leone: *see* British West Africa  
 Sikorski, Wladyslaw 44  
 Silesia 46  
 World War II 836b  
 Silicones: Chemistry 195b; Plastics Industry 585a; Words and Meanings, New 833b  
 Sillcosis 42  
 Industrial Health 389c  
 Silk  
 Sillimanite 424d  
 Silver  
 Secondary Metals 660d. *See also* under various states and countries  
 Simeon II 44  
 Simms, Ruth Hanna McCormick 45  
 Simons, Moises 46  
 Simovitch, Dushan 42  
 Simpson, William H. 45  
 Sinclair, Sir Archibald 44, 43  
 Singapore 43, 42  
 Sinkiang  
 Sino-Japanese War: *see* World War II 46, 45, 44, 43. *See* Foreign Missions 43, 42. *See* Chinese-Japanese War 42  
 Sister Kenny Treatment: *see* Infantile Paralysis 44, 43, 42  
 Skating: *see* Ice skating  
 Skiing  
 Skin Diseases: *see* Dermatology  
 Skinner, Otis 43  
 Slate  
 Stone 702a  
 Slomp, Campbell Bascom 44  
 Slim, Sir William Joseph 46  
 World War II 844d  
 Slovakia  
 Smetona, Antanas 45  
 Smith, Albert William 43  
 Smith, Alfred Emanuel 45  
 Smith, Ellison DuRant 45  
 Smith, Sir George Adam 43  
 Smith, Holland McTyeire 46, 45  
 Smith, Preserved 42  
 Smith College  
 Smithsonian Institution  
 Archaeology 63d  
 Smoot, Reed 42  
 Smyth, Dame Ethel Mary 45  
 Snyder, John Wesley 46  
 Snook, Homer Clyde 43  
 Soap, Perfumery and Cosmetics  
 Soapstone: *see* Talc  
 Soccer  
 Socialism  
 Bank for International Settlements 105b; French Colonial Empire 330d; Italy 411a; Labour Party 425b; Paris 562a; Poland 589b; Reconstruction Planning 634b  
 Socialist Soviet Republics: *see* Union of Soviet Socialist Republics  
 Socialized Medicine: *see* Medicine 43, 42, 41  
 Social Security  
 A.F. of L. 46d; A.M.A. 53a; Budget, National 155b; Child Welfare 204b; Income and Product, U.S. 383d; I.L.O. 397b; Law 434c; Taxation 723a. *See also* under various states and countries  
 Social Service: *see* Child Welfare; Relief; Social Security 46, 45, 44. *See* Social Service 43, 42  
 Ethical Culture Movement 293b  
 Societies and Associations 46  
 Sociology  
 Sodality of our Lady, The 45  
 Sodium: *see* Metallurgy 42  
 Sodium Carbonate  
 Sodium Sulphate  
 Softball  
 Soil Erosion and Soil Conservation  
 Public Utilities 614d  
 Solar System: *see* Astronomy  
 Soldiers' Bonus: *see* Veterans' Administration 44, 43, 42  
 Solomon Islands 46, 45, 44. *See* Japan; World War II 43. *See* Pacific Islands, British; Pacific Islands, Mandated 43, 42  
 Somaliland, British: *see* British East Africa  
 Somaliland, French: *see* French Colonial Empire  
 Somaliland, Italian: *see* Italian Colonial Empire  
 Sombart, Werner 42  
 Somervell, Brehon B. 46, 45, 44, 43  
 Soong, T. V. 46, 45, 44, 43  
 California, University of, 168c  
 Soong Mei-Ling: *see* Chiang Kai-shek, Madame 44, 43  
 Sorghum: *see* Syrup, Sorgo and

# INDEX

## 871

Cane  
 South Africa, British: *see* British South African Protectorates  
 South Africa, The Union of  
 Agriculture 31b; Argentina 70a; Asbestos 77a; Aviation, Civil 94c; Chromite 210d; Coal 217c; Community Chest 228b; Copper 235d; Death Statistics 250d; Debt, National 253a; Diamonds 263c; Employment 286c; Exchange Control 295d; Forests 323b; Gold 348a; Infant Mortality 391b; International Trade 400a; Leather 437c; Manganeses 456a; Mercury 469d; Mineral and Metal Production 483a; Motor Transportation 498b; Platinum Group Metals 586c; Rivers and Harbours 643d; Roman Catholic Church 646d; Silver 674d; Sunday Schools 711b; Unitarian Church 748b; United Nations Monetary and Financial Program 761a; U.S. Investments Abroad 785d; Uruguay 794c; Wheat 826b; Wool 831c; World War II 846c  
 South America: *see* Argentina; Bolivia; Brazil; British Guiana; Chile; Colombia; Ecuador; Paraguay; Peru; Uruguay; Venezuela  
 South Australia  
 South Carolina  
 South Dakota  
 Southern California, University of  
 Southern Rhodesia: *see* Rhodesia  
 South Polar Regions: *see* Exploration and Discovery 43, 42  
 South Sea and Equatorial Islands 42  
 South Tirol 46  
 South-West Africa: *see* Mandates; South Africa, The Union of  
 Sovereigns, Presidents and Rulers: *see* Presidents, Sovereigns and Rulers  
 Soviet-German Pact: *see* Molotov, Vyachslav Mikhailovich 43, 42  
 Soviet Republics: *see* Union of Soviet Socialist Republics  
 Soviet Union: *see* Union of Soviet Socialist Republics  
 Soybeans  
 ARA 25a; Agriculture 25d; Candy 181a; Hay 364b; Prices 601b; Soil Erosion 685b; Vegetable Oils and Animal Fats 796d. *See also* under various states  
 Spatz, Carl A. 46, 45, 44, 43  
 SPAB: *see* Supply Priorities and Allocations Board 42  
 Spain  
 Agriculture 31d; Archaeology 62b; Argentina 70a; Berlin Conference 120b; Bolivia 130a; Central America 191a; Cuba 242d; Debt, National 253b; Drugs 269a; Exchange Control 294d; Fascism 300b; Fertilizers 309b; Fluorspar 316b; France 328b; Guatemala 358a; Infant Mortality 391b; International Law 398b; International Trade 399b; Iron and Steel 405c; Leather 437a; Mercury 470d; Mexico 478b; Mineral and Metal Production 483a; Navies of the World 514c; Peru 567c; Potash 594a; Pyrite 616c; Reconstruction Planning 633d; Silk 674c; Spanish Literature 694c; Tungsten 742b; U.S. Investments Abroad 785c; Uruguay 794a; Venezuela 799d; Wheat 826b; Wines 828c; Zinc 855b  
 Spangler, Harrison E. 44, 43  
 Spanish-American Literature  
 Spanish Literature 694c  
 Spanish Colonial Empire  
 Spanish Guinea: *see* Spanish Colonial Empire  
 Spanish Literature  
 Spanish Morocco: *see* Spanish Colonial Empire  
 Spanish West Africa: *see* Spanish Colonial Empire  
 SPARS: *see* Coast Guard, U.S. 46, 45, 44  
 Special Libraries Association: *see* Societies and Associations 46. *See* Special Libraries Association 45, 44, 43, 42  
 Spellman, Francis Joseph 46, 44  
 Spelman Fund of New York: *see* Societies and Associations 46. *See* Spelman Fund of New York 45, 44, 43, 42  
 Spender, John Alfred 43  
 Spices  
*See also* under various countries  
 Spirits: *see* Liquors, Alcoholic  
 Spodumene 444b  
 Sports and Games: *see* Gymnastics 46, 45, 44, 43. *See* Angling; Archery; Badminton; Baseball; Basketball; Billiards; Bowling; Boxing; Chess; Cricket; Curling; Cycling; Fencing; Football; Gliding; Golf; Hand-ball; Horse Racing; Ice Hockey; Ice Skating; Lacrosse; Motor-boat Racing; Polo; Rowing; Shows; Skiing;

- Soccer; Softball; Squash Racquets; Swimming; Table Tennis; Tennis; Track and Field Sports; Trap-shooting; Wrestling; Yachting 46, 45, 44, 43, 42. *See* Air Races; Automobile Racing 43, 42
- Spot Authorization Plan: *see* War Production, U.S. 45
- Spotted Fever: *see* Bacteriology; Medicine 42
- Spruance Raymond A. 46, 45, 44
- Spurgeon, Caroline Frances E. 43
- Spykman, Nicholas John 44
- Squash Racquets
- Stabilization Administrator, Office of, 46. *See* Economic Stabilization, Office of, 45
- Stader Splints: *see* Medicine 43
- Stainforth, G. H. 43
- Stainless Steel: *see* Metallurgy 46, 44, 43, 42
- Stalin, Joseph Vissarionovich  
Alexei 39c; Berlin Conference 119c; Communism 226d; Poland 587d; Reconstruction Planning 633c; Roosevelt, F. D. 648b; Truman, H. S. 739c; U.S.S.R. 745b; World War II 845c; Yalta Conference 850d
- Stalingrad 43
- Stamp Collecting: *see* Philately
- Stamp, Josiah Charles 42
- Standards, National Bureau of  
Standley, William Harrison 44
- Stanford University  
Education 275d
- Stang, Fredrik 42
- Stanley, Oliver Frederick George 44
- Starch: Chemistry 195c; Chemurgy 197c
- Stark, Harold R. 45, 44, 43, 42
- Stars: *see* Astronomy
- Stassen, Harold Edward 46
- Sunday Schools 711b
- State, U.S. Department of: *see* Government departments and Bureaus
- Inter-American Affairs, Office of, 393d; Newspapers and Magazines 527d; War Information, Office of, 812a
- State Guard: *see* National Guard
- Stauning, Thorvald 43
- Steagall, Henry Bascom 44
- Steamships: *see* Shipbuilding 44, 43, 42
- Steam Turbines: *see* Power Engineering 46
- Steel: *see* Iron and Steel
- Stein, Philip Wilson 43
- Stein, Sir Aurel 44
- Steinach, Eugen 45
- Stellar System: *see* Astronomy
- Stephens, William Dennison 45
- Stettin 46
- Stettinius, E. R., Jr. 46, 45, 44, 42  
California, University of, 168c; Yalta Conference 850d
- Stilboestrol: *see* Chemistry 43
- Stiles, Charles Wardell 42
- Stillwell, Joseph W. 46, 45, 44, 43
- Stillwell (Ledo) road: Bridges 145a; Roads 644b; World War II 844d
- Stimson, Frederic Jesup 44
- Stimson, Henry Lewis
- Stock Exchanges: *see* Stocks and Bonds
- Stocks and Bonds  
Business Review 163c; Taxation 723d
- Stoessel, Albert Frederic 44
- Stolz, Joseph 42
- Stomach Disorders: *see* Alimentary System, Disorders of
- Stone, Harlan Fiske 42
- Stone  
Abrasives 17b; Wages and Hours 807a. *See* also under various states
- Stonehaven, John Lawrence B. 42
- Straits Settlements
- Strategic Mineral Supplies
- Stratton, Dorothy Constance 44
- Streeter, Ruth Cheney 44
- Streptomycin: *see* Bacteriology; Chemistry; Chemotherapy; Urology 46
- Epidemics and Public Health Control 290c; Medicine 465d; Surgery 713c; Tuberculosis 741a; Words and Meanings, New 833b
- Streptothricin 290c
- Strikes and Lock-outs  
Advertising 21a; Automobile Industry 91d; Business Review 161d; Coal 217d; Glass 346b; Labour Unions 426a; Law 429d; Lumber 449b; N.L.R.B. 511a; Newspapers and Magazines 530a; Prices 601b; Railroads 628c; Stocks and Bonds 699d; Truman, H. S. 739d. *See* also under various cities, states and countries
- Stritch, Samuel Alphonsus 46
- Strontium
- Stuart, James Everett 42
- Styrene: Chemistry 195a; Rubber 650b
- Subasitch, Ivan 45
- Submarines: *see* Navies of the World; Submarine Warfare
- Power Engineering 595c; Words and Meanings, New 833a
- Submarine Warfare
- Subsidies: *see* Agriculture
- Canning Industry 181b; Chemistry 194a; Cotton 239b; Education 275b; Flour 315c; Housing 376a; Municipal Government 499d; Prices 601b; Sheep 667a; Wages and Hours 807d; Wheat 826a
- Substitute Materials: *see* War Production, U.S. 45, 44
- Sudan: *see* Anglo-Egyptian Sudan; French Colonial Empire
- Suetsugu, Nobumasa 45
- Sueyro, Saba H. 44
- Suez Canal 42
- Suffolk and Berkshire, Charles Henry George Howard 42
- Sugar  
Agriculture 25b; Alcohol, Industrial 39a; Candy 181a. *See* also under various states and countries
- Suicide Statistics
- Sulfadiazine: Chemotherapy 196d; Cold, Common 223a; Dentistry 259d; Dermatology 261a; Plague 584b
- Sulfathiazole 584b
- Sulfonamide Drugs: *see* Medicine; Urology 45, 44, 43, 42. *See* Bacteriology 45, 44, 43. *See* Ear, Nose and Throat, Diseases of, 43
- A.M.A. 52c; Chemotherapy 196c; Cold, Common 222d; Dentistry 259d; Dermatology 261a; Epidemics and Public Health Control 291a; Plague 584b; Pneumonia 587a
- Sulphur
- Sumatra: *see* Netherlands Indies 46, 45, 44. *See* Netherlands Colonial Empire 46, 45, 44, 43. *See* Dutch East Indies 43. *See* Sumatra 42
- Sunday Schools
- Suñer, Ramón Serrano: *see* Serrano
- Suñer, Ramón 43, 42
- Sunshine: *see* Meteorology
- Superphosphates
- Supply Priorities and Allocations Board 42
- Supreme Court of the United States  
Law 430b; N.M.B. 511c; Public Utilities 615a
- Surgery  
Medicine 466d; Munitions of War 500d; Negroes 517d; Societies and Associations 681c
- Surinam  
Bauxite 115b; Mineral and Metal Production 483a
- Surplus Property Administration: *see* Surplus Property Disposal; War Mobilization and Reconversion, Office of, 46
- Airports and Flying Fields 35a
- Surplus Property Disposal 46, 45  
FSA 306d; Housing 376a; Law 429d; R.F.C. 632b
- Surplus War Property Board: *see* Surplus Property Disposal; War Mobilization and Reconversion, Office of, 45
- Sutherland, George 43
- Suzuki, Kantaro 46
- Svinhufud, Pehr Eyvind 45
- Swains Island: *see* Pacific Islands, U.S. 46, 45, 44. *See* Samoa, American 46, 45, 44, 43, 42
- Swaziland: *see* British South African Protectorates
- Sweden  
Agriculture 31d; Anthropology 56b; Architecture 67a; Argentina 70a; Arsenic 72d; Arthritis 76c; Aviation, Civil 94c; Botany 134d; Building and Construction Industry 158b; China 208d; Christian Unity 210a; Cuba 243b; Debt, National 253b; Denmark 259b; Employment 286d; Estonia 291c; Exchange Control 294d; Infant Mortality 391b; International Trade 400a; Iron and Steel 405c; Latvia 429a; Linen and Flax 442d; Lithuania 444c; Lumber 449c; Mineral and Metal Production 483a; Navies of the World 514c; Norway 538a; Paper and Pulp Industry 559c; Prisoners of War 606a; Prizes 608c; Public Opinion Surveys 613d; Railroads 629d; Rayon 631d; Rubber 650d; Shipbuilding 668a; Shipping, Merchant Marine 671b; Socialism 679a; Tariffs 720c; Track and Field Sports 736b; Unitarian Church 748b; Uruguay 794c; Wheat 826b
- Sweet Potatoes: *see* Potatoes
- Swimming
- Switzerland  
Agriculture 31d; Aluminum 45b; Anthropology 56a; Archaeology 62b; Architecture 67a; Argentina 70a; Debt, National 253b; Exchange Control 294d; Exchange Stabilization Funds 297b; Infant Mortality 391b; International Law 398a; International Trade, 400a; Liechtenstein 442a; Lithuania 444c; Pacifism 553b; Paper and Pulp Industry 560b; Presbyterian Church 598a; Prisoners of War 606a; Railroads 629d; Tariffs 720c; Unitarian Church 748b; Uruguay 794c
- guay 794c
- Symington, William Stuart 46
- Symons, Arthur 46
- Symphony Orchestras: *see* Music
- Synchrotron 581b
- Synthetic Products: *see* Chemistry; Petroleum; Plastics Industry; Rayon and Other Synthetic Fibres; Rubber; Standards, National Bureau of, 46, 45, 44, 43, 42. *See* Industrial Research; Textile Industry 42
- Shoe Industry 672b
- Syphilis: *see* Medicine; Venereal Diseases 46, 45, 44, 43, 42. *See* Marriage and Divorce 42
- Syria and Lebanon  
International Law 399a; Islam 408c
- Syrup, Sorgo and Cane  
Candy 181a
- Szold, Henrietta 46
- Table Tennis
- Taft, Helen Herron 44
- Tagore, Sir Rabindranath 42
- Tahiti: *see* Pacific Islands, French
- Taiwan: *see* Formosa
- Talbot, Arthur Newell 43
- Talc
- Tanganyika: *see* British East Africa; Mandates
- Tangerines: *see* Fruit 46, 45
- Tanks, Military: *see* Munitions of War; World War II 46, 45, 44, 43, 42. *See* Armies of the World 42
- Tarbell, Ida Minerva 45
- Tardieu, André Pierre G. A. 46
- Tariffs  
International Trade 399c
- Tasmania  
Bridges 144a
- Tassigny, Jean de Lattre de 45
- Tassin, Algernon de Vivier 42
- Taxation  
Brewing and Beer 142d; Budget, National 154d; Business Review 163b; Horse Racing 370c; Income and Product, U.S. 383c; Labour Unions 426d; Law 429d; Liquors, Alcoholic 443a; Motor Transportation 498a; Municipal Government 499c; Prices 601a; Societies and Associations 681d; Stocks and Bonds 699c; Supreme Court of the U.S. 711c; Truman, H. S. 739b; U.S. Investments Abroad 785d; Wages and Hours 807d. *See* also under various cities, states and countries
- Taylor, Henry Osborn 42
- Tea
- Technicolor: *see* Motion Pictures
- Tedder, Sir Arthur W. 46, 45, 44, 43  
Oxford University 550c
- Tehran, Declaration of: *see* United States 44
- Telefax 725b
- Telegraphy  
Wages and Hours 807a
- Teleki, Pál 42
- Telephone  
F.C.C. 304c; Wages and Hours 807a. *See* also under various states and countries
- Telescopes 43
- Television  
Dance 247b; F.C.C. 304b; Motion Pictures 496c; Radar Countermeasures 620b; Radio 620d; Telephone 726c; Words and Meanings, New 832d
- Tellurium
- Tempest, Dame Mary Susan 43
- Temple, William 45. *See* Canterbury, Archbishop of, 43
- Tenant House Purchase Program: *see* Housing 42
- Tennessee  
Tennessee Valley Authority  
Electrical Industries 283b
- Tennis
- Terhune, Albert Payson 43
- Termite: *see* Entomology 46, 45, 44
- Ter Poorten, Hein: *see* Poorten, Hein ter 43, 42
- Terra, Gabriel 42
- Teschén, 46
- Tesla, Nikola 44
- Texas
- Texas, University of
- Textile Industry  
Chemurgy 197d; Clothing Industry 217a; Cotton 238a; Home Economics 369a; Linen and Flax 442c; Plastics Industry 585a; Prices 600b; Socialism 678c; Strikes and Lock-outs 703c; Wages and Hours 807a; WLB 812b. *See* also under various countries
- Thaelmann, Ernst 45
- Thailand: *see* Siam 46. *See* Thailand 45, 44, 43, 42
- Theatre  
French Literature 331d; Italian Literature 410a
- Theatre Library Association: *see* Societies and Associations 46. *See* Theatre Library Association 45, 44
- Theosophical Society, The 42
- Therapy: *see* Physical Medicine and Occupational Therapy for the Wounded 46, 45. *See* Chemotherapy; Medicine 46, 45, 44, 43, 42.
- See* Serum Therapy 44, 43, 42
- Thiobarbital 196d
- Thiophene 195a
- Thiouracil: Chemotherapy 196d; Medicine 466a
- Thompson, James Westfall 42
- Thompson, Reginald Campbell 42
- Throat: *see* Ear, Nose and Throat, Diseases of
- Thyroid: *see* Endocrinology
- Tibet
- Tien, Thomas 46
- Timber: *see* Lumber
- Timor: *see* Netherlands Colonial Empire; Portuguese Colonial Empire 46, 45, 44, 43, 42. *See* Portugal; World War II 43
- Timoshenko, Semyon K. 44, 43, 42
- Tin  
Canning Industry 181b; Secondary Metals 660c
- Tinker, Clarence Leonard 43
- Titanium
- Tito: *see* Brozovich, Josip 46, 45, 44
- Titulescu, Nicolae 42
- Tobacco  
ARA 24b; Agriculture 25b; Genetics 338b; Strikes and Lock-outs 703c; Wages and Hours 807a. *See* also under various states and countries
- Tobago: *see* West Indies, British
- Todt, Fritz 43
- Togo, Shigenori 42
- Togoland: *see* British West Africa; Mandates
- Tojo, Hideki
- Tokyo
- Tolbukhin, Fedor 45, 44
- Tomatoes  
ARA 24c
- Tongan Island Protectorate: *see* Pacific Islands, British
- Tongking: *see* French Colonial Empire
- Tornadoes: *see* Disasters 46, 45, 43, 42
- Toronto
- Torpedoes: *see* Munitions of War 46, 45. *See* Navies of the World; Submarine Warfare 46, 45, 44, 43, 42
- Totalitarian State: *see* Germany; Spain; U.S.S.R. 46, 45, 44, 43, 42. *See* Italy 43, 42
- Towers, John H. 46, 45, 44, 43
- Town and Regional Planning  
Airports 34c; Architecture 66a; British West Africa 151d; Building and Construction Industry 158b; Electric Transportation 284a; Housing 376d; Municipal Government 499a. *See* also under various cities
- Toyama, Mitsuru 45
- Toyoda, Teijiro 42
- Track and Field Sports
- Trade Agreements: *see* International Trade 46, 45, 44, 43. *See* Trade Agreements 42
- Trade Commission, Federal: *see* Federal Trade Commission 46, 45, 44
- Trade Unions: *see* Labour Unions
- Traffic Accidents: *see* Accidents
- Trailer Coaches 45, 44, 43, 42
- Train, Arthur 46
- Transit Controller, Office of: *see* Electric Transportation 43
- Trans-Jordan
- Transportation: *see* Defense Transportation, Office of, 46, 45, 44, 43. *See* Business Review; Electric Transportation; Motor Transportation; Railroads 46, 45, 44, 43, 42
- Advertising 22c; Agriculture 28a; Budget, National 155b; Employment 285c; Income and Product, U.S. 384c; Inter-American Affairs, Office of, 394a; International Trade 399c; ICC 401c; Reconstruction Planning 633d; Selective Service, U.S. 664b; Socialism 678c; Strikes and Lock-outs 703c; Wages and Hours 807a; Wheat 826c. *See* also under various countries
- Transvaal 688a
- Transylvania: *see* Hungary; Rumania
- Trap-shooting
- Travelers Aid Association, National 777d
- Treasure: *see* Federal Bureau of Investigation 46
- Treasury, U.S. Department of: *see* Government Departments and Bureaus
- Trebitsch-Lincoln, Ignatius 44
- Trench Mouth 196c
- Tridione: Chemotherapy 197a; Medicine 466a
- Trieste 46
- Trinidad: *see* West Indies, British
- Tripartite Conference at Berlin: *see* Berlin Conference 46
- Tripoli: *see* Abrasives
- Trolley Coaches: *see* Electric Transportation
- Troubetzkoy, Amélie Rives 46
- Troy, John Weir 43
- Trucial Sheikhs: *see* Arabia
- Truck Crops: *see* Vegetables 46, 45
- Truck Farming 44, 43, 42
- Trucks: *see* Automobile Industry 46, 45, 44, 43. *See* Motor Transport-

tation 46, 45, 44, 43, 42. *See* Motor Vehicles 42  
 Agriculture 28a; Defense Transportation, Office of, 254d; Taxation 723c; War Production, U.S. 814c  
**Truman, Harry S.** 46, 45, 44  
 American Literature 51b; Anti-Semitism 57d; Atomic Bomb 86b; Attlee, C. R. 87c; Berlin Conference 119c; Bridges 144c; Budget, National 153d; Building and Construction Industry 158a; Camp Fire Girls 170d; Central America 191b; Chile 206a; China 208d; Democratic Party 257a; Elections 280d; Electrical Industries 283b; Gaulle, C. de 337a; George VI 340b; Great Britain 351c; Green, W. 356c; Iraq 404c; Japan 414c; Law 429d; Lewis, J. L. 439a; MacArthur, D. 450d; Missouri 487d; Murray, P. 505b; Newspapers and Magazines 526d; Osmaña, S. 549a; Palestine 557a; Poland 589d; Puerto Rico 615a; Reconstruction Planning 633c; Secret Service, U.S. 661a; Selective Service, U.S. 664b; Syria and Lebanon 718d; U.S.S.R. 746d; U.S. 778c; World War II 841b  
**Trygger, Ernst** 44  
**Tsarisyn:** *see* Stalingrad 43  
**Tuberculosis**  
 Bacteriology 103a; Chemotherapy 196c; Child Welfare 202c; Death Statistics 251a; Drugs 268c; FSA 306d; France 326a; Medicine 468a; Photography 576d; Physical Medicine and Occupational Therapy 580a; Urology 793d; Venereal Diseases 798d; X-Ray 849d  
**Tufts, James Hayden** 43  
 Tularaemia: Bacteriology 103a; Chemistry 196b; Medicine 465d  
**Tung Oil:** *see* Vegetable Oils and Animal Fats  
**Tungsten**  
**Tunisia:** *see* French Colonial Empire  
**Tunnels**  
**Turkestan, Chinese:** *see* Sinkiang  
**Turkey**  
 Agriculture 32b; Archaeology 62a; Chromite 210d; Debt, National 253b; Drugs 269b; Iraq 404c; Islam 408c; Italian Colonial Empire 409a; Mineral and Metal Production 483a; Navies of the World 514c; Seismology 662d; Silk 674c; U.S.S.R. 746c  
**Turnbull, Margaret** 43  
**Turner, Sir Ben** 43  
**Turner, Richmond Kelly** 46, 45  
 Okinawa 546b  
**Tussaud, John Theodore** 44  
**TVA:** *see* Tennessee Valley Authority  
**Twentieth Century Fund:** *see* Societies and Associations 46. *See* Twentieth Century Fund 45, 44  
 Typhoid: Bacteriology 103a; Death Statistics 251a  
 Typhus: Bacteriology 103b; Entomology 289a  
**U-Boats:** *see* Submarine Warfare  
**Udet, Ernst** 42  
**Uganda:** *see* British East Africa  
**Ukraine** 46  
 Archaeology 60a; Roman Catholic Church 646c; U.N.R.R.A. 776c  
 Ulcer: Alimentary System, Disorders of, 41d; Intoxication, Alcoholic 402a; Medicine 466b; Radiology 627d; Surgery 713b  
**Ultrasonics:** *see* Metallurgy 42  
**Ulyanov, Dmitri** 44  
**Umez, Yoshijiro** 46, 45  
 Undulant Fever 465d  
**Unemployment:** *see* Employment 46, 45, 44. *See* Unemployment 43, 42  
**Unemployment Insurance:** *see* Social Security  
**Unemployment Relief:** *see* Relief  
**Unfederated Malay States**  
**Union Now** 42  
**Union of South Africa:** *see* South Africa, The Union of  
**Union of Soviet Socialist Republics**  
 Agriculture 28d; Albania 38b; Allied Commission on Reparations 42d; Allied Military Government 43d; Aluminum 44d; American Literature 50b; Anthropology 55d; Anti-Semitism 57c; Archaeology 59d; Asbestos 77a; Austria 89a; Aviation, Civil 94c; Bauxite 115b; Berlin Conference 119c; Bolivia 130a; Botany 134c; Brazil 139a; Bulgaria 158c; Canada 174d; Carpatho-Ukraine 182d; Central America 191a; Child Welfare 203c; China 208d; Chromite 210d; Coal 217c; Communism 226d; Cooperative Movement 235b; Copper 235d; Czechoslovakia 244d; Danzig 249c; Democracy 256d; Dodecanese 266c; Dominican Republic 267a; Drugs 269b; East Prussia 271a; Ecuador 272b; Estonia 291b; EAC 294b; Exchange Control 294c; Fertilizers 309b; Finland 309d; Forests 322c; France 325b; Furniture Industry 335b; Furs 335c; Germany 341d; Gold 348a; Great Britain 351d; Greece 356a; Guatemala 358b; Guer-

rilla Warfare 358d; Honduras 369d; Horses 371d; Horticulture 372a; Hungary 377c; International Law 397d; International Trade 399d; Iran 404a; Iron and Steel 405c; Italian Colonial Empire 408d; Japan 413c; Koenigsberg 423a; Korea 423d; Labour Unions 426b; Latvia 428d; Lead 435d; Leather 437a; Linen and Flax 442b; Lithuania 444b; Lumber 449c; Manchuria 455a; Manganese 456a; Mineral and Metal Production 483a; Mongolia 489c; Moscow Conference 492d; Motion Pictures 493d; Motor Transportation 498c; Munitions of War 504c; Music 505d; Navies of the World 514c; Newspapers and Magazines 530b; Nickel 534d; Norway 538b; Oregon 548c; Panamá 558b; Paper and Pulp Industry 560b; Peru 567c; Petroleum 570b; Philately 571c; Photography 576b; Platinum 586c; Poland 587d; Prisoners of War 604d; Railroads 629d; Reconstruction Planning 633c; Refugees 637a; Rhineland 640c; Roads 645b; Roman Catholic Church 646c; Rubber 650d; Rumania 652b; Russian Literature 654a; Salvador, El 656a; Shipping, Merchant Marine 671c; Silk 674c; Sinkiang 675b; Socialism 679a; Soil Erosion 686d; Spain 691d; Stettin 698c; Submarine Warfare 704d; Sugar 710b; Sweden 715d; Swimming 717d; Turkey 743c; United Nations Conference 749a; United Nations Monetary and Financial Program 761b; U.N.R.R.A. 776a; United Nations War Crimes Commission 777a; U.S. 783b; U.S. Investments Abroad 785a; Vatican City State 796b; War Debts 810b; Wines 828c; World War II 834b; Yalta Conference 850d; Yugoslavia 854a; Zinc 855b  
**United Nations Church**  
**United Church of Canada**  
**United Kingdom:** *see* Great Britain and Northern Ireland, United Kingdom of  
**United Nations**  
 Allied Commission on Reparations 43a; Berlin Conference 119d; Combined Chiefs of Staff, The 225d; Food Research 317a; Italy 412a; Petroleum 568d; Prisoners of War 606d; Refugees 636b; Rubber 649d; Shipping, Merchant Marine 670c; Tin 733b; Tungsten 742b; V.F.W. 802c; WFA 811b; World War II 834b  
**United Nations Charter for World Security:** *see* United Nations Conference on International Organization 46  
**United Nations Conference on International Organization** 46  
 American Legion 47d; American Literature 50b; Boston 134a; Catholic Welfare Conference, National 184a; Child Welfare 202c; Commission on a Just and Durable Peace 226a; Drugs 269b; Education 276d; Federal Council of Churches 304c; Inter-American Conference 394a; I.L.O. 397a; International Law 397d; International Trade 399b; Italian Colonial Empire 408d; League of Nations 436a; Mandates 455c; Massachusetts 463d; N.E.A. 508b; Newspapers and Magazines 526d; Pacifism 553a; Pan American Union 559b; Parents and Teachers, National Congress of, 561c; Reconstruction Planning 633c; Religion 638c; Republican Party 639c; Socialism 678b; Social Security 679c; Societies and Associations 683a; United Nations Information Organization 760d; Yalta Conference 851d. *See* also under various countries  
**United Nations Food and Agriculture Organization:** *see* Agriculture 46  
 Famines 299b  
**United Nations Information Organization** 46, 45, 44  
**United Nations Monetary and Financial Program** 46  
 Exchange Stabilization Funds 297b; International Trade 399c; Reconstruction Planning 634b; U.S. Investments Abroad 785a. *See* also under various countries  
**United Nations Organization:** *see* United Nations Conference on International Organization 46  
**United Nations Relief and Rehabilitation Administration** 46, 45, 44  
 Agriculture 28a; Business Review 164c; Child Welfare 202b; Democratic Party 257c; Famines 299b; FEA 319d; I.L.O. 397b; International Trade 399b; Lehman, H. H. 437d; Newspapers and Magazines 530b; Pius XII 583b; Prisoners of War 606d; Reconstruction Planning 634b; Refugees 637b; Social Security 679c. *See* also under various countries  
**United Nations War Crimes Commission** 46, 45. *See* War Crimes 44  
**United Service Organizations**

## United States

Abrasives 17b; Accidents 18a; Advertising 20b; ARA 24a; Agriculture 25b; Air Conditioning 33d; Airports 34b; Albania 38b; Alcohol, Industrial 39a; Alfalfa 39d; Aliens 40a; Allied Commission on Reparations 42d; Allied Military Government 43b; Aluminum 44d; Ambassadors and Envoys 45b; American Dental Association 46b; A.F. of L. 46c; American Legion 47b; A.L.A. 47d; American Literature 48d; A.M.A. 52d; AM-VETS 53b; Angling 54d; Anthropology 55c; Antimony 57a; Anti-Semitism 57d; Arabia 59a; Archaeology 62c; Archery 64c; Architecture 64d; Archives, National 67b; Argentina 68c; Arsenic 72d; Art Galleries 75a; Arthritis 76c; Asbestos 77a; Asphalt 77b; Atomic Bomb 79c; Austria 89a; Automobile Industry 89d; Aviation, Civil 92c; Aviation, Military 95d; Bacon 103a; Bahamas 104a; Banking 105b; Baptist Church 108a; Barium Minerals 108c; Barley 109a; Baseball 109d; Bauxite 115b; Beans, Dry 116a; Beekeeping 116b; Belgium 117d; Bentonite 119b; Berlin Conference 119c; Bermuda 124a; Beryllium 124c; Birth Control 126c; Birth Statistics 127c; Bismuth 128c; Black Markets 128c; Bolivia 130b; Book collecting 130d; Book Publishing 131b; Borates 131d; Botany 134c; Bowling 135d; Boxing 136b; Boy Scouts 137b; Brazil 138c; Bread 141d; Brewing and Beer 142d; Bridges 143b; British Honduras 150b; British-U.S. War Boards 151a; Bromine 152c; Broomcorn 152c; Buckwheat 153d; Budget, National 153d; Building and Construction Industry 156b; Bulgaria 158d; Business Review 160d; Butter 165b; Cabinet Members 165d; Cadmium 166d; Camp Fire Girls 170c; Canada 174c; Canadian-U.S. War Committees 177a; Canals and Inland Waterways 177d; Candy 180c; Canning Industry 181a; Carbon Black 181d; C.Y.O. 183b; Catholic Rural Life Conference, National 183c; Catholic Welfare Conference, National 184a; Cattle 184c; Cement 185b; Censorship 185c; Census Data 186a; Central America 191a; Chambers of Commerce 191d; Cheese 192d; Chemistry 193b; Chemurgy 197c; Chess 198d; Children's Books 200d; Child Welfare 203c; Chile 205d; China 208d; Christian Science 209d; Christian Unity 210c; Chromite 210d; Church Membership 212b; CAA 213a; Civilian Defense 213b; Civil Liberties 214b; Civil Service, U.S. 215a; Clays 216b; Clothing Industry 216d; Coal 217b; Coast and Geodetic Survey, U.S. 219a; Coast Guard, U.S. 219c; Cobalt 221b; Cocoa 221d; Coco-Nuts 221d; Coffee 222a; Coke 222c; Colombia 223d; Columbium 225c; Combined Chiefs of Staff, The 225c; Commission on a Just and Durable Peace 225d; Committee for Economic Development 226a; Communism 227a; Community Chest 228b; Community Trusts 228b; Congregational Christian Churches 228c; Congress, U.S. 228d; C.I.O. 231d; Consumer Credit 233c; Contract Bridge 234b; Contract Terminations 234c; Copper 235c; Copyright 236b; Corn 236c; Cornhusking 237b; Costa Rica 237d; Cotton 238a; Crime 240c; Cryolite 242a; Cuba 242c; Curaçao 243d; Dairying 245d; Dams 246c; Dance 247b; Deafness 250b; Death Statistics 250c; Debt, National 251d; Decorations, Medals and Badges 253c; Defense Transportation, Office of, 254b; Democracy 256c; Denmark 259a; Diabetes 262b; Diamonds 263b; Diatomite 263d; Disasters 265a; Disciples of Christ 266b; Dodecanese 266c; Dog Racing 266d; Dominican Republic 267a; Donations 267c; Drugs 268c; Dyestuffs 269c; East Prussia 271a; Economics 271a; Ecuador 271d; Education 272d; Eggs 277c; Egypt 278c; Eire 280a; Elections 280c; Electrical Industries 282b; Electric Transportation 284a; Employment 285a; Estonia 291c; Etching 292b; Ethical Culture Movement 293b; Ethiopia 293d; EAC 294b; Exchange Control 294c; Exchange Stabilization Funds 297a; Export-Import Bank 297c; Fair Employment Practice, Committee On, 298c; FCA 299c; FSA 300a; Fascism 300d; Fashion 300d; FBI 302d; FCC 304a; Federal Council of Churches 304c; FDIC 305a; FPC 305b; Federal Reserve System 306a; FSA 306c; FTC 307a; FWA 307c; Feldspar 308c; Fencing 308c; Fertilizers 308d; Finland 310b; Fires 310d; Fisheries 311c; Floods 313b; Flour 315b; Fluorspar 316b; Food Research 316c; Football 317b; FEA 319b; Foreign Investments in the U.S. 321a; For-

ests 322b; Four-H Clubs 324c; France 325b; French Colonial Empire 329d; Friends, Religious Society of, 332b; Fruit 333a; Fuel Briquettes 334d; Fuller's Earth 335b; Furniture Industry 335a; Furs 335b; Gas, Natural 336c; Gems 337c; Genetics 338a; Geography 339b; Geology 339c; Germany 342c; Girl Scouts 346a; Glass 346b; Gliding 346d; Gold 347c; Golf 348b; Government Departments 349b; Graphite 351a; Great Britain 351d; Greece 356a; Greenland 356c; Guatemala 358a; Guerilla Warfare 358d; Gynecology and Obstetrics 361b; Gypsum 361c; Haiti 362b; Hay 364b; Helium 365c; Hemp 365c; Hogs 368c; Home Economics 368d; Honduras 369d; Hops 370a; Horse Racing 370b; Horses 371b; Horticulture 372a; Hospitals 373a; Housing 373c; Hungary 377d; Ice Cream 379a; Iceland 379d; Ice Skating 380b; Immigration and Emigration, U.S. 382d; Income and Product, U.S. 383b; India 386c; Indians, American 388a; Industrial Health 388d; Infantile Paralysis 389d; Infant Mortality 390d; Insurance 391d; Inter-American Affairs, Office of, 393c; Inter-American Conference 394a; I.L.O. 397c; International Law 397d; International Trade 399b; ICC 401c; Intoxication, Alcoholic 402a; Iodine 402b; Iran 404a; Iron and Steel 405c; Irrigation 406b; Italian Colonial Empire 408d; Italy 411d; Iwo Jima 413a; Japan 413c; Jewish Religious Life 417b; Jewish Welfare Board, National 417c; Jute 419b; Kidnapping 422a; Korea 423d; Kyanite Minerals 424d; Labour Unions 425d; Lacrosse 427d; Lead 428c; Latvia 429a; Law 429d; Lead 435d; Leather 436d; Lettuce 438c; Liberia 439c; Libraries 440b; Lime 442a; Linen and Flax 442b; Liquors, Alcoholic 443a; Lithium Minerals 444b; Lithuania 444d; Livestock 445a; Lumber 448d; Lutherans 449d; Lynching 450a; Machinery 451c; Magnesia 453c; Magnesium 453c; Manchuria 455a; Manganese 456a; Maple Products 457a; Margarine 457b; Marianas Islands 457c; Marine Biology 458b; Marriage and Divorce 460a; Masonic Fraternity 463b; Meat 465a; Medicine 465d; Mercury 470d; Metallurgy 471b; Meteorology 471d; Methodist Church 476c; Mexico 477b; Mica 480a; Milk 482b; Mineral and Metal Production 483a; Molybdenum 489a; Monazite 489c; Moscow Conference 492d; Motion Pictures 493b; Motor-Boat Racing 497a; Motor Transportation 497b; Municipal Government 498d; Munitions of War 500a; Music 505d; National Association of Evangelicals 507d; N.E.A. 508b; National Geographic Society 508c; National Guard 509a; NLRB 509d; NMB 511b; National Parks and Monuments 511d; Navies of the World 513b; New Guinea 523c; Newspapers and Magazines 526c; New Zealand 533c; Nicaragua 534a; Nickel 534c; Nitrogen, Chemical 535a; Norway 538b; Nursing, War 540b; Nuts 541b; Oats 541c; Okinawa 546b; Osteopathy 549b; Pacifism 552a; Painting 553c; Paints and Varnishes 555d; Palestine 557a; Panamá 557d; Pan American Union 559b; Paper and Pulp Industry 559c; Paraguay 560d; Parents and Teachers' National Congress of, 561c; Paris 562c; Patents 564b; Peanuts 565a; Peat 565c; Peru 567d; Petroleum 568d; Philately 571b; Phosphates 575c; Plastics Industry 584c; Platinum Group Metals 586c; Pneumonia 587a; Poland 587d; Police 590b; Polo 591a; Portugal 591c; Post Office 592a; Potash 594a; Potatoes 594b; Poultry 595a; Power Engineering 596a; Presbyterian Church 597c; OPA 599a; Prices 600b; Printing Office, U.S. Government 604a; Priorities and Allocations 604b; Prisoners of War 604d; Prisons 607b; Prizes 607c; Protestant Episcopal Church 608c; Psychiatry 609a; Psychology 611b; Public Opinion Surveys 613d; Public Utilities 614b; Pyrite 616b; Radar 617c; Radar Countermeasures 619c; Radio 620b; Radium 627a; Railroads 627b; Rayon 630c; RFC 632a; Reconstruction Planning 633c; Red Cross 634c; Refugees 637a; Relief 637c; Religion 638a; Republican Party 639b; Rhineland 640c; Rice 642c; Rivers and Harbours 642d; Roads 644b; Roman Catholic Church 646a; Rowing 649a; Rubber 650a; Rumania 652d; Rural Electrification 653b; Rye 654b; Salt 655c; Salvador, El



655d; Sand 656d; Scientific Research and Development, Office of, 658b; Secondary Metals 660c; Secret Service, U.S. 661a; SEC 661d; Seeing Eye, The 662c; Seismology 662c; Selective Service, U.S. 662d; Selenium 665d; Seventh Day Adventists 666a; Sheep 667a; Shipbuilding 668a; Shipping, Merchant Marine 670a; Shoe Industry 671c; Shows 672c; Siam 673c; Silk 674a; Silver 674d; Sinkiang 675c; Skiing 675d; Slate 675d; Smithsonian Institution 676c; Soap, Perfumery and Cosmetics 677b; Soccer 677d; Socialism 677d; Social Security 679c; Societies and Associations 681a; Sociology 684b; Sodium Carbonate 684d; Sodium Sulphate 684d; Softball 684d; Soil Erosion 685a; Solomon Islands 687b; Soybeans 691a; Spain 691d; Spices 695b; Squash Racquets 696a; Stabilization Administrator, Office of, 696b; Standards, National Bureau of, 697a; Stocks and Bonds 699b; Stone 702a; Strategic Mineral Supplies 702b; Strikes and Lock-outs 703a; Strontium 704d; Submarine Warfare 704d; Sugar 709b; Suicide Statistics 710c; Sulphur 711a; Sunday Schools 711b; Superphosphates 711c; Supreme Court of the U.S. 711c; Surplus Property Disposal 714b; Sweden 716d; Swimming 717d; Switzerland 717d; Syria and Lebanon 718d; Syrup, Sorgo and Cane 719b; Table Tennis 719c; Talc 719c; Tariffs 720c; Taxation 721a; Tea 725a; Telephone 725d; Television 726d; Tellurium 727c; Tennis 729b; Textile Industry 730c; Theatre 731a; Tin 733b; Titanium 733c; Tobacco 733d; Tomatoes 735a; Town and Regional Planning 735d; Track and Field Sports 736c; Trap-shooting 738b; Trieste 738d; Tuberculosis 740a; Tungsten 742b; Tunnels 743a; Turkey 743c; U.S.S.R. 746c; Unitarian Church 748b; United Nations Conference 749a; United Nations Monetary and Financial Program 761a; U.N.R.R.A. 776a; United Nations War Crimes Commission 776d; U.S. Investments Abroad 784d; Uruguay 794a; Vanadium 795c; Vatican City State 796b; Vegetable Oils and Animal Fats 796d; Vegetables 797b; Venereal Diseases 798a; Venezuela 799c; Vermiculite 800a; Veterans' Administration 800d; V.F.W. 802c; Veterinary Medicine 802d; Wages and Hours 806d; War Bonds 809a; War Communications, Board of, 809d; War Debts 810a; WFA 811b; War Information, Office of, 812a; WLB 812b; WMC 813a; OWMR 813c; War Production, U.S. 814b; WPB 817c; War Relief, U.S. 818b; WRA 818d; WSA 819b; Wealth and Income, U.S. 821b; West Indies 823b; Wheat 825b; Wildlife Conservation 826d; Wines 828c; WAC 829d; WAVES 830c; Wool 831a; Words and Meanings, New 833b; World War II 834b; X-Ray 849d; Yachting 850a; Yalta Conference 850d; Yeast 852c; Y.M.C.A. 853a; Y.W.C.A. 853c; Zinc 855b; Zirconium 855c; Zoology 855c. See also under various cities, states, territories and possessions

**U.S.-British War Boards:** see British-U.S. War Boards 46, 45, 44

**U.S.-Canadian War Committees:** see Canadian-U.S. War Committees 46, 45, 44

**U.S. Employment Service:** Business Review 162c; Industrial Health 389b; WMC 813a

**U.S. Government Departments and Bureaus:** see Government Departments and Bureaus. See also under specific name, i.e. Coast Guard, U.S., etc.

**U.S. Housing Authority (USHA):** see Housing 46, 45, 42. See National Housing Agency 44, 43. See Federal Works Agency; Municipal Government 42

**U.S. Investments Abroad** 46, 45, 44, 43

**U.S. Mint:** see Coinage

**U.S. Office of Education:** see Federal Security Agency 46, 45, 44. See Education 46, 45, 44, 43, 42

**Universities and Colleges**  
Accidents 19b; Anthropology 56b; C.Y.O. 183b; Dance 248d; Donations 267d; Education 272d; Geology 339d; Home Economics 368d; Negroes 517d; Societies and Associations 682b. See also under individual colleges and universities and under various sports and games

**U.N.O.:** see United Nations Conference on International Organization 46

**U.N.R.R.A.:** see United Nations Relief and Rehabilitation Administration 46, 45, 44

**Uppike, Daniel Berkeley** 42

**Upshur, William Peterkin** 44

**Uranium:** see Atomic Bomb; Chemistry; Metallurgy 46. See Uranium 44, 43, 42

Brazil 141c; Canada 175c; Chicago, University of, 200b; Northwest Territories 537d; Physics 581b; Priorities and Allocations 604b; Words and Meanings, New 833a;

**Urology**  
Agriculture 31b; Brazil 140c; Dams 247a; Etching 293b; Exchange Control 295a; International Law 399a; International Trade 401b; Irrigation 408b; Navies of the World 516a; Pan American Union 559b; Soil Erosion 686a; Tariffs 720b; United Nations Monetary and Financial Program 761a

**USHA (U.S. Housing Authority):** see Housing 46, 45, 42. See National Housing Agency 44, 43. See Federal Works Agency; Municipal Government 42

**U.S.O.:** see United Service Organizations

**Ussishkin, Menahem** 42

**U.S.S.R.:** see Union of Soviet Socialist Republics

**Utah**  
Utilities, Public: see Public Utilities

**Valéry, Paul** 46

**Vanadium**  
Radium 627a

**Vandegrift, A. A.** 46, 45, 44, 43

**Vanderbilt, Cornelius III** 43

**Van Devanter, Willis** 42

**Van Loon, Hendrik Willem** 45

**Van Mook, Hubertus J.** 42

**Van Nuys, Frederick** 45

**Vargas Diamond:** see Mineralogy 42

**Varnishes:** see Paints and Varnishes

**Vasconcellos Mottas, Carlo C. de** 46

**Vasilevsky, Alexander M.** 44

**Vassar College**

**Vatican City State**

**Vatutin, Nikolai Fedorovich** 45, 44

**Veal:** see Meat

**V-E Day:** see Business Review; War Manpower Commission; War Production, U.S.; War Production Board 46

Censorship 185c; Church of England 212d; FPC 305c; FSA 306d; International Trade 399b; Los Angeles 447b; Moscow 492d; Newspapers and Magazines 526d; Nova Scotia 540b; Philately 571c; Portugal 591c; Prices 602b; Prisoners of War 606d; Radio 621c; Railroads 627c; Roman Catholic Church 647b; U.N.R.R.A. 776a; Words and Meanings, New 833c

**Vegetable Oils and Animal Fats**  
Prices 600b

**Vegetables** 46, 45  
ARA 24c; Agriculture 25b; Canning Industry 181a; Food Research 316c; Horticulture 372c; Prices 600b; Prisons 607b; Vitamins 806b. See also under specific names and under various states, provinces and countries

**Veidt, Conrad** 44

**Veiller, Bayard** 44

**Velez, Lupe** 45

**Venereal Diseases**  
Chemotherapy 196c; Death Statistics 251a; Epidemics and Public Health Control 290c; FSA 306d; Medicine 465d; Nervous System 518b

**Venezuela**  
Agriculture 31b; Archaeology 64b; Democracy 256d; Exchange Control 295a; Haiti 362b; Infant Mortality 391b; Inter-American Affairs, Office of, 393c; Mineral and Metal Production 483a; Navies of the World 516a; Reconstruction Planning 633d; Socialism 678b; Soil Erosion 685d; Tariffs 720c; Tuberculosis 741d; Zoology 856d

**Vermiculite**

**Vermont**  
Veterans: Advertising 21c; Agriculture 29d; American Dental Association 46c; American Legion 47b; A.M.A. 52c; AMVETS 53b; Aviation, Civil 95d; Budget, National 154c; Business Review 163a; Catholic Rural Life Conference, National 183d; Chambers of Commerce 192b; Civil Service, U.S. 215a; Clothing Industry 217a; Education 276b; FSA 300a; Housing 374a; Industrial Health 389a; Irrigation 407a; Law 429d; Libraries 440b; Liquors, Alcoholic 444a; Municipal Government 499a; Physical Medicine and Occupational Therapy 578c; Psychiatry 609c; Psychology 612c; Railroads 627c; RFC 633a; Relief 637c; Selective Service, U.S. 664c; Shows 672c; Socialism 678c; Sociology 684a; Surplus Property Disposal 715a; Telephone 726b; Truman, H. S. 739b; Tuberculosis 740d; Veterans' Administration 801a;

V.F.W. 802c; WMC 813a; Words and Meanings 833a. See also under separate colleges and universities and under various states

**Veterans' Administration**  
American Dental Association 46c; Hospitals 373b; Industrial Health 389a; Insurance 392b; Medicine 468a

**Veterans of Foreign Wars**  
Veterinary Medicine

**Vichy** 45, 44, 43, 42

**Victoria**

**Victory Gardens:** see Horticulture 46, 45, 44

**Victory Ships** 670c

**Victory Tax:** see Taxation 45, 44, 43

**Vidal y Barraquer, Francis of A.** 44

**Vincent, George Edgar** 42

**Vincent, Henry Bethuel** 42

**Vinson, Frederick Moore** 46, 45, 44

**Virginia**  
University of  
Education 275d

**Virgin Islands**

**Virgin Islands, British:** see West Indies, British

**Viruses:** see Pneumonia 46, 45, 44, 43. See Infantile Paralysis; Medicine 46, 45, 44, 43, 42. See Epidemics and Public Health Control 43, 42. See Veterinary Medicine 42

**Visser, Lodewijk Ernst** 43

**Vital Statistics:** see Birth Statistics; Census Data, U.S.; Death Statistics; Infant Mortality; Marriage and Divorce; Fertility Statistics

**Vitamins**  
Alimentary System, Disorders of, 41d; Allergy 42c; Anaemia 53d; Bacteriology 103c; Biochemistry 125d; Botany 134b; Bread 141d; Brewing and Beer 143a; Chemotherapy 197a; Cold, Common 222d; Dietetics 264c; Endocrinology 286d; Flour 315b; Food Research 316c; Gynaecology and Obstetrics 361b; Medicine 467a; Yeast 852d

**V-J Day:** see Business Review; War Manpower Commission; War Production, U.S.; War Production Board 46

Advertising 21b; Automobile Industry 89d; Aviation, Civil 95a; California 167c; Church of England 212d; Fair Employment Practice, Committee On, 298d; FSA 306d; Radio 620c; Railroads 627c; U.N.R.R.A. 776b; U.S. Investments Abroad 784d; Words and Meanings, New 833c

**V-Mail:** see Photography

**Vocational Education:** see Education

**Voliva, Wilbur Glenn** 43

**Von** (in personal names): see under proper names

**Voronov, Nikolai Nikolayevich** 45

**Voroshilov, Klementiy E.** 44, 43, 42

**WAC:** see Women's Army Corps 46, 45, 44, 43

**Wade, Lance** 45

**WAFS:** see Women's Airforce Service Pilots 45, 44. See Love, Nancy Harkness 43

**Wages and Hours**  
Economics 271b; Labour Unions 425d; Law 429d; Prices 602a; Shipbuilding 668c; Strikes and Lock-outs 704a; Supreme Court of the U.S. 712d; WLB 812b

**Wagner, Boyd David** 43

**Wainwright, Jonathan M.** 46, 43

**Wakefield, Charles C. W.** 42

**Wake Island:** see Pacific Islands, U.S. 46, 45, 44. See Wake Island 43, 42

**Wales:** see Great Britain and Northern Ireland, United Kingdom of

**Walker, Frederic John** 45

**Wallace, Henry Agard**  
Elections 281c; Hillman, S. 366d

**Waller, Thomas W.** 44

**Walnuts:** see Nuts

**Walpole, Sir Hugh Seymour** 42

**Wang Ching-wei** 45

**War Boards, British-U.S.:** see British-U.S. War Boards

**War Bonds** 46, 45, 44. See Banking 43. See Savings Banks, Mutual 42

Advertising 20d; Banking 106a; Camp Fire Girls 170c; Debt, National 251d; Four-H Clubs 324d; Newspapers and Magazines 527d; Post Office 592c; Secret Service, U.S. 661b; U.S. 779b

**War Chest:** see Community Chest; Relief 46, 45, 44, 43

**War Committees, Joint (U.S. and Canada):** see Canadian-U.S. War Committees 46, 45, 44

**War Communications, Board of,** 46, 45, 44, 43

**War Contracts:** see Contract Terminations 46, 45

**War Crimes:** see United Nations War Crimes Commission 46, 45. See War Crimes 44

**War Damage Corporation:** see Insurance 46, 45, 44, 43

**War Damage Insurance:** see Insurance 46, 45, 44, 43

**War Debts**

**War Department, U.S.:** see Government Departments and Bureaus

**Warfare, Incendiary** 46, 45, 44, 43

**War Food Administration** 46, 45, 44

**War Frauds:** see Federal Bureau of Investigation 46, 45, 44

**War Information, Office of,** 46, 45, 44, 43

**War Labor Board, National** 46, 45, 44, 43. See Defense Mediation Board, National 42

**War Manpower Commission** 46, 45, 44, 43

War Production, U.S. 814c

**War Medicine:** see Nursing, War 46, 45. See Surgery 46, 45, 44. See Medicine; Psychiatry 46, 45, 44, 43, 42

**War Mobilization and Reconversion, Office of,** 46, 45, 44

**War Prisoners:** see Prisoners of War 46, 45, 44, 43

**War Production, U.S.** 46, 45, 44, 43. Automobile Industry 89d; Business Review 160d; Income and Product, U.S. 383b; Selective Service, U.S. 663a; OWMR 814a. See also under various cities and states

**War Production Board** 46, 45, 44, 43. See Supply Priorities and Allocations Board; Production Management, Office of, 42

Business Review 161a; Priorities and Allocations 604b; Standards, National Bureau of, 697a

**War Propaganda:** see Propaganda 42

**War Relief, U.S.**  
Community Chest 228a; Donations 267d; Horse Racing 370c; Pacifism 553b; Unitarian Church 748a

**War Relocation Authority** 46, 45, 44. See Aliens 43

Indians, American 388b

**Warren, Joseph** 43

**Warren, Whitney** 44

**War Risk Insurance:** see Insurance 46, 45, 44, 43

**War Savings Stamps:** see Post Office

**War Shipping Administration** 46, 45, 44. See Insurance; Shipping, Merchant Marine 43

**Washington**  
Washington (D.C.)

**WASP:** see Women's Airforce Service Pilots 45, 44

**Water-Borne Commerce of the United States** 43, 42

**Water Power** 42

**Water Supply:** see Public Health Engineering

**Watson, John Christian** 42

**Wavell, Archibald Percival**  
India 385c; Nepal 518a

**WAVES:** see Women's Reserve of the Navy 46, 45, 44. See Women Accepted for Volunteer Emergency Service 43

**Wealth and Income, U.S. Distribution of**  
Weather: see Meteorology

**Webb, Beatrice Potter** 44

**Weber, Joseph M.** 43

**Webster, Leslie Tillotson** 44

**Wedemeyer, Albert Coady** 46, 45

**Wedgwood, Josiah Clement W.** 44

**Weingartner, Felix** 43

**Wells, Sumner** 44, 43, 42

**Wellesley College**

**Wells, Carolyn** 43

**Wells, Harry Gideon** 44

**Werfel, Franz** 46

**Wertheimer, Max** 44

**West Africa, British:** see British West Africa

**Western Australia**

**West Indies**  
Soil Erosion 686a

**West Indies, British**  
Coco-Nuts 221d; West Indies 823b

**Westley, Helen** 43

**West Virginia**

**Weyand, Maxime** 42

**Whaling:** see Fisheries

**Wheat**  
ARA 24c; Agriculture 25d; Alcohol, Industrial 39a; Flour 315b; Prices 601b. See also under various states, province and countries

**Wheeler, Burton Kendall** 42

**Whisky** 443a

**White, William Allen** 45

**Whiteside, Walker** 43

**Wholesale Trade:** see Business Review

**Whooping Cough** 466b

**Whorf, Benjamin Lee** 42

**Wickard, Claude Raymond**

**Widener, Joseph Early** 44

**Wigmore, John Henry** 44

**Wilcox, John Walter, Jr.** 43

**Wildlife Conservation** 46, 45, 44. See Fish and Wildlife Service 43, 42

**Wiley, Henry Ariosto** 44

**Wilhelmina** 46, 45, 44, 43

**Wilkinson, Ellen C.** 46

**Willard, Daniel** 43

**Willcox, Sir William Henry** 42

**William II** 42

**Williams, Edward Huntington** 45

**Willington, Freeman F.-T.** 42

**Willkie, Wendell L.** 45, 44, 43, 42

**Willson, Beckles** 43

Willstätter, Richard 43  
 Wilson, Charles Edward 45, 44, 43  
 Wilson, Sir Henry M. 46, 45, 44, 43  
 Wilson, John Arthur 43  
 Wilson, (Robert) Forrest 43  
 Winant, John Gilbert 45, 44, 43, 42  
 Windham, Sir Walter George 43  
 Windward Islands: *see* West Indies, British  
 Wines  
*See also* under various countries  
 Wingate, Orde Charles 45  
 Wisconsin  
 Wisconsin, University of  
 Botany 135b; Education 276c  
 Withholding Tax: *see* Taxation 46, 45, 44  
 Witzleben, E. J. W. G. E., von 45  
 WLB: *see* War Labor Board, National 46, 45, 44, 43  
 Woman's Christian Temperance Union, National: *see* Societies and Associations 46. *See* Woman's Christian Temperance Union 45, 44, 43, 42  
 Women's Suffrage: Ecuador 272b; France 325b; Italy 411d; Japan 416b  
 Women Accepted for Volunteer Emergency Service 43  
 Women's Airforce Service Pilots 45, 44  
 Women's Army Corps 46, 45, 44, 43  
 Women's Auxiliary Ferrying Squadron (WAFS): *see* Women's Airforce Service Pilots 45, 44. *See* Love, Nancy Harkness 43  
 Women's Clubs, General Federation of: *see* Societies and Associations 46. *See* Women's Clubs, General Federation of, 45, 44, 43, 42  
 Women's Reserve of the Navy 46, 45, 44. *See* Women Accepted for Volunteer Emergency Service 43  
 Women's Reserve of the United States Coast Guard Reserve: *see* Coast Guard, U.S. 46, 45, 44  
 Women's Reserve of the U.S. Marine Corps Reserve: *see* Marine Corps 46, 45, 44  
 Wood, Grant 43  
 Wood, Sir Henry Joseph 45  
 Wood, Sir Kingsley 44  
 Wood, Robert E. 42  
 Wool  
 Clothing Industry 217a; Sheep 667a. *See also* under various countries  
 Woolf, Virginia 42  
 Woolcott, Alexander 44  
 Woolton, Frederick James M. 43  
 Woolsey, John Munro 46  
 Words and Meanings, New 46, 45, 44  
 Work, Hubert 43  
 Work Projects Administration: *see* Federal Works Agency 45, 44, 43, 42  
 Works Agency, Federal: *see* Federal

Works Agency  
 World Bank: *see* United Nations Monetary and Financial Program 46  
 World Charter of the United Nations: *see* United Nations Conference on International Organization 46  
 World Commerce: *see* International Trade  
 World Council of Churches: *see* Christian Unity  
 Donations 267d; Federal Council of Churches 304d; Lutherans 449d; Presbyterian Church 598a  
 World Federation of Trade Unions 46  
 Communism 227d; C.I.O. 231d; Green, W. 356c; Hillman, S. 366d  
 World War II  
 ATC 35d; Alexander, Sir H. R. L. G. 39b; Allied Military Government 43a; American Literature 49a; Arnold, H. H. 72c; Atomic Bomb 79c; Aviation, Military 95d; Basilone, J. 114d; Blamey, Sir T. A. 129c; Bong, R. I. 130c; Boyington, G. 137b; Bradley, O. N. 138a; Breadner, L. S. 142b; Brereton, L. H. 142c; Bridges 143d; Buckner, S. B., Jr. 153c; Busch, E. 160c; Camouflage 169c; Canadian Literature 176b; Canadian-U.S. War Committees 177a; Chennault, C. L. 198c; Chernyakhovsky, I. D. 198c; Children's Books 201d; Clark, M. W. 215c; Clay, L. D. 216a; Coast Guard, U.S. 219c; Combined Chiefs of Staff, The 225c; Crerar, H. D. G. 240a; Darby, W. O. 249c; Death Statistics 250d; Dempsey, Sir M. C. 258a; Denny, H. N. 259c; Devers, J. L. 262a; Doenitz, K. 266c; Doolittle, J. 268a; Eaker, I. C. 270a; Easley, C. M. 270d; Eichelberger, R. L. 279b; Eisenhower, D. D. 280b; English Literature 288b; Foreign Investments in the U.S. 321d; Fraser, Sir B. A. 328d; Friedeburg, H. G. von 332a; Geiger, R. S. 337b; Gerow, L. T. 345c; Gliding 346d; Guerilla Warfare 358d; Halsey, W. F., Jr. 362c; Harmon, M. F. 363b; Harris, Sir A. T. 363c; Hewitt, H. K. 366a; Hodges, C. H. 368b; Hurley, P. J. 377c; Iwo Jima 412d; Jodl, A. 418a; Keitel, W. 420c; Kenney, G. C. 420d; Kesselring, A. 421d; Keyes 421d; King, E. J. 422b; Kinkaid, T. C. 422d; Konev, I. S. 423b; Krueger, W. 424d; Land, E. S. 428a; Leahy, W. D. 436c; Lee, W. A., Jr. 437d; MacArthur, D. 450c; McCain, J. S. 450d; McNarney, J. T. 453a; Malinovsky, R. Y. 454d; Mannerheim, C. G. E. von 457a; Marine Corps 459c; Marshall, G. C. 461d; Medicine 468d; Meretskov, K. A. 471a; Mitscher, M. A. 488b; Montgomery, Sir B. L. 491b; Mount-

batten, Lord L. 498c; Munitions of War 500a; National Guard 509a; Negroes 517b; Newspapers and Magazines 526c; Nimitz, C. W. 534d; Okamura, Y. 546a; Okinawa 546b; Painting 553c; Patch, A. M., Jr. 564a; Patton, G. S., Jr. 564d; Petroleum 568d; Photography 575d; Physical Medicine and Occupational Therapy 578c; Plastics Industry 586a; Power Engineering 595c; Prisoners of War 604d; Pyle, E. T. 616b; Radar Countermeasures 619c; Roads 643d; Rokossovsky, K. 645d; Rose, M. 648d; Royal, F. 649d; Rundstedt, K. R. G. von 653a; Rupertus, W. H. 653b; Salvation Army 656b; Seabees 659b; Shaposhnikov, B. M. 666d; Shows 673b; Smith, H. M. 676b; Somervell, B. B. 687c; Spaatz, C. A. 691c; Spruance, R. A. 695d; Stilwell, J. W. 698d; Submarine Warfare 704d; Tedder, Sir A. W. 725a; Tower, J. H. 735d; Turner, R. K. 744b; U.S.O. 777d; Vandegrift, A. A. 795d; V.F.W. 802c; Wainwright, J. M. 808b; Warfare, Incendiary 810b; War Production, U.S. 814b; Wavell, A. P. 820d; Wedemeyer, A. C. 822b; Wilson, Sir H. M. 828a; Words and Meanings, New 832a; Yamashita, T. 852c; Zhukov, G. K. 855a. *See also* under various cities and countries  
 WPA: *see* Federal Works Agency 45, 44, 43, 42  
 WPB: *see* War Production Board 46, 45, 44, 43. *See* Supply Priorities and Allocations Board; Production Management, Office of, 42  
 WRA: *see* War Relocation Authority 46, 45, 44  
 Wren, Percival Christopher 42  
 Wrestling  
 Wright, Harold Bell 45  
 WSA: *see* War Shipping Administration 46, 45, 44. *See* Insurance; Shipping, Merchant Marine 43  
 "W. W.": *see* Jacobs, W. W. 44  
 Wyoming  
 X-Ray  
 Arthritis 76c; Cancer 180a; Genetics 338a; Medicine 468a; Munitions of War 503b; Photography 575d; Radiology 626d; Tuberculosis 740a; Words and Meanings, New 832d  
 Yachting  
 Yale University  
 Archaeology 64b; Art Galleries 75d; Education 275b  
 Yalta Conference 46  
 Allied Commission on Reparations 42d; Byelorussia 165c; Reconstruction Planning 633c; U.S.S.R. 746c; World War II 845c  
 Yamamoto, Isoroku 44, 43, 42  
 Yamashita, T. 46, 45, 44, 43  
 World War II 843a  
 Yaroslavy, Emelyan 44

## INDEX

875

Yeast 46  
 Biochemistry 125d  
 Yeats-Brown, Francis 45  
 Yemen: *see* Arabia  
 Yermenko, Andrei I. 45, 44  
 Yersin, Alexandre Emile John 44  
 York, Archbishop of, 43  
 Young, Arthur Henry, 44  
 Younghusband, Sir Francis (E.) 43  
 Young Men's Christian Association  
 Prisoners of War 606b  
 Young Men's Hebrew Association 417d  
 Young Womens Christian Association  
 Birth Control 127a  
 Young Women's Hebrew Association 417d  
 Youth Administration, National:  
*see* National Youth Administration 44, 43, 42  
 Youth Movements 45, 44, 43, 42  
 Yugoslavia  
 Agriculture 31d; Albania 38b; Anti-Semitism 57d; Bauxite 115b; Chromite 210d; Communism 227c; Debt, National 253b; Economics 271b; Guerrilla Warfare 358d; Hungary 377c; International Trade 400d; Italy 411d; Leather 437a; Mineral and Metal Production 483a; Navies of the World 514c; Paper and Pulp Industry 560b; Prisoners of War 604d; Refugees 637a; Roman Catholic Church 646c; Spices 695c; Tariffs 720c; Trieste 738c; U.S.S.R. 746b; United Nations Monetary and Financial Program 761a; U.N.R.R.A. 776a; Vatican City State 796c; War Debts 810b; World War II 847b; Yalta Conference 851a  
 Yukon Territory  
 Zahle, Herluf 42  
 Zanzibar and Pemba: *see* British East Africa  
 Zeeman, Pieter 44  
 Zeitler, Kurt 44, 43  
 Zemlinsky, Alexander von 43  
 Zhukov, Georgi Konstantinovich  
 Poland 590a; World War II 838c  
 Zimmerman, James Fulton 45  
 Zinc  
 Secondary Metals 660c. *See also* under various states and countries  
 Zirconium  
 Metallurgy 471c  
 Zonta International 45  
 Zoological Gardens: *see* Zoology 46, 45, 44. *See* Zoological Gardens 43, 42  
 Zoology  
 Zweig, Stefan 43